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National Assessment of Learning Achievement in Basic Education (NALABE)

NALABE 2022 Report



Universal Basic Education Commission

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Executive summary





NALABE 2022

One of the cardinal goals of the Universal Basic Education Commission (UBEC) is the prescribing of minimum learning standards and ensuring effective monitoring of standards. Consequently, it has conducted a series of learning assessments in 2001, 2003, 2006, 2011 and 2017. The latest one, the National Assessment of Learning Achievement in Basic Education (NALABE) 2022, is the subject of this report.

NALABE 2022 was conducted by UBEC in collaboration with the United Nations Children's Fund (UNICEF) in October 2022. It determined the overall performance and proficiencies of Primary 3 (P3), Primary 5 (P5) and Junior Secondary 2 (JS2) learners in mathematics, English studies, basic science and technology, and social studies. It also assessed the context under which learning takes place in the Nigerian Basic Education system to discover possible enablers of learning achievements, with a view to facilitating evidence-based policy and decision making.

Who were the participants?

The assessment was administered to 75,067 P3 learners in 2,529 primary schools, 71,041 P5 learners in 2,373 primary schools and 23,564 JS2 learners in 788 junior secondary schools sampled from all 36 states of the federation and the Federal Capital Territory (FCT). The parents of the sampled learners, as well as their teachers, head teachers and principals also participated in the assessment.

What was assessed?

Learners in P3, P5 and JS2 were assessed in mathematics and English studies while P5 and JS2 were also assessed in basic science and technology and social studies contents, as stipulated in the revised Nigerian Educational Research and Development Council (NERDC) 9-Year Basic Education Curriculum. In mathematics the tests covered numbers and numeration; basic operations; algebraic processes; mensuration and geometry; and everyday statistics, in all three class levels assessed. The tests in English studies covered reading comprehension and grammatical accuracy; and the JS2 test also covered literary appreciation. In basic science and technology, the contents covered by the tests revolved around basic science; basic technology; physical and health education; and information technology. In social studies the tests covered contents in fundamentals of social studies; family; unity in cultural diversity; social and health issues; culture and social values; science and technology development; and national economy. The repetition of the contents across class level is underscored by the fact that the NERDC revised 9-Year Basic Education Curriculum is spiral, meaning contents are repeated across class levels but in a broader and more complex manner.

In all subjects, the assessed learning outcomes focused on knowing, reasoning and application. Test items on knowing elicited the recall of concepts, facts, principles and procedures. Items on reasoning involved drawing inferences and conclusions. Items on application called forth solutions to new problems which may involve manipulating and/or designing. Another dimension to NALABE was the assessment of the context of learning, elicited from questionnaires on the characteristics and dynamics of the community, home, school, classroom, teachers and learners.

What did the participants do?

The learners responded to the cognitive tests and filled in the learner questionnaire in their school. Head teachers and principals filled in the questionnaire for information on the school and the community. Teachers filled in the teacher questionnaire for information on the teacher and the classroom. Parents filled in the parents' questionnaire for information on the learners' parental background.

How were the data treated?

The learners' responses from the tests were scored and coded. After the initial analysis, performance standards were set to establish proficiency levels modelled upon the Global Proficiency Framework (GPF) and the national curriculum. Scaling of learners' performance was conducted using item response theory (IRT), and the reporting scale anchored to proficiency levels was constructed by conventionally aligning the cut score for 'Meets minimum proficiency' with the scale score 500, the cut score for 'Exceeds minimum proficiency' with 550, and the cut score for 'Partially meets minimum proficiency' with 450. This type of reporting scale is commonly practiced in advanced large-scale assessment programmes, providing conveniently defined scale score ranges for each proficiency level so that a learner's scale score automatically conveys his/her proficiency level.

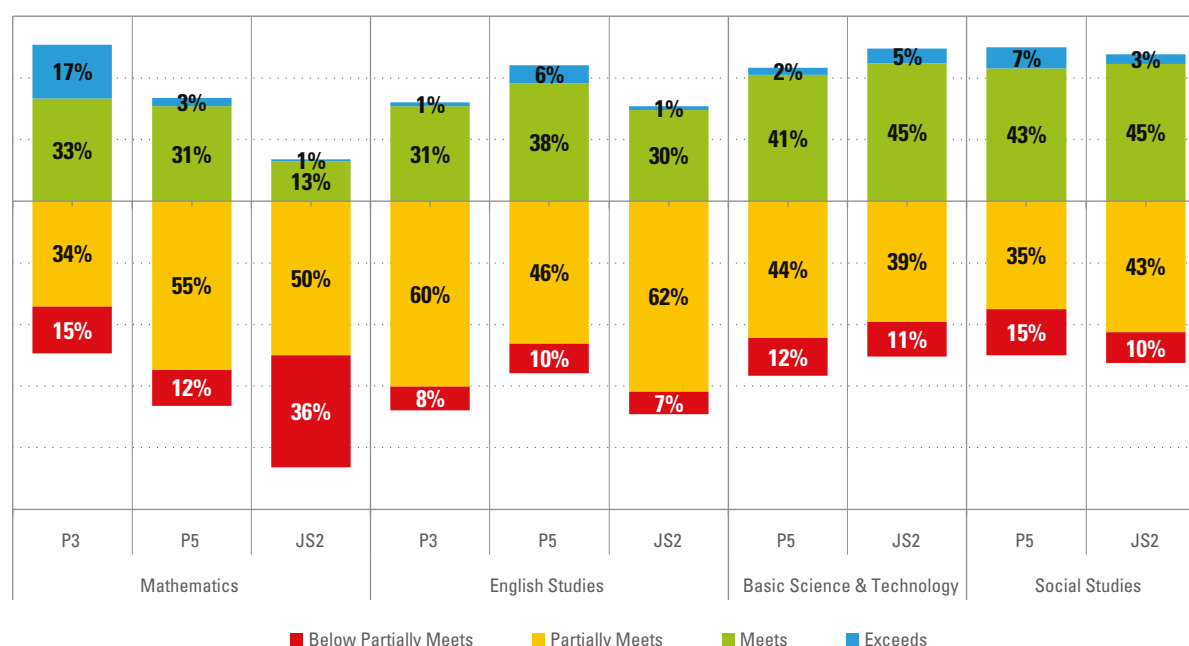
Scaled scores and percentages of learners at proficiency levels were used in analysing differences by gender, school type, school locality and state. Data from the context questionnaires were coded and percentages of occurrence computed. Contextual data were also used in regression analyses of background factors associated with learning performance.

How are the results reported?

The report is organized in six chapters. Chapter 1 presents the context of NALABE 2022, its evolution and goals. Chapter 2 describes the procedures of instruments development and administration and sampling of participants. Chapter 3 presents the learners' performance and proficiency by class level in mathematics, English studies, basic science and technology, and social studies. In each subject, mean performance and proficiency are presented, disaggregated by school location, school type, gender, gender and school type, gender and school location, and state. Chapter 4 describes the context under which learning takes place and Chapter 5 relates some of these contexts with the learners' achievements. Chapter 6 presents the conclusions of the assessment and draws implications for education policy and programmes in terms of improving learning outcomes, reducing learning gaps and refining learning assessment.

Learners' performance and proficiency

NALABE 2022 provided a robust measurement of learning performance of a nationally representative sample of P3, P5 and JS2 learners in Nigeria in the four core subjects of mathematics, English studies, basic science and technology, and social studies. Figure ES.1 presents the results of NALABE 2022 learner performance across all subjects and grades, expressed by percentage of learners performing at different proficiency levels: level 1 (below partially meets minimum proficiency); level 2 (partially meets minimum proficiency); level 3 (meets minimum proficiency); and level 4 (exceeds minimum proficiency). A strategy for improvement should look at ways of moving learners up at least one level.

Figure ES.1. Percentage of learners at proficiency levels by class and subject

The results showed that the percentages of learners in Nigeria who met or exceeded the required minimum proficiency (levels 3 and 4) ranged from 14 per cent to 50 per cent depending on subject and class. Specifically, in P3, 50 per cent of learners in mathematics and 32 per cent in English studies reached the minimum proficiency. In P5, 34 per cent of learners in mathematics, 44 per cent in English studies, 43 per cent in basic science and technology and 50 per cent in social studies were at proficiency levels 3 and 4. In JS2, only 14 per cent of learners in mathematics, 31 per cent in English studies, 50 per cent in basic science and technology and 48 per cent in social studies attained the minimum proficiency.

The results suggest that the educational system in Nigeria has been developed and strengthened to enable a good proportion of learners to develop the required competencies in the assessed subjects based on the national curriculum. It is noteworthy that there were learners who exceeded the minimum proficiency (at level 4), which accounted for 1–17 per cent of learners ranging from 1 per cent in JS2 mathematics to 17 per cent in P3 mathematics.

NALABE 2022 also revealed, however, that a sizable number of learners in Nigeria had not made progress as expected in the curriculum. The percentage of learners who failed to reach the required minimum proficiency (levels 1 and 2) ranged from 49 per cent to 86 per cent. Inevitably, the largest percentages of learners failing to meet the minimum proficiency levels were found in JS2. In addition, many learners functioned at 'Below partially meets proficiency' (level 1), accounting for 8–15 per cent of learners in P3, 10–15 per cent in P5 and 7–36 per cent in JS2. These learners at level 1 have been left behind in learning and need targeted, intensive and tailored support.

Learners' performance in mathematics

The results in P3 mathematics overall were the best across all subjects and class levels. Half of P3 learners in Nigeria (50 per cent) attained at least minimum proficiency (levels 3 and 4), with 17 per cent exceeding the minimum proficiency (level 4). At the state level, just under half of all states (15 states) had more than 50 per cent of learners reaching the minimum proficiency, although there were significant differences between states.

Mathematics in P5 and JS2 gets progressively more difficult as the content becomes more challenging. The

percentage of learners with the minimum proficiency (levels 3 and 4) dropped to 34 per cent in P5 mathematics, with only 3 per cent exceeding the minimum proficiency (level 4). The decline continued in JS2 where just 14 per cent of learners attained the minimum proficiency, with only 1 per cent reaching level 4. The proportion of learners who failed to reach the minimum proficiency (levels 1 and 2) increased from 50 per cent in P3 to 66 per cent in P5 and 86 per cent in JS2.

Figure ES.2. Percentage of learners at proficiency levels in mathematics



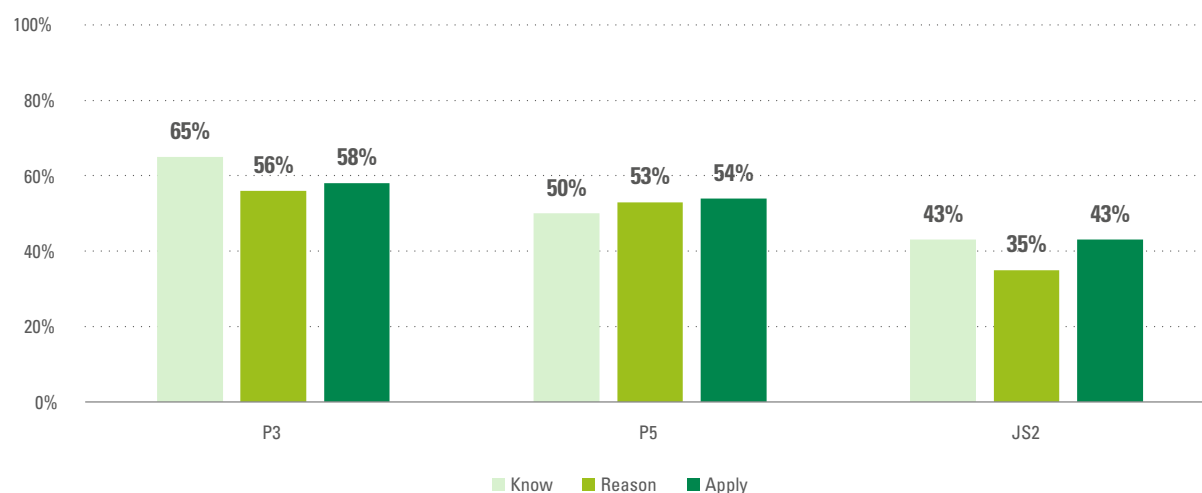
On average, learners in urban schools outperformed rural school learners in P3 and P5, but rural school learners outperformed their urban school counterparts in JS2. The urban school advantage in primary education and rural advantage in junior secondary education were observed for both female and male learners. Private school learners also outperformed public school learners in P3, P5 and JS2. The private school advantage in mathematics holds for both female and male learners in all the classes.

There was no notable gender difference in the percentage of learners meeting the minimum proficiency in mathematics in all the target classes. When school location and school type are factored in, however, it was observed that male learners slightly outperformed female learners in rural schools in P3 and P5. Female learners slightly overperformed male learners in private schools in P3, urban schools in P5 and rural schools in JS2.

The domains of mathematics assessed in NALABE 2022 were numbers and numeration, basic operations, algebraic processes, mensuration and geometry, and everyday statistics. No clear pattern emerged in terms of percentage of correct scores by content domain. With regards to cognitive levels, learners in P3 were

more successful in knowledge items over reasoning and application items. In P5 there was no clear pattern in performance by cognitive level. In JS2, learners in JS2 achieved the lowest performance in reasoning items.

Figure ES.3. Percent-correct scores in mathematics by cognitive level



Learners' performance in English studies

The learners' performance in English studies was marked with steady improvement from P3 to P5 but a decline from P5 to JS2. The percentage of learners who attained the minimum proficiency (levels 3 and 4) was 32 per cent in P3, 44 per cent in P5 and 31 per cent in JS2. Learners who failed to perform the expected proficiency (levels 1 and 2) were as high as 68 per cent in P3, 56 per cent in P5 and 69 per cent in JS2. There is a need in P3 English studies to ensure the development of appropriate reading comprehension skills. Targeted support to help learners acquire the foundational skills at the early grades may be required.

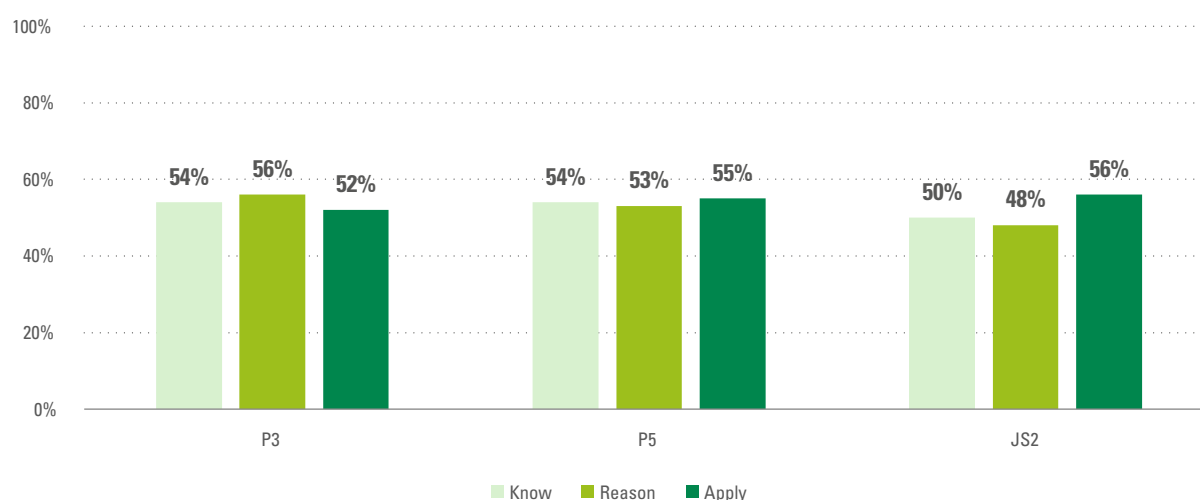
At the state level, there were 4 states in P3, 15 states in P5 and 4 states in JS2 where 50 per cent or more of learners achieved the minimum proficiency level, although there still existed large variations between states.

Figure ES.4. Percentage of learners at proficiency levels in English studies

In respect of school location, learners in urban schools slightly outperformed their rural counterparts in English studies, particularly in P3 and P5. The small but consistent urban advantage in P3 and P5 was observed for both female and male learners. The results by school type also showed significantly higher performance by private school learners over public school learners across all three classes. The private school advantage in English studies held for both female and male learners in P3, P5 and JS2. For instance, the percentage of JS2 learners with the minimum proficiency was 48 per cent in private schools compared to 29 per cent in public schools.

Female learners outperformed male learners in English studies in P5 and JS2, but not in P3, on average. The female advantage in P5 and JS2 was observed in public schools, private schools and urban schools. Females also outperformed male learners in rural schools in JS2 but not in P5.

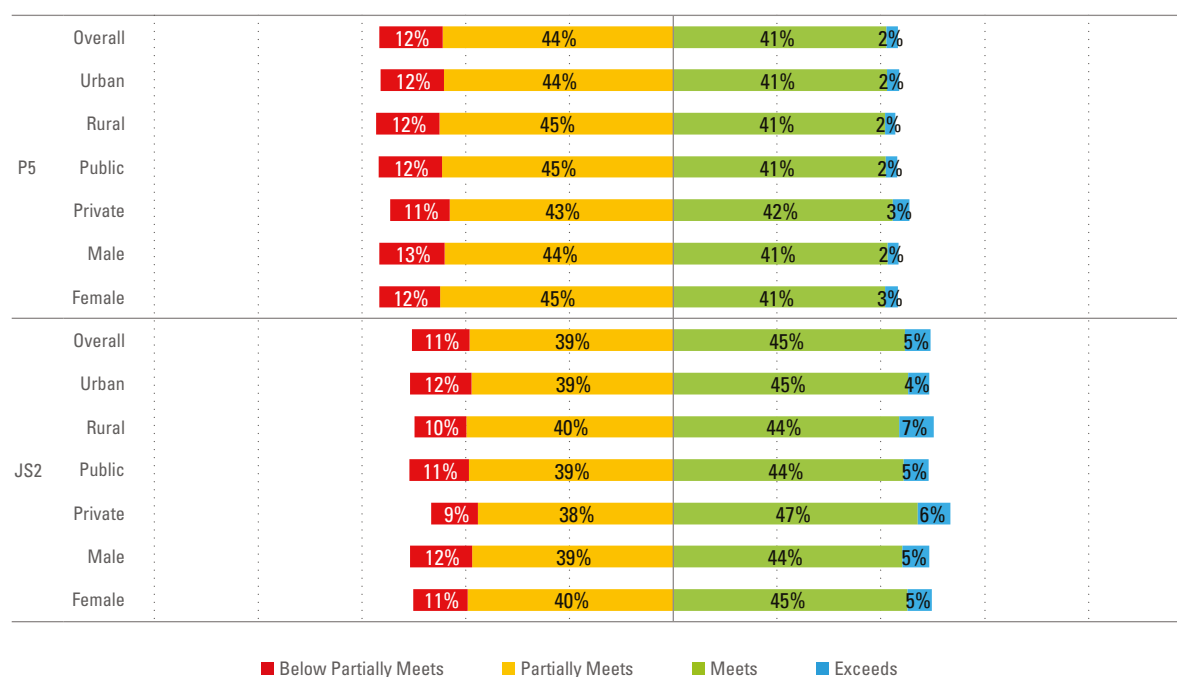
The domains of English studies that were assessed in NALABE 2022 included reading comprehension and grammatical accuracy for all classes, with literary appreciation also being assessed in JS2. Learners in Nigeria were most successful in reading comprehension in all three classes. No clear pattern was found in the performance by cognitive level (i.e., knowledge, reasoning and application) across the classes.

Figure ES.5. Percent-correct scores in English studies by cognitive level

Learners' performance in basic science and technology

In basic science and technology, just under half (43 per cent) of P5 learners attained the minimum proficiency (levels 3 and 4). The percentage increased to 50 per cent in JS2. This still, however, left 56 per cent and 50 per cent of learners in P5 and JS2, respectively, failing to reach the minimum proficiency.

At the state level, 12 states had 50 per cent or more learners achieve the minimum proficiency in P5, and 13 states in JS2, although there existed large performance differences between states.

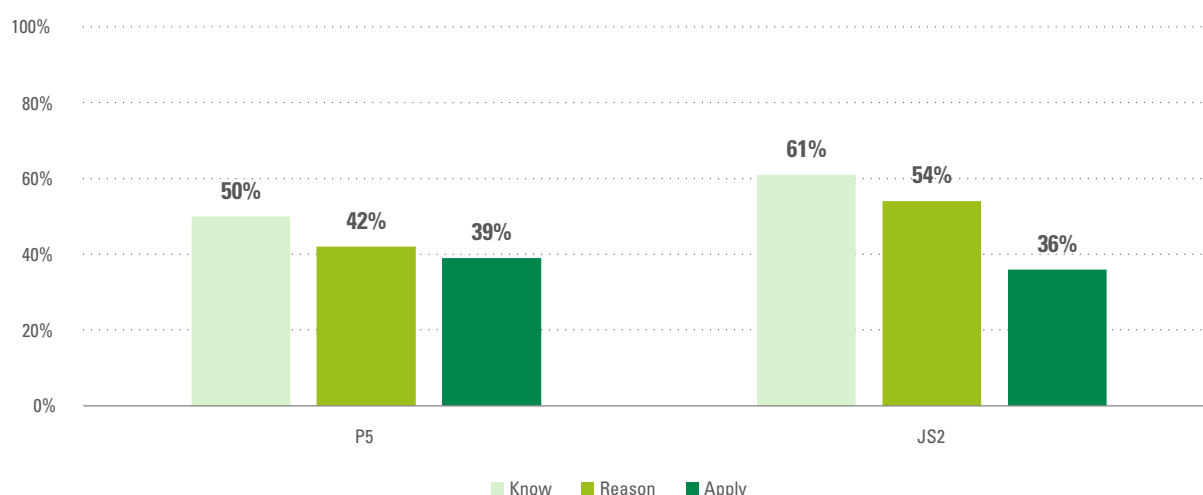
Figure ES.6. Percentage of learners at proficiency levels in basic science and technology

No significant difference in performance was identified between urban and rural schools in P5 on average, although JS2 learners in rural schools performed slightly better than their urban school counterparts. The rural advantage in JS2 was more evident for female learners than male learners. Private school learners, as in mathematics and English studies, were higher performers than their public school counterparts in both P5 and JS2. The private school advantage was more evident for male learners in P5, while it held for both male and female learners in JS2.

There was no significant gender difference in performance in either class. The proportion of learners who attained the minimum proficiency (levels 3 and 4) was, however, slightly higher for male learners in rural schools and private schools in P5. On the contrary, the percentage was slightly higher for females in rural schools in JS2.

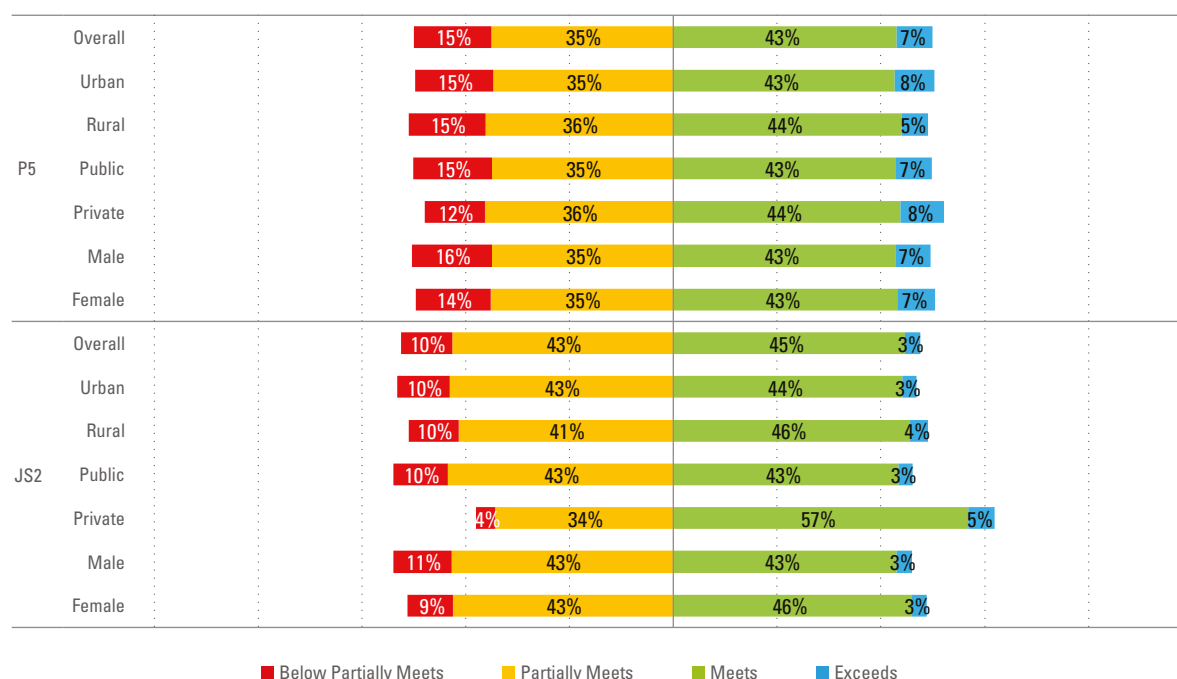
The basic science and technology contents assessed in NALABE 2022 were basic science, basic technology, physical and health education, and information technology. Learners in P5 were more successful in basic science but relatively weak in basic technology and information technology. This pattern was reversed in JS2 where learners achieved better results in basic technology and information technology and were less successful in basic science and physical and health education. In terms of cognitive levels, both learners in P5 and JS2 achieved the highest performance in knowledge items, followed by reasoning and application items.

Figure ES.7. Percent-correct scores in basic science and technology by cognitive level



Learners' performance in social studies

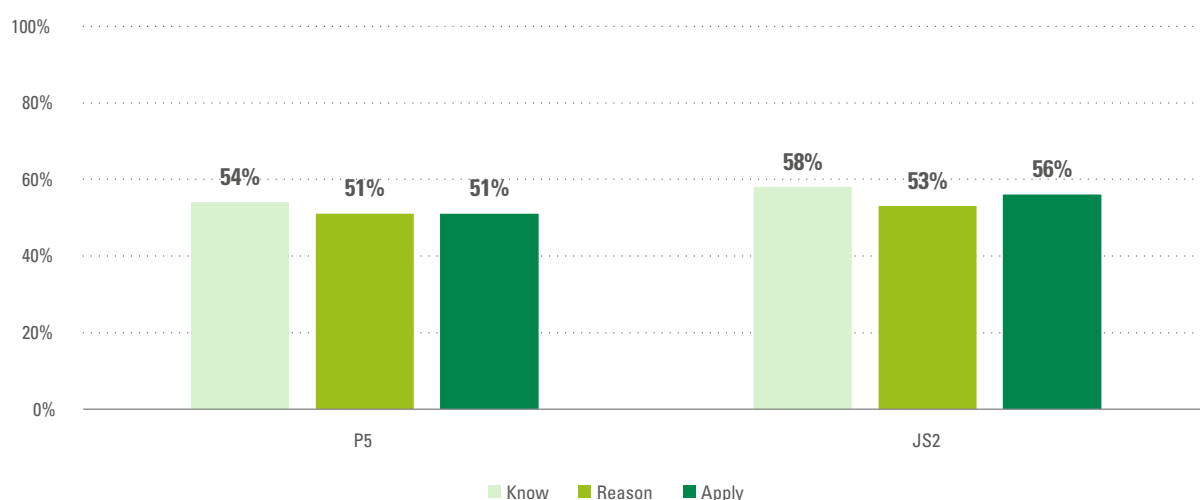
In social studies, achievement by learners in both P5 and JS2 was marginally the best of all subjects and classes assessed by NALABE 2022. The percentage of learners who achieved the minimum proficiency (levels 3 and 4) was 50 per cent in P5 and 48 per cent in JS2, with 7 per cent and 3 per cent exceeding the minimum proficiency (level 4) in each class. In both classes, however, half of learners still failed to reach the expected proficiency (levels 1 and 2). At the state level, 17 states had more than 50 per cent of learners attain the minimum proficiency in social studies in both classes, although large gaps existed between states.

Figure ES.8. Percentage of learners at proficiency levels in social studies

No significant differences were identified in performance in social studies between urban and rural schools in P5, while JS2 learners in rural schools achieved slightly better results than their urban school counterparts. The rural advantage in JS2 held for both female and male learners. Private school learners also performed better than their public school counterparts in both classes, particularly in JS2 where 62 per cent of private school learners attained the minimum proficiency (levels 3 and 4) compared to 46 per cent of public school learners. The private school advantage was observed for both female and male learners.

There were no notable gender differences in performance in P5, but females outperformed their male counterparts in JS2. The female advantage in JS2 was observed in rural schools, urban schools and public schools, but was not evident in private schools.

The social studies contents assessed in NALABE 2022 included fundamentals of social studies, family, unity in cultural diversity, social and health issues, culture and social values, science and technology development, and national economy. Learners in P5 were most successful in family and least successful in social and health issues, while those in JS2 achieved best results in social and health issues and did not perform well on national economy. In respect to cognitive levels, learners in P5 and JS2 both performed slightly better on cognitively less complex items (i.e., knowledge) than cognitively more complex items (i.e., reasoning and application).

Figure ES.9. Percent-correct scores in social studies by cognitive level

Learners' performance by cognitive levels

Differences in mean percent-correct scores in each cognitive level (i.e., knowledge, reasoning and application) permit valid comparison of results between cognitive levels. In NALABE 2022, percent-correct scores were the highest for knowledge items on 4 of the 10 total tests, for reasoning items on 1 test, and for application items on 5 tests.

When we produce a dichotomy between cognitively simpler versus cognitively more complex items (i.e., knowledge vs. reasoning and application), learners were more comfortable with simpler items on 5 tests, and equally comfortable with simpler and more complex items on 3 tests, while learners scored higher on the more complex items than the simpler items on the remaining 2 tests. This would seem to suggest that learners tend to perform better on knowledge-based items.

Learners' performance by state

The state of Imo stood out as the most consistently high performer by far, performing first among 36 states and FCT on 7 out of the 10 tests, and second in a further 2 tests. The state of Kebbi was the top-performing state on 1 test, and within the top five states in a further 6 tests. The states of Katsina and Kogi also were the top state on 1 test each, and in the top five states in a further 4 tests. Other states performing in the top five states multiple times include Kaduna, Sokoto, Rivers and Gombe.

Context of learning

NALABE 2022 collected information on the characteristics, perceptions, practices and experiences of learners, their parents and teachers in P3, P5 and JS2, as well as head teachers, principals and schools that participated in the assessment. These data help to understand the context in which learners learn and develop through the school system in Nigeria. Key findings include the following:

Learners

- **Living conditions:** Approximately 90 per cent of P3, P5 and JS2 learners reside with their parents, while 8–9 per cent live with a non-parent guardian.

- ▶ **Subject preference:** English studies is the most liked subject (85 per cent of primary school learners and 87 per cent of junior secondary school learners), followed by social studies (77 and 80 per cent) and basic science and technology (74 and 77 per cent) in both primary and junior secondary schools. Mathematics is the least liked subject (69 and 70 per cent). There is no significant difference between classes.
- ▶ **Information and communications technology (ICT) use:** 42 per cent of P3 and P5 learners and 54 per cent of JS2 learners use computers regularly or sometimes. Cell phones are the most commonly used device, with 46 per cent of P3 and P5 learners and 60 per cent of JS2 learners indicating use.
- ▶ **Problems encountered:** Over 30 per cent of learners have encountered bullying and physical fights in school. These findings highlight the prevalence of school-related violence and underscore the need for targeted interventions to create safer learning environments for learners.

Parents

- ▶ **Support for safety:** Distance from home to school is more than 2 kilometres for 10 per cent of P3 and P5 learners and 23 per cent of JS2 learners. A majority of parents take measures to ensure safety to school (e.g., take child to school, work with police and school officials). Over 90 per cent of parents also talk with their child on school and community safety.
- ▶ **Perception of school:** Parents have a positive perception of their child's school: 95 per cent of parents believe that schools instil good discipline, 90 per cent stated that schools do not allow bullying, and over 90 per cent reported that schools keep them informed about their child's progress and meet their child's learning needs.
- ▶ **Learning support:** 74 per cent of parents with P3 and P5 learners and 80 per cent with JS2 learners reported that they always or sometimes provide a dedicated space for learning at home. Over 96 per cent of parents consistently provide books and writing materials to support their child's education.
- ▶ **Response to good achievement:** When a child shows good achievement, about 40 per cent of parents give their child gifts and 27 per cent give commendation.
- ▶ **Response to misbehaviour:** When a child misbehaves, over 62 per cent of parents give advice to the child, while 32–35 per cent of parents with P3, P5 and JS2 learners reported that they beat the child.

Teachers

- ▶ **Education:** Primary school teachers are more likely to have a diploma (63 per cent) than a first degree or Higher National Diploma (HND) (34 per cent). The opposite trend is observed for junior secondary school teachers, with 34 per cent having a diploma and 59 per cent having a first degree/HND. Those with a master's degree account for 3 per cent and 7 per cent of primary and junior secondary school teachers respectively.
- ▶ **Teaching qualifications and Teachers Registration Council of Nigeria (TRCN) registration:** 91 per cent of primary school teachers and 87 per cent of junior secondary school teachers hold a teaching qualification. Moreover, 75 per cent and 71 per cent respectively are registered with the TRCN.
- ▶ **Teaching practice:** More than 50 per cent of primary and junior secondary school teachers always encourage learners to reflect upon their own work, about 75 per cent of teachers always ask questions to assess if learners understand the subject matter and review the homework with learners, and 73 per cent give tests periodically.
- ▶ **Professional development:** 69 per cent and 66 per cent of primary and junior secondary school teachers received training sessions of one type or another between 2019 and 2022, including training on classroom

management, instructional materials and subject teaching. A majority of teachers reported that the training had a large or moderate impact on their teaching and jobs.

- ▶ **Working conditions:** 96 per cent of primary school teachers and 92 per cent of junior secondary school teachers work full time; 12 per cent of primary school teachers and 10 per cent of junior secondary school teachers work across multiple school settings.
- ▶ **Challenges in teaching:** Overcrowded classrooms, noise in classrooms and lack of instructional materials are common challenges. Late payment and nonpayment of salary and allowances, as well as job insecurity, are also reported as major challenges for teaching jobs.
- ▶ **Job satisfaction:** Over 80 per cent of primary and junior secondary school teachers are satisfied with their jobs as teachers, but about 30 per cent are not satisfied with the pay and/or promotion opportunities.

Head teachers/principals

- ▶ **Education:** Among primary school head teachers, 41 per cent have a Nigeria Certificate in Education (NCE)/ diploma, 54 per cent have a first degree, and 4 per cent have a master's degree. Secondary school principals are more educated, with 71 per cent having a first degree and 21 per cent having a master's degree.
- ▶ **Teaching qualification:** 89 per cent of primary school head teachers and 76 per cent of junior secondary school principals have teaching qualification.
- ▶ **Perception of learners' achievement:** About 90 per cent of school leaders think that learners in their school cope well with the curriculum and perform above the average, indicating that they are not aware of the performance and competency level of learners in their school and other schools.
- ▶ **Perception of community's attitude:** 75 per cent of head teachers in primary schools and 74 per cent of principals in junior secondary schools reported that their communities have a favourable attitude towards teaching and learning.
- ▶ **Perception of school-based management committee (SBMC) and parent-teacher association (PTA):** 90 per cent of head teachers and 86 per cent of principals consider their SBMC to be functional, while 91 per cent of primary school head teachers reported that they have a functional PTA.

School resources

- ▶ **Instructional materials:** About 70 per cent of primary schools have access to the national curriculum in English studies (i.e., curriculum, curriculum module, syllabus, scheme of work), compared to only 35 per cent of junior secondary schools. Schools where instructional materials are available often face insufficiency in quantity, although these materials are mostly in good condition.
- ▶ **School facilities:** A considerable number of primary and junior secondary schools are deficient in essential facilities such as mathematics rooms, libraries, science laboratories, staff rooms, or learners' and teachers' furniture. For instance, only 13 per cent and 28 per cent of primary and junior secondary schools have science laboratories.
- ▶ **Safe school facilities and practice:** A gate and fence are available in about 55 per cent of primary schools and 69 per cent of junior secondary schools. Early warning systems are in place in 45 per cent of junior secondary schools but in only 13 per cent of primary schools.

- ▶ **Water, sanitation and hygiene (WASH) facilities:** 39 per cent of primary schools and 44 per cent of junior secondary schools have boreholes. Only 31 per cent of primary schools and 38 per cent of junior secondary schools are equipped with toilets, posing significant hygiene concerns.
- ▶ **COVID-19 measures:** COVID-19 measures (e.g., tap water bucket, hand sanitizer, social distancing, awareness raising on vaccination) are implemented in the majority of schools (64–85 per cent).

Factors associated with learners' performance

Background factors in high- and low-performing schools

NALABE 2022 examined the differences in contextual factors between the top-performing schools (top 25 per cent) and the bottom-performing schools (bottom 25 per cent). This approach aimed to answer the question: What are the features of learning contexts that differentiate between high- and low-performing educational settings? Key observations include the following. It is important to note that the findings presented in this section do not indicate any causality. (i.e., not indicating any of the factors contributed to improved learning.

- ▶ **Teaching-learning materials (TLMs):** The contextual features that distinguish the high-performing and low-performing schools the most at the junior secondary level are the adequacy, condition and usage of TLMs, whereas at the primary level, the most differentiating factor is the availability of TLMs.
- ▶ **School facilities:** Highly distinctive characteristics at the junior secondary level are the condition and adequacy of school facilities (e.g., science laboratory, learner furniture, mathematics room, library), whereas at the primary level the most distinctive characteristics are the availability, adequacy, condition and usage of select facilities and services (e.g., counselling services, science laboratory, mathematics room, staff room).
- ▶ **WASH facilities and Covid-19 compliance:** At the junior secondary level, high-performing schools are distinguished by better conditions, usage and availability of WASH facilities (e.g., tap water, borehole, toilets) and higher COVID-19 compliance (e.g., social distancing, awareness of vaccination, hand sanitizers, face masks), whereas at the primary level, fewer aspects of WASH facilities emerged to distinguish high-performing schools.
- ▶ **School safety environment:** High-performing schools are characterized by better conditions, adequacy and availability of safety features (e.g., school gate, perimeter fence, warning system, school security guard).
- ▶ **Community support:** At the primary level, high-performing schools report higher rates of community support in providing security, writing materials and equipment. High-performing schools at the junior secondary level have more SBMC and PTA meetings.
- ▶ **Teacher professional development:** High-performing schools at the junior secondary level are more likely to report a large impact of various teacher professional development activities (e.g., training on classroom management, improvisation of instructional materials, Teaching at the Right Level (TaRL) approach, school safety and psychosocial support (PSS), teaching subject methods, guidance and counselling). At the primary level, however, this was observed only for Jolly Phonics and World Bank (WB)/UBEC training.
- ▶ **Teacher qualifications and experience:** Educated teachers with teaching qualification (e.g., first degree/HND with teaching qualification) is a distinctive feature of high-performing junior secondary schools. Teaching experience also distinguishes high-performing schools (e.g., 3–5 years at primary and 6–10 years at the junior secondary level).

- ▶ **Teaching methods and technology:** Distinguishing features of high-performing schools at the junior secondary level are the use of learner-centred teaching methods (e.g., facilitate work in small groups, grouping learners based on their abilities, working with learners individually, customizing tasks to learner's ability, using periodical assessments, encouraging learners to suggest activities, review homework together with learners, engaging in discussions), and the use of technology (e.g., projector, computer). Just a few of these features are distinctive at the primary level.
- ▶ **Language of instruction:** Using English only or English combined with a local language is a distinctive feature of high-performing schools.
- ▶ **Parent socio-economic status:** A distinctive feature of high-performing schools is a higher parental socio-economic status (e.g., household monthly income above NGN 30,000, living in a flat, employed by government, providing transportation to school and money to a child, child having two or three sets of uniforms, child eating three times a day, child having access to technology).
- ▶ **Parental support:** High-performing schools at the junior secondary level are distinguished by higher rates of parents being aware of child's academic performance, using commendation when a child achieves, spending a lot of time weekly supporting child's learning, and ensuring that a child goes to school. These trends were not observed in primary schools.
- ▶ **Learner's use of ICT:** Distinctive features of high-performing schools at the junior secondary level are rates of ICT use (e.g., usage of cell phone/GSM, frequent usage of internet, usage of internet to learn about new things and school subjects, frequent usage of tablets or computers, frequent usage of email, usage of computer at home). The trend was not observed at the primary school level.

Association between background factors and learner performance

Learning performance is associated with many different factors including learners' latent ability, peer relationships, family environment, teachers' skills, school conditions and state policy, among others. This poses a challenge to understand which specific factors are related to and contribute to learning outcomes. From that perspective, regression analysis was performed to examine how school, teacher, learner and parent characteristics are uniquely associated with learners' performance, controlling for other factors. The analysis helps us better understand the relative importance of different factors associated with learners' performance, although no causal attribution can be inferred. Key findings include the following, organized by broad variable:

- ▶ **Instructional policy and practice:** Schools in Nigeria implement different instructional policies to support instruction and learners' performance. For example, the regression analyses in junior secondary education demonstrated that using English only, or both English and a local language, has a positive association with learner performance, holding the state, school, teacher, learner and parent characteristics constant. In primary schools, using only a local language as the medium of instruction has a small, practically negligible, negative association with learners' performance.
- ▶ **Teacher qualification, education, and training:** The provision of a competent teacher is a key policy to provide quality education and effective teaching and learning. For example, higher rates of teachers with a first degree and HND with teaching qualifications are strongly associated with a higher probability of meeting minimum proficiency level in junior secondary schools, although this association was at negligible practical significance in primary schools. Teacher professional development may also matter for better learning achievement. At the junior secondary level, Strengthening Mathematics and Science Education (SMASE) training was associated with higher learner performance. On the other hand, at the primary level, the associations of background variables related to teacher training did not reach practical significance.

- ▶ **Teaching methods:** Use of select teaching methods was positively associated with a higher probability of learners achieving minimum proficiency at the junior secondary level. These include the application of experimental and laboratory activities and the practice of grouping learners for collaborative learning.
- ▶ **Quality assurance:** Schools in Nigeria receive different types of support that aim to improve the quality of teaching and learning. The results demonstrate a strong and practically relevant association between support to teachers provided by supervisors/inspectors and learners' achievement. Learners attending schools where quality assurance officers visit to provide support to teachers have a better chance of achieving higher scores and meeting the minimum proficiency level in junior secondary schools.
- ▶ **Parental engagement in learning:** There is suggestive evidence on the importance of parental support for learning. For example, there is a significant and positive association between learning performance and parents' practice of ensuring their child go to school and commending their child's achievement. Parents' approach to disciplining their child shows different patterns for primary school learners and junior secondary school learners. At the primary level, withdrawing privileges shows positive associations with learning performance, whereas advising the child showed negative associations. At the junior secondary level, however, the direction of these associations is reversed.

Recommendations

NALABE 2022 provided the most reliable analysis of learners' performance ever in the history of Nigeria. It provides an unprecedented opportunity to develop a shared understanding of how well Nigerian learners perform in the Basic Education Curriculum, facilitate evidence-based policy dialogue on education and learning, and inform education policy and plans to close the learning gaps. The timing is opportune, since Nigeria has recently launched the Nigeria Education Sector Renewal Initiative to transform the education sector in order to achieve the country's education goals. Based on the key findings and new evidence from the 2022 NALABE, the following policy recommendations are presented as ways forward to transform education systems and practices, enhance the quality of education and improve learning for all learners in Nigeria.

Recommendation 1: Promote equity in basic education by supporting children who do not achieve the minimum proficiency.

A large share of Nigerian learners in basic education across classes and subjects did not meet the minimum proficiency level. These children have already fallen behind in learning and do not have the foundations to develop more advanced knowledge and skills. Especially vulnerable are the 13 per cent of learners who, on average, were below partially meets the minimum proficiency level (level 1). Bringing these children to the minimum proficiency level is of critical importance given the equal right to quality, inclusive education and learning for all learners. The following actions are recommended to achieve this goal:

- ▶ **Review and update both the curriculum standards and performance standards for each subject and class level.** The foundation of an effective assessment system are the curriculum standards that define what learners should know and be able to do, what teachers should therefore focus on, and what assessment systems should measure. These provide performance standards for all children in Nigeria and thus should be coherent with national and state level educational policies. It is therefore important that curriculum standards are reviewed and revised periodically, considering assessment results from surveys such as NALABE.
- ▶ **Review available evidence to identify and implement policy and interventions proven effective to improve learning of academically disadvantaged learners.** It is critical to understand why some children are left behind in learning while others meet the minimum proficiency level. For example, the logistic regression analysis in this report provided suggestive evidence on factors associated with the probability of meeting the minimum proficiency. These include quality assurance by supervisors and school support officers and teaching

methods like grouping learners into small groups. Such evidence and insights should be further examined in context to scale up evidence-based interventions that are designed to support learners who struggle in their learning. State governments are encouraged to develop an action plan to address the learning gaps in their state.

Recommendation 2: Enable learners who achieved the minimum proficiency to further strengthen their competencies by improving the coherence of education systems and learning support across grades and education levels.

The percentage of learners who met the minimum proficiency level decreased as learners moved to higher grades and transitioned from primary to junior secondary in mathematics and basic science and technology. This means that many learners who achieved the minimum proficiency in lower grades could not make expected learning progress as they stayed in the education system. To support learners' learning trajectory, the school systems, curriculum, textbooks and teaching practices must be designed and delivered coherently across classes and education levels. It is recommended that a review be conducted to improve the coherence of school systems and learning support across classes and levels to facilitate continuous, seamless, and progressive learning.

Recommendation 3: Address learning gaps between states by encouraging all states to improve the quality of education and by providing targeted support to states in need.

There were large interstate differences in learners' performance across classes and subjects. Given that basic education is a human right, every Nigerian learner should benefit from education and achieve the minimum proficiency regardless of where learners were born and live. It is recommended that all states commit to providing equitable, inclusive quality education for all learners, while the federal government and development partners support states facing bottlenecks such as insecurity and poverty.

► **Encourage and support state governments to develop remedial plans to address major learning gaps.**

It is recommended that NALABE 2022 State Scorecards be used to analyse and identify subject themes and sub-themes as well as cognitive levels where learners in each state did not perform well. The state government should use the analyses to design remedial activities that are customized to address challenges specific to each state to close learning gaps.

Recommendation 4: Develop school scorecards to help school-level stakeholders understand the performance of learners in their schools and be accountable for improving the quality of education and learning.

NALABE 2022 uncovered optimism among school leaders and parents. About 94 per cent of school leaders reported that learners in their school coped with the school curriculum, and 88–93 per cent of head teachers and principals perceived that their learners performed above the national average. Additionally, 93 per cent of primary school parents and 91 per cent of junior secondary school parents reported that schools were meeting their child's learning needs. Yet only 14–51 per cent of learners met the minimum proficiency level in the core subjects. Similarly, while more than 90 per cent of school leaders (97 per cent of head teachers and 92 per cent of principals) believed that learners in their schools could apply what they learned, 49–67 per cent of learners struggled with reasoning and application skills at the cognitive level.

With the optimism resulting from the lack of robust school-level and child-level performance data, school leaders cannot have a sense of urgency to improve the quality of education and learning in their school, while parents do not take proactive actions to hold their schools accountable for the child's academic development. It is recommended to share the results of learning achievement with school and community members in the form of school scorecards.

- ▶ **Improve assessment data sharing for greater awareness:** Develop robust assessment data systems to distribute school-level assessment results, information and insights with school leaders and community members to facilitate data-informed decision making.
- ▶ **Strengthen parental and community involvement:** Improve communication between schools and parents/communities to ensure families are fully informed about education and learning in their schools and to enable parents to actively support their child's learning. This includes addressing issues such as bullying and enhancing parental involvement in school activities.

Recommendation 5: Plan the next round of NALABE with a revised design that enables Nigeria to assess improvement of learning performance with more accurate, contextual and policy-oriented analysis:

Although NALABE 2022 successfully measured and presented the performance of Nigerian learners, it is recommended that national learning assessments be implemented with the following key features.

Representative sample of learners

- ▶ **Provide the most recent, accurate sampling frame:** Listings of all schools in the country with accurate enrolment information and school metadata is a precondition for estimating learning achievement at national, state and local government area (LGA) levels and for different subgroups. The government must ensure that the complete school listing with enrolment data is produced for the next NALABE.
- ▶ **Conduct random sampling at the federal level:** There is evidence that some states did not follow the guidance on sampling design. To ensure that the sampling procedures are conducted in full compliance with the guidelines, a technical group formed at the federal level should conduct sampling of schools.
- ▶ **Conduct school sampling at the LGA level to obtain valid performance results:** The sampling plan for NALABE 2022 was designed at the state level without stratification for LGAs, which did not enable a valid estimation of learners' performance at the LGA level. Conducting random sampling of schools within each LGA is recommended in the next round of NALABE to enable calculation of valid LGA-level performance results.

Learning achievement by cognitive level

- ▶ **Improve clarity of specifications of cognitive levels for each subject:** NALABE 2022 did not have precise specifications of cognitive levels that would enable clear distinction of test items between reasoning and application levels. It is suggested that the next round of NALABE make necessary improvements so that learners' performance can be accurately measured at three cognitive levels. This should allow for custom definitions of cognitive levels within each subject, assuming some loss of comparability of cognitive levels across subjects.

Assessment of learning gains over time

- ▶ **Link NALABE 2022 and its next round to enable comparability (i.e., equating):** The next round of NALABE should employ a 'common items' design by including at least 20 per cent of test items from NALABE 2022 into the next cycle. In such a way NALABE 2022 will serve as a baseline to measure the change in national- and state-level learning performance over the years.

Test administration

- ▶ **Provide standardized test administration manual with improved guidance to learners about how to fill out the answer sheets for tests and questionnaires:** It was observed that some learners had difficulty using optical mark recognition (OMR) answer sheets. To reduce missing data and measurement errors, the guidance given to learners must be revised and standardized.

Analysis of factors associated with learning achievement

- ▶ **Collect more contextual information on learners:** The non-cognitive survey should be revised to collect more contextual information of individual learners, which helps uncover factors associated with learners' learning achievement. This could include the presence of functional difficulties and engagement in child labour, among others. Some information collected at the school level, such as ability grouping practice, should be also collected at the learners' level.
- ▶ **Design the coding of respondents to the non-cognitive survey in a way that links school, teacher and parent data to individual learners:** Non-cognitive data collected from parents and teachers in NALABE 2022 were not linked to their learners, which reduced accuracy in exploring associations between contextual factors and learners' achievement. The next round of NALABE should design a coding system for schools, teachers, parents and learners in a way that enables linking learners with their parents, teachers and schools. The school identifier should be the school code used in the National Personnel Audit (NPA), so that NALABE can link the school data from the NPA.

Capacity to use the assessment results

- ▶ **Develop and implement local capacity-strengthening plans:** It is recommended that the next NALABE develops plans for embedded capacity-strengthening activities for policymakers, education authorities and schools on using the assessment data to inform development and implementation of policy, programmes and practices for promoting education quality through improved teaching and learning practices.

Dissemination of assessment results

- ▶ **Separate the NALABE report into multiple parts to enable more timely and targeted reporting:** The development of the NALABE 2022 integral report represented a long and laborious endeavour that yielded a large and complex document difficult to consume by typical readers. Thus, it is recommended to develop different reports and materials for different audiences, which may include: 1) a public report to meet informational needs of broad audiences; 2) a technical report presenting more technical background and details; and 3) state/school scorecards informing instructional support teams to develop remedial activities at state and school levels.

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Acronyms

ADAS	Assessment Data Analysis System
CTT	Classical Test Theory
DIF	Differential Item Functioning
FCT	Federal Capital Territory
GPF	Global Proficiency Framework
GSM	Global System for Mobile Communications
HND	Higher National Diploma
ICT	Information And Communications Technology
IEA	International Association for the Evaluation of Educational Achievement
IRT	Item Response Theory
JS2	Junior Secondary 2
LGA	Local Government Area
NALABE	National Assessment of Learning Achievement in Basic Education
NCE	Nigeria Certificate in Education
NERDC	Nigerian Educational Research and Development Council
NPA	National Personnel Audit
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
OMR	Optical Mark Recognition
P3	Primary 3
P5	Primary 5
PSS	Psychosocial Support
PTA	Parent-Teacher Association
RANA	Reading and Numeracy Activity
SBMC	School-Based Management Committee
SDG	Sustainable Development Goal
SPSS	Statistical Package for Social Sciences
SUBEB	State Universal Basic Education Board
TaRL	Teaching at the Right Level
TCC	Test Characteristic Curve
TRCN	Teachers Registration Council of Nigeria
UBEC	Universal Basic Education Commission
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WB	World Bank

Chapter 1. Introduction

1





1.1 Background

In 2022, the Universal Basic Education Commission (UBEC) oversaw the operational administration of its 6th periodic National Assessment of Learning Achievement in Basic Education (NALABE 2022). The assessment was conducted during a nine-day window between September 25th to October 3rd, 2022, in all 36 states and the Federal Capital Territory (FCT) – in all 6 territorial zones of Nigeria – with a planned nationally representative sample of 66,600 Primary 3 (P3) learners (1.25 per cent of the P3 population), 66,600 Primary 5 (P5) learners (1.35 per cent of the P5 population), and 22,200 Junior Secondary 2 (JS2) learners (0.82 per cent of the JS2 population). In terms of schools, 2,220 primary schools (1.96 per cent of primary schools) and 740 junior secondary schools (1.93 per cent of junior secondary schools)¹ were designated in the sample. Participating schools were a mixture of public and private schools in urban and rural locations in a planned sample of 684 local government areas (LGAs) (92 per cent of the national population of 774 LGAs).

The assessment was designed to measure learning achievement in mathematics and English studies (P3, P5 and JS2) as well as basic science and technology and social studies (P5 and JS2). In addition to measuring the cognitive achievement of learners in the targeted grade levels, questionnaires were also administered to learners, parents, teachers and school leaders with a view to understanding what context features have a significant impact on learning achievement. The methodology adopted in this study follows current international standards for the design, development, analysis and reporting of national sampled-based learning assessment surveys.

This report provides the results of assessment as well as a detailed account of the development phase of the assessment, the construction of operational instruments that were used in the final administration, sampling procedures, test administration logistics, and data collection, processing and analysis procedures. Key results are provided for both cognitive learner performance as well as factors associated with achievement. The report ends with chapters on conclusions drawn from the results, implications for educational policy and programmes, and next steps. There is a complete section of technical appendices.

The report is not intended to be a technical document but provides enough technical information to support future replications of the NALABE to ensure that comparisons of results are meaningful and technically valid. The intended audience for this document is a wide range of readers from national and state-level government, educational and academic institutions, international agencies supporting educational development in the country, technical specialists in policy, planning, curriculum, assessment, statistics, measurement and research, as well as parents and learners as direct beneficiaries of education in Nigeria.

1.2 The importance of a national learning assessment system

Nigeria has committed to the United Nations' Sustainable Development Goals (SDGs) and is working towards the achievement of Sustainable Development Goal 4 (SDG4), which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Promoting learning opportunities for all is an enormous challenge, especially because Nigeria is facing a tremendous and growing demand for education. Over 54 million children of primary and junior secondary school age are eligible for compulsory basic education and, with the growth of the population, the demand for quality education is growing rapidly (United Nations, 2024).

The recent independent SDG4 evaluation in Nigeria shows that access to education is still hampered (OSSAP-SDGs and UNICEF, 2022). Nationally, less than two thirds of learners attend school while rates vary significantly between states. The quality of education seems to fall behind as well, as a study shows that nearly half of learners complete Grade 4 without being able to read one word from a flashcard or perform a single-digit addition problem (OSSAP-SDGs and UNICEF, 2021, p. xxi). In addition, the report mentions that “monitoring and evaluation systems focusing on basic education in Nigeria, and SDG4.1 in particular, are weaker than expected and, in some cases, are non-existent” (OSSAP-SDGs and UNICEF, 2021, p. xx).

A learning assessment system is crucial for monitoring and measuring the progress of providing children with foundational learning and for measuring the extent to which children in Nigeria have acquired a minimum proficiency in reading and mathematics as well as key learning standards in other targeted subjects on the curriculum. Learning assessment data can also be used to monitor SDG4 progress towards the ambitious target of inclusive and quality education for all. An assessment system can be defined as “a group of policies, structures, practices, and tools for generating and using information on learning and achievement” (Clarke, 2012, p. 1).

1.3 Goals of NALABE

The NALABE belongs to a set of assessments that are used by governments to monitor learner achievement and its progress (i.e., to ascertain what learners know and can do), the relevance of curriculum in specific subjects and grade levels (i.e., the learning standards), and the health of the profession (i.e., instruction, teacher preparation, supervision and management, among many other aspects). Such assessments are conducted using sampling procedures that allow the samples to be representative of the geographical and social make-up of the school system. Results are designed to provide information on subgroup performance (e.g., girls, boys, urban, rural, public school, private school, etc.) at state and national levels. They are not designed to provide reports of end-of-grade performance at the learner level.

Assessments such as the NALABE are designed with technical features that permit valid and reliable comparison across time with the goal of tracking progress and developing data-informed improvements in the system. These features are described in the test development chapters of this report (see Chapter 2).

1.4 Universal Basic Education Commission

The NALABE is the responsibility of UBEC, part of the Federal Government of Nigeria set up in 1999 to formulate policy guidelines for the effective implementation of the universal basic education programme. This includes prescribing minimum learning standards, ensuring effective monitoring of standards and improving the capacity of the states, LGAs and communities to provide increased access to high quality basic educational services.

UBEC has played a role in the application of Education for All goals in Nigeria, mostly centred around reaching targets for universal access to basic education services, completion of basic education, eliminating gender disparities and reducing adult illiteracy, goals which are highly correlated with social and economic development in a country. More recently, UBEC has been instrumental in attending to the achievement of the Millennium Development Goals, now superseded by the SDGs, with a focus on monitoring and evaluation frameworks through the management of quality and timely impact data.

The concern for quality education in Nigeria has led UBEC to embark on assessments aimed at monitoring learning achievement and instruction, known as NALABE. The first was conducted in 2001 on P4 and P6 learners and their teachers, parents and head teachers. Follow-up assessments were conducted in 2003, 2006, 2011 and 2017. Each of these studies utilized information collected from learners, teachers, schools and the home.

The typical outcome of most national surveys of educational progress is a detailed description of the knowledge and skills possessed by learners of a particular age or grade level in each domain of learning and a description of contextual variables hypothesized to be related to achievement for each group of measures. The outcome as well as further analyses of the data collected facilitates comparison of achievements with local standards, monitoring of progress over time, comparison between various population groups and delineation of possible correlates of achievement. This is what the NALABE programmes have attempted to do over the years with the intent to monitor the health of basic education in Nigeria. The foci of the previous assessments are shown in Table 1.1.

The monitoring of learning achievement is hinged on the UBEC quality assurance framework whose major components are inputs, processes, outputs and outcomes. The framework conceptualizes assessment of these components as a means of providing feedback for evidence-based policy and decision making. Assessment of learning outcomes together with other aspects of quality assurance will therefore facilitate policies and decisions that will improve other components of the quality assurance system including learning outcomes.

Table 1.1. Foci of previous NALABE assessments by UBEC

Year	Classes	Subjects	Sources of information
2001	P4, P6	English language, mathematics, primary science, social studies	Surveys of learners, teachers, parents and schools
2003	P4, P6	English language, mathematics, primary science, life skills, social studies	Surveys of learners, teachers, parents and schools
2006	P4	English language, mathematics, primary science, life skills, social studies	Surveys of learners, teachers, parents and schools
	JS1, JS2, JS3	English, mathematics, integrated science, social studies, life skills, introductory technology	
2011	P4, P5, P6	English language, mathematics, life skills	Surveys of learners, teachers, parents and schools
	JS1	English language, mathematics, life skills	
2017	P5, P6	Basic science, mathematics, social studies, English	Surveys of learners, teachers, parents and schools
	JS2, JS3	English studies, mathematics, basic science and technology, social studies	

1.5 NALABE 2022

The 6th and most recent of the NALABE programme is the largest of the assessments conducted to date in terms of sample size and breadth of coverage, with a nationally representative sample at the state and zone levels. In terms of design, the assessment has made important improvements in the quality of test items developed to be more aligned with skills-based goals in curriculum and instruction; the inclusion of items targeting higher cognitive levels of abilities and not merely memorization and recall; alignment of items to the learning standards and cognitive levels that they aim to measure; a significantly greater level of attention to details of quality in item design; the use of multiple operational test forms with anchor sets across test forms to be able to place test results on the same scale; the use of item response theory (IRT) as well as classical test theory (CTT) for data analysis to estimate learners' latent ability; and the development of a standards-aligned performance scale so that achievement can be understood in terms of what learners know and can do at each level on the scale, and more importantly what learners need to know and be able to do to improve to the next level on the scale.

NALABE 2022 is to be considered a baseline assessment, which means that it will be anchored to follow-up iterations of the programme to be conducted in coming years to enable statistical comparisons of achievement from one iteration to the next. Linking to past iterations of the NALABE has not been possible because of a significant change in what is measured on the test and the inability to locate anchor items to link test forms.

It is important to highlight the date of the NALABE 2022 assessment administration (September–October) in relation to the targeted grade levels of interest: P3, P5 and JS2. An assessment of P3 is understood as an assessment of the completion of all key instructional objectives of that grade level; the same is true for the other targeted grade levels. Thus, for this to hold in an administration that takes place in September or October, i.e., right at the beginning of the new school year which typically starts in September across the country, learners of P4, P6 and JS3 must be selected to participate because these are the learners who have completed the targeted grade levels. This was the case with NALABE 2022. Any subsequent iterations of NALABE, in order for their results to be comparable, must be planned to coincide with the appropriate administration dates aligned with the targeted grade levels – that is, as close to the end of the targeted grade level as possible (i.e., in June for P3, P5 and JS2), or as close to the beginning of the following grade level (i.e., in September or October) with

learners selected from the next grade level up, for it to continue to be a measure of achievement of the targeted grade levels of P3, P5 and JS2. The second option is preferable so that it aligns with NALABE 2022, although the earlier date at the end of the targeted grade level would certainly be acceptable and a more accurate measure of end-of-grade achievement.

In the next chapter of this report, we describe the test development phase from item development to pilot administration, data collection and analysis.

Chapter 2. **Methodology**

2





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2.1 Test development

In this section, we describe the process taken to develop and validate cognitive and non-cognitive instruments for NALABE 2022. We focus first on cognitive instrument development for the four targeted subjects – mathematics, English studies, basic science and technology, and social studies – and for each of the relevant classes (see Table 2.1 for the distribution of subjects by class). Non-cognitive instrument development is covered at the end of this section.

Table 2.1. Distribution of subjects by class

Subject		Class		
		P3	P5	JS2
1	Mathematics	✓	✓	✓
2	English studies	✓	✓	✓
3	Basic science and technology	-	✓	✓
4	Social studies	-	✓	✓

2.1.1 Cognitive instrument development

The foundation for cognitive instrument development is the assessment framework document developed for each of the subjects targeted on NALABE 2022 and in preparation for the item writing workshop that took place in the first quarter of 2022. The framework document describes the desired features and structure of a test or set of tests. Each assessment framework document identifies what is intended to be measured on a test in terms of curriculum-mandated standards (i.e., subject content and skills), the level of cognitive complexity measured by a specific test item, and the number and types of items used per content and cognitive level. It also provides a template for storing test form items in sequence when test items are selected either for piloting or operational administration at later stages in the process (this document is referred to as the test filing system or test blueprint).

The technical system used across subjects to define content standards measured on NALABE 2022 is presented in Table 2.2. The terms used in Nigeria at each level in the system are shown in the column headings, with terms often used internationally shown in parenthesis.

Table 2.2. System for defining content standards and skills

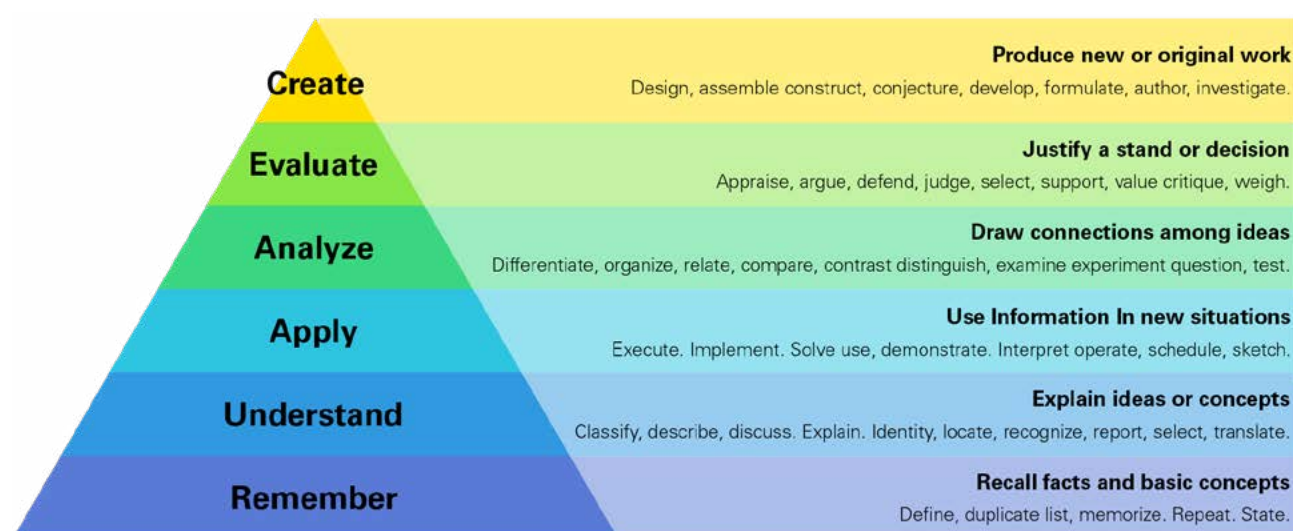
Subject	Themes (Domains)	Sub-themes (Strands)	Topics (Sub-strands)	Expectations (Learning outcomes)
e.g., Mathematics	e.g., Mensuration and geometry	e.g., Primary measures	e.g., Money	e.g., Add and subtract money not greater than ₦100 in the context of shopping

In addition to facilitating the development of test items that are aligned to what they aim to measure, this criterion-based approach to test design greatly improves the reporting capacity of test results. The content standards and skills system shown in the table enables the reporting of test results that can be disaggregated at any level below the subject level, yielding what is referred to as test subscores. This greatly improves the informative value of assessment results, which have traditionally been limited to subject-level scores which tell you very little about what a learner does well, what he or she does not know or cannot do, and what he or she needs to focus on to improve.

Another parameter that we need to consider in the design of NALABE 2022 is the construct of cognitive processing level. Cognitive processing provides us with a methodology for determining how cognitively complex a test item is for learners to carry out: is a learner required to remember some learned fact, formula or process, or is there a requirement to carry out something more cognitively sophisticated – for example, to apply what one has learned to resolve some new problem or to resolve a problem in a different context.

The approach adopted for NALABE 2022 to determine the cognitive complexity of a task required by a test item is an abbreviated form of Benjamin Bloom’s taxonomy of cognitive levels. (Norman Webb’s Depths of Knowledge framework, although slightly different, is often used to accomplish the same end). Both systems are very useful in helping us to understand what is involved on a continuum of lower complexity of cognitive processing to higher complexity of cognitive processing.

Figure 2.1. Bloom’s taxonomy of cognitive levels



For the purposes of assessment design and especially of test item development in the lower class levels, NALABE 2022 has used a three-level continuum, from knowing to reasoning (understanding) to applying, based on Bloom, the International Association for the Evaluation of Educational Achievement (IEA) and the Organisation for Economic Co-operation and Development (OECD). Bloom’s taxonomy is well recognized in Figure 2.1.

It is important to point out that, from the framework documents for each of the four targeted subject areas, there appears to be a less rigid agreement on the definition of cognitive levels at the reasoning (understanding) and application levels, with clearly more consistent agreement on the knowledge level. This would suggest that in creating test subscores, which are based on coding of test items per cognitive level, a more reliable approach might be to combine scores at the reasoning (understanding) and application levels, representing higher-level thinking skills, and compare those with scores at the knowledge level. Alternatively, results for each cognitive level may be reported but no comparison of these results made across subjects.

The original Bloom taxonomy from 1956 consists of six hierarchically organized levels of cognitive processing. The continuum starts at the knowledge level, and increases in complexity through comprehension, application, analysis, synthesis and evaluation. This taxonomy has been slightly revised in a 2001 version, shown in the graphic above. The bottom three levels on Bloom’s taxonomy (i.e., knowledge to application) correspond to the levels that item development for NALABE 2022 is based around, at least for the lower class levels. Definitions of each level are shown in Table 2.3. Please note that subject-customized definitions of the three cognitive levels are to be found in the framework documents corresponding to each subject; what is provided here are general descriptors based on Bloom’s model.

Table 2.3. System for defining cognitive levels of complexity

Knowledge	Reasoning	Application
- Recall of information, facts, concepts and procedures; discovery; observation; listing; locating; naming - No creative use of information or understanding of underlying concepts - Reliance on memorization of information	- Solving problems in unfamiliar situations, complex contexts and multiple stages - Thinking at the logical and systematic levels in addition to using inductive and deductive reasoning	- Using and applying knowledge - Using problem-solving methods - Manipulating, designing, experimenting

In the following sections, we identify the test specifications – content standards, skills, cognitive levels, item numbers and item types, among others – outlined in each of the subject framework documents providing relevant details that enable test items to be developed to meet needs to construct test forms both for piloting purposes as well as final operational administration.

Mathematics assessment

The design of the NALABE 2022 assessment of mathematics is based on the content and skills contained in the Nigerian Educational Research and Development Council (NERDC) revised 9-Year Basic Education Curriculum. The curriculum was developed around five themes: numbers and numeration, basic operations, algebraic processes, mensuration and geometry, and everyday statistics. These themes are repeated in each of the three targeted class levels, with different weights per class level and a range of different sub-themes per theme (see the Test Blueprint and Test Map tables per class level in Appendices A and B).

The NALABE 2022 assessment highlights measurement of learners' knowledge and skills in all five themes and the most important sub-themes for each targeted class level. In P3, numbers and numeration provides the foundation of mathematics in primary school in Nigeria. Basic operations covers addition and subtraction of whole numbers and fractions as well as multiplication and division, including using these operations to solve problems. Algebraic processes focuses on early principles of algebra captured in open or number sentences. Mensuration and geometry covers primary and secondary measures as well as shapes, focusing on money, length, time, weight and capacity. Each measure includes items assessing solving simple problems. Finally, everyday statistics introduces knowledge and skills related to reading and interpreting data represented in pictograms.

In P5 mathematics, the same themes are reintroduced with more in-depth coverage of the same sub-themes, accompanied by the introduction of the use of decimals and number lines to represent addition and subtraction. In mensuration and geometry, the following new measures are introduced as well as more in-depth coverage of the P3 measures: area, volume, temperature, and plane and three-dimensional shapes. Everyday statistics at the P5 class level includes more in-depth coverage of data presentation through pictograms and bar graphs, and the introduction of measures of central tendency.

At the JS2 class level, the same five major domains or themes are assessed, with coverage of the more complex sub-themes that typify mathematics in the secondary school level.

Coverage of content and cognitive level per test

Coverage of the themes on the NALABE 2022 mathematics assessment is presented in Table 2.4, providing a map of the number (n) of items per theme by cognitive level, and their percentage representation over the total that appeared on the operational test forms. The relative weighting by cognitive level and by domain is initially informed by the framework document and adjusted, as is usual practice, by what gets harvested from a pilot test using the statistical data per item from this test. Note that the total number of items indicated are for two forms of each test.

Table 2.4. Actual coverage of mathematics themes by class and cognitive level

Themes		Coverage							
		Know		Reason		Apply		Total	
P3 (30 items per form)		n	%	n	%	n	%	n	%
1	Number and numeration	8	13%	2	3%	4	7%	14	23%
2	Basic operations	4	7%	0	0%	6	10%	10	17%
3	Algebraic processes	0	0%	2	3%	4	7%	6	10%
4	Mensuration and geometry	10	17%	4	7%	10	17%	24	40%
5	Everyday statistics	0	0%	0	0%	6	10%	6	10%
Total		22	37%	8	13%	30	50%	60	100%
P5 (40 items per form)		n	%	n	%	n	%	n	%
1	Number and numeration	12	15%	0	0%	6	8%	18	23%
2	Basic operations	4	5%	2	3%	2	3%	8	10%
3	Algebraic processes	0	0%	6	8%	8	10%	14	18%
4	Mensuration and geometry	20	25%	8	10%	0	0%	28	35%
5	Everyday statistics	2	3%	2	3%	8	10%	12	15%
Total		38	48%	18	23%	24	30%	80	100%
JS2 (40 items per form)		n	%	n	%	n	%	n	%
1	Number and numeration	8	10%	6	8%	8	10%	22	28%
2	Basic operations	4	5%	4	5%	2	3%	10	13%
3	Algebraic processes	8	10%	8	10%	2	3%	18	23%
4	Mensuration and geometry	6	8%	12	15%	2	3%	20	25%
5	Everyday statistics	6	8%	2	3%	2	3%	10	13%
Total		32	40%	32	40%	16	20%	80	100%

English studies assessment

As with the mathematics assessment, the design of the NALABE 2022 assessment of English studies is based on the content and skills contained in the revised 9-Year Basic Education Curriculum published in 2012 under the auspices of the NERDC. The curriculum was developed around five themes: reading comprehension, grammatical accuracy, listening and speaking, literary appreciation, and writing. NALABE 2022 focused on reading comprehension and grammatical accuracy in all three targeted classes and added one theme in the JS2 assessment, literary appreciation.

Table 2.5 summarizes the themes focused on in each of the targeted classes in NALABE 2022.

Table 2.5. Distribution of English studies themes by class

Themes		Class		
		P3	P5	JS2
1	Reading comprehension	✓	✓	✓
2	Grammatical accuracy	✓	✓	✓
3	Literary appreciation	-	-	✓

The essence of exposing Nigerian children to English language at the basic level of education is:

- ▶ To enable children to develop greater insights into the various aspects of the structure and vocabulary of English so that they become more competent in using the language;
- ▶ To help children communicate effectively in English, especially through the reading skill; and
- ▶ To use the language as a tool for studying other subjects.

Given that NALABE 2022 only utilized multiple-choice test items for measurement of content and skills, writing was excluded from the set of themes to be assessed. In future iterations of the NALABE, it would be worthwhile investing resources into assessing writing skills using open-ended test items, which would require more costly and labour-intensive objective scoring techniques – costs that can be partially offset by reducing the sample size for this theme. Measuring listening and speaking is considerably constrained by the item types used in NALABE 2022, making it difficult to assess any productive aspects of aural and oral skills. As such, measuring listening and speaking has necessarily limited itself to the recognition of more formal aspects of these skills through multiple choice items.

Reading was recognized as a key component of the curriculum across all classes and consequently was prioritized in the design of NALABE 2022. Following the IEA Progress in International Reading Literacy Study (PIRLS) and its 2021 framework, reading literacy is viewed as the foundation for learner academic success and personal growth (Mullis and Martin, 2019). It is thus important for NALABE to evaluate the level of attainment of reading objectives given their role in the broad educational and social development of Nigeria's children.

At the heart of the PIRLS framework are the following four broad-based comprehension processes which NALABE has adopted as expectations for the design of test items across the targeted class levels:

1. Focus on retrieving explicitly stated information
2. Making straightforward inferences
3. Interpreting and integrating ideas and information
4. Evaluating and critiquing content and textual elements

Two types of texts have been used in the reading component: narrative and descriptive. Original authentic texts were selected to be age and class-level appropriate, with the following ranges of word count: P3: 120–300 words; P5: 150–400 words; JS2: 250–450 words.

Test items developed based on comprehension of reading texts (approximately seven per text with three texts per test form) were designed to measure the range of expectations listed above as well as contextualized vocabulary. Text-linked items are defined as dependent items. All other themes measured on the English studies assessment (grammatical accuracy, and literary appreciation) utilize items defined as independent items, i.e., they do not depend on any supporting stimulus such as a text.

Coverage of content and cognitive level per test

The assessment framework document for English studies provides information regarding the desired coverage of content, skills and cognitive levels for each class-level test. This information was used to create the database of test items for NALABE 2022, items that were then subsequently pilot tested and then, once item performance data were available, used for the construction of final operational test forms. Actual test forms for piloting and operational administration were constructed using test blueprints. Note that all test blueprints (one for each test developed), used for the assembly of pilot and operational test forms in conjunction with test maps which provide item-level sequencing on test forms, are to be found in Appendices A (Test Blueprints) and B (Test Maps) at the end of this report.

The following table provides a map of the number (n) of items per theme by cognitive level, and their percentage representation over the total that appeared on the operational test forms. The relative weighting by cognitive level and by domain is initially informed by the framework document and adjusted, as is usual practice, by what gets harvested from a pilot test using the statistical data per item from this test. Note that the total number of items indicated are for two forms of each test.

Table 2.6. Actual coverage of themes in English studies by class and cognitive level

Themes		Coverage							
		Know		Reason		Apply		Total	
P3 (30 items per form)		n	%	n	%	n	%	n	%
1	Reading comprehension	16	27%	11	18%	9	15%	36	60%
2	Grammatical accuracy	24	40%	0	0%	0	0%	24	40%
Total		40	67%	11	18%	9	15%	60	100%
P5 (40 items per form)		n	%	n	%	n	%	n	%
1	Reading comprehension	27	34%	14	18%	13	16%	54	68%
2	Grammatical accuracy	26	33%	0	0%	0	0%	26	33%
Total		53	66%	14	18%	13	16%	80	100%
JS2 (40 items per form)		n	%	n	%	n	%	n	%
1	Reading comprehension	20	26%	24	31%	4	5%	48	62%
2	Grammatical accuracy	24	31%	0	0%	0	0%	24	31%
3	Literary appreciation	6	8%	0	0%	0	0%	6	8%
Total		50	64%	24	31%	4	5%	78	100%

Note: One item was removed from each form in the JS2 assessment due to an error identified in the item.

Basic science and technology assessment

As with the English studies and mathematics assessments, the design of the NALABE 2022 assessment of basic science and technology is also based on the content and skills contained in the NERDC revised 9-Year Basic Education Curriculum. The curriculum was developed around four themes: basic science, basic technology, physical and health education, and information technology. These themes are repeated in each of the two targeted class levels, with different weights per class level as shown in Table 2.7.

The NALABE 2022 assessment highlights measurement of learners' knowledge and skills in all four themes and the most important sub-themes for each targeted class level. In P5, basic science provides learners with an opportunity to develop their innate abilities and skills to understand the environment around them. The curriculum in basic science is organized into two sub-themes: learning about our environment; and living and non-living things. Basic technology refers to a body of applicable knowledge obtained from scientific studies which are used to control nature in such a way as to be able to solve our environmental problems. Basic technology in the P5 curriculum is organized into two major sub-themes: understanding basic technology; and you and energy.

Physical and health education is one of the major themes in the basic science and technology curriculum for P5. The content is structurally divided into physical education and health education. Finally, information technology is regarded as a broad term that includes the development, installation and use of computers. This theme comprises two sub-themes: basic computer operations and concepts; and basic concepts of information. In basic science and technology at the JS2 level, the same themes are reintroduced with more in-depth coverage.

Coverage of content and cognitive level per test

Coverage of the themes on the NALABE 2022 basic science and technology assessment is shown in Table 2.7, providing a map of the number (n) of items per theme by cognitive level, and their percentage representation over

the total that appeared on the operational test forms. The relative weighting by cognitive level and by domain is initially informed by the framework document and adjusted, as is usual practice, by what gets harvested from a pilot test using the statistical data per item from this test. Note that the total number of items indicated are for two forms of each test.

Table 2.7. Actual coverage of basic science and technology themes by class and cognitive level

Themes		Coverage							
		Know		Reason		Apply		Total	
P5 (40 items per form)		n	%	n	%	n	%	n	%
1	Basic science	12	8%	8	4%	4	9%	24	20%
2	Basic technology	10	5%	8	3%	4	3%	22	10%
3	Physical and health education	12	20%	10	14%	2	16%	24	50%
4	Information and communications technology	4	4%	2	14%	0	3%	6	20%
Total		38	36%	28	34%	10	30%	76	100%
JS2 (40 items per form)		n	%	n	%	n	%	n	%
1	Basic science	6	8%	6	4%	8	9%	20	20%
2	Basic technology	10	5%	8	3%	2	3%	20	10%
3	Physical and health education	9	20%	4	14%	5	16%	18	50%
4	Information and communications technology	6	4%	8	14%	4	3%	18	20%
Total		31	36%	26	34%	19	30%	76	100%

Note: Two items were removed from each form in both P5 and JS2 assessments.

Social studies assessment

The design of the NALABE 2022 assessment of social studies is also based on the content and skills contained in the NERDC revised curriculum. The curriculum was developed around seven themes: family; unity and cultural diversity; responsible parenthood I and II; effects of bad parenting; and personal hygiene and physical development I and II. The themes were distributed across P5 and JS2 differently, however, and with different weights.

In the school programme in Nigeria, social studies provides coordinated, systematic study drawing upon such disciplines as anthropology, archaeology, economics, geography, history, law, philosophy, political science, psychology, religion and sociology, as well as appropriate content from the humanities, mathematics and natural sciences. The primary purpose of social studies is to help young people make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world. The aim of social studies is the promotion of civic competence – the knowledge, intellectual processes and democratic dispositions required of learners to be active and engaged participants in public life. Social studies is described in the curriculum as providing “opportunities for learners to develop the attitudes, skills and knowledge that will enable them to become engaged, active, informed and responsible citizens” who are “aware of their capacity to effect change in their communities, society and world”.

Coverage of content and cognitive level per test

Coverage of the themes and sub-themes on the NALABE 2022 social studies assessment is presented in Table 2.8, providing a map of the number (n) of items per theme by cognitive level, and their percentage representation over the total that appeared on the operational test forms. The relative weighting by cognitive level and by domain is initially informed by the framework document and adjusted, as is usual practice, by what gets harvested from a pilot test using the statistical data per item from this test. Note that the total number of items indicated are for two forms of each test.

Table 2.8. Actual coverage of social studies themes by class and cognitive level

Themes		Coverage							
		Know		Reason		Apply		Total	
P5 (40 items per form)		n	%	n	%	n	%	n	%
1	Fundamentals of social studies	6	8%	3	4%	7	9%	16	20%
2	Family	4	5%	2	3%	2	3%	8	10%
3	Unity in cultural diversity	16	20%	11	14%	13	16%	40	50%
4	Social and health issues	3	4%	11	14%	2	3%	16	20%
Total		29	36%	27	34%	24	30%	80	100%
JS2 (40 items per form)		n	%	n	%	n	%	n	%
1	Culture and social values	4	5%	4	5%	0	0%	8	10%
2	Social and health issues	8	10%	18	23%	10	13%	36	45%
3	Science and technology development	4	5%	6	8%	2	3%	12	15%
4	National economy	8	10%	15	19%	1	1%	24	30%
Total		24	30%	43	54%	13	16%	80	100%

2.2.2 Non-cognitive instrument development

The non-cognitive instruments were tailored to collect contextual variables in the following areas:

Community context: Since there is a symbiotic relationship between the school and the community, the community context instrument examined the impact of community on school development. Questionnaire items involved schoolchild friendliness as regards aesthetic culture, resource mobilization, quality assurance and safe learning environment.

Home context: Parental involvement in learners' education is pivotal to academic success. The home context questionnaire focused on: parents' demographic characteristics; support to their children; attitude towards their children; involvement in their children's education; and role in learners' safety.

School context: The school context questionnaire items focused on what the school provides to ensure effective teaching and learning. The variables examined included: learning environment and facilities; school motivation strategies; sense of security by learners; involvement of learners in school decision making; communication; and rapport between learners and the school.

Classroom context: The classroom context questionnaire items focused on: teacher preparation and experience; instructional time; instructional practices and strategies; instructional clarity; supportive classroom climate; use of instructional technology; and challenges faced by teachers.

Learners' context: The learners' context questionnaire focused on: gender; age; language background; years at school; periods away from school; opportunities to attend school; expectations of success and personal or family attitudes about the value of school; perceptions of classroom environments such as sense of safety and friendliness of other learners; learners' liking of mathematics, English studies, basic science and technology, and social studies.

Teachers' context: The teachers' context questionnaire focused on: gender; age; first language; teaching conditions such as class size; access to digital resources; assistance with challenging learners; educational experience; teacher qualifications; number of years in current school; professional engagement with learning; time spent preparing for classes; availability of instructional support; and teaching methodology.

2.2.3 Piloting of cognitive and non-cognitive instruments

The objective of the NALABE 2022 pilot test was to statistically determine the quality of test items, and generate a database of items together with their statistics from which operational test forms can be constructed in line with desired weighting. As is common practice, items that have been piloted can be treated in the following way: 1) use item as is supported by its pilot test statistics; 2) make changes to item and re-pilot at the next opportunity, thus generating new item statistics; and 3) reject item completely.

A high-level expert workshop was conducted to generate cognitive test items in the four targeted subjects for P3, P5 and JS2. Non-cognitive survey items were also developed for each of the six context instruments. Cognitive items were distributed across four pilot forms with each form constructed in approximately the same manner in terms of content measured. For non-cognitive instruments, one form per survey was constructed.

A trial of the cognitive test items and context surveys was carried out in six states, one per geopolitical zone. The item performance data were used in the operational test forms assembly described in the next section.

The procedure for the pilot study involved the following steps:

- ▶ In a state, two local government education authorities (LGEAs), one rural and one urban, were selected; from each of these, two primary and two junior secondary schools were sampled for the pilot test administration.
- ▶ In each of the sampled schools, two classes comprising 50 male and female learners each in P3, P5 and JS2 were selected.
- ▶ Schools with high enrolment were sampled where at least 100 learners could be found to respond to the test items.
- ▶ Four test forms (A, B, C and D) were administered to the learners (25 learners per test form).
- ▶ A 'timing form', indicating when the first and the last participant finished responding, was properly recorded by the test administrators. This helped in allocating accurate time for the test during the final test administration.
- ▶ The test administrators ensured that all necessary codes were properly filled by learners before submission.
- ▶ The optical mark recognition (OMR) sheets were collected at the end of the test and arranged serially according to the test type for submission.
- ▶ The logistics and the exercise lasted five working days.
- ▶ The participating UBEC officers were trained on the exercise by the director, quality assurance and desk officer; these UBEC officers in turn briefed the state field officers before the commencement of the exercise.

Table 2.9. Codes used on the trial testing OMR sheet

State codes	LGEA codes	School codes
1. Adamawa = 01 2. Anambra = 02 3. Delta = 03 4. Kano = 04 5. Plateau = 05 6. Oyo = 06	Urban LGEA = 01 Rural LGEA = 02	■ Primary schools (Urban LGEA) = 01–02 ■ Junior secondary schools (Urban LGEA) = 03–04 ■ Primary school (Rural LGEA) = 05–06 ■ Junior secondary schools (Rural LGEA) = 07–08

Table 2.10. Summary of sample structure for pilot test

State	Rural LGEA	Urban LGEA	Primary schools	JS schools	Classes	Learners
Adamawa	1	1	2 + 2	2 + 2	4 x 2 x 3 = 24	50 per class = 1,200
Anambra	1	1	2 + 2	2 + 2	4 x 2 x 3 = 24	1,200
Delta	1	1	2 + 2	2 + 2	4 x 2 x 3 = 24	1,200
Kano	1	1	2 + 2	2 + 2	4 x 2 x 3 = 24	1,200
Plateau	1	1	2 + 2	2 + 2	4 x 2 x 3 = 24	1,200
Oyo	1	1	2 + 2	2 + 2	4 x 2 x 3 = 24	1,200
Total	6	6	24	24	144	7,200

2.2 Operational test forms assembly

This section covers the procedures adopted in assembling cognitive test forms (i.e., forms designed to measure learner performance in the four targeted subjects) and non-cognitive survey forms (i.e., forms administered to learners, parents, teachers and school directors designed to capture information about the context of learner performance).

2.2.1 Cognitive forms

The assembly of operational test forms requires the following input:

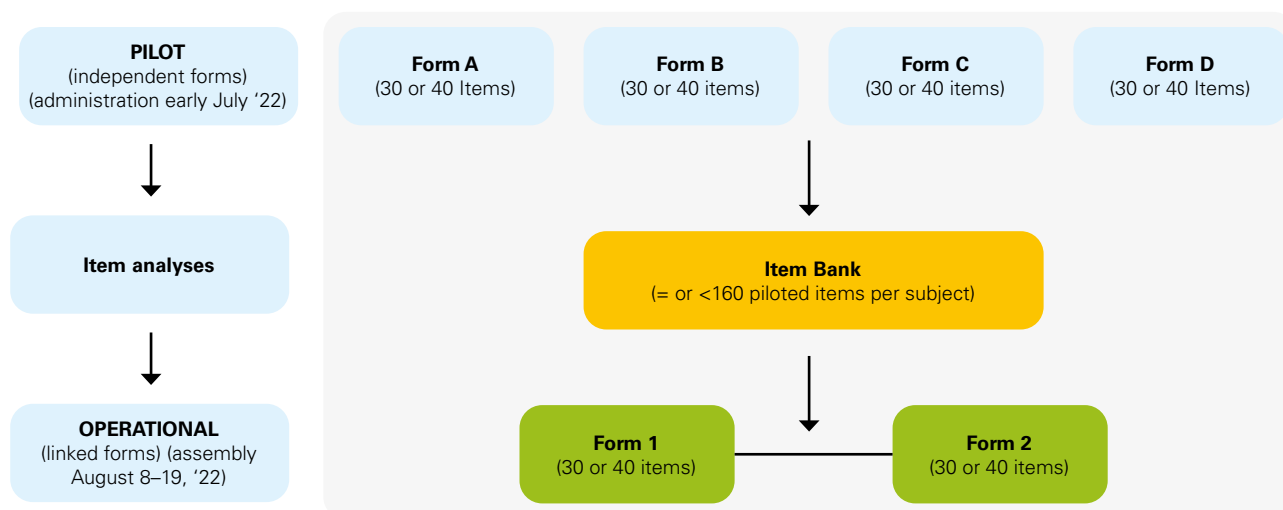
- ▶ A bank of test items that have been piloted in the field using a sample of schools and learners that represent the target population for the operational administration in key characteristics (e.g., school size, geographical location of school, school management type, and male and female learners in approximately equal proportions, among other potentially important characteristics to the extent possible and given availability of resources and time).
- ▶ The performance data for the bank of test items derived from piloting, including item difficulty index (p-value), discrimination index, option distractor means, numbers of learners attempting each item (Ns), as well as item ID and all content labels defining what the item purports to measure in terms of content standard, at least at the domain/theme and strand/sub-theme levels and cognitive level.
- ▶ A test blueprint for each targeted operational test showing domains and strands to be measured, numbers and types of items for each domain/strand as well as numbers of items for each cognitive level by domain/strand, and an estimate of numbers of anchor items per domain. A test blueprint serves as a guide for operational test forms assembly and may be modified according to the availability of items to meet content and statistical needs.
- ▶ A blank test map developed in Excel to record items selected from the pool in the operational test forms assembly process.

The NALABE 2022 pilot test was held in early July 2022. All pilot test response sheets were digitized and sent by UBEC to the international organization Cito for scanning and analysis. Pilot analyses were carried out by Cito's two international consultants. Operational forms assembly workshops were organized in August 2022 in Abuja.

Figure 2.2 shows the relationship between the four pilot forms that were administered (A through D) and the operational test forms (1 and 2) that were derived from the pool (or item bank) of piloted test items. Each of the four pilot forms approximated the intended operational forms in terms of what they measured but were independent in the sense that they each contained differently completed items without anchoring. Note that a pilot or field test is a test of the quality of test items developed, and not intended to evaluate learner or school

performance in any way. Unlike the pilot forms, operational test forms were linked through anchor items to place scores from all operational test items onto the same scale and therefore compare the performance results of learners who took either of the two forms.

Figure 2.2. Relationship between pilot and operational forms



Pilot testing involved the construction of four separate forms (A, B, C and D) for each of the 10 tests listed here:

- ▶ Mathematics P3, P5 and JS2
- ▶ English studies P3, P5 and JS2
- ▶ Basic science and technology P5 and JS2
- ▶ Social studies P5 and JS2

Using the test blueprints for each of the 10 tests, four pilot forms were assembled with 40 items in each of the P5 and JS2 forms and 30 items in each of the P3 forms. Approximately parallel forms were constructed from a content perspective using different items on each form. No attempt was made to align items across pilot forms by difficulty or cognitive complexity at this stage. In the item development phase, items were created to meet test blueprint needs.

The outcome of the pilot test was an item bank of approximately 160 items per test with all statistical and content information attached to each item. This represented the pool from which operational forms were to be assembled.

Two operational test forms (1 and 2) were assembled, with the intention of using approximately 50 per cent of the piloted items to meet test blueprint needs. Due to errors made in the final assembly of some of the pilot test forms as well as poorer item performance than expected on some tests, fewer than the desired 160 items per test were available for operational forms assembly.

The two operational forms for each test were linked through anchor items identified from the piloted pool during the assembly workshop. It is important to stress that the intention of anchoring was to link the current forms for NALABE 2022 for two reasons:

- ▶ Integrate an in-class security measure in the test administration process such that forms 1 and 2 of a test would be alternately distributed among learners, thereby reducing the possibility of cheating.
- ▶ Carry out forms equating and scaling through IRT analyses. This would enable scores on two different forms to be placed on the same scale.

There was no attempt to link NALABE 2022 with earlier administrations of the NALABE programme principally because from the period 2001 to 2017, when five NALABE studies were carried out, the content of the curriculum was significantly different from the present curriculum. There was also an intention to capture a greater range of cognitive skills in learner performance in the NALABE 2022 design.

Operational cognitive test forms assembly workshops

Workshops which were held in Abuja were divided into two sessions: the first carried out in the week of August 8–12, 2022, focusing on mathematics and English studies for classes P3, P5 and JS2; and the second in the week of August 15–19, focusing on basic science and technology and social studies for classes P5 and JS2. We provide a step-by-step description of the assembly process. Participants at the workshop were UBEC assessment and content specialists as well as content experts from universities and states across Nigeria. Approximately 14–16 experts were present representing each content area, for a total of some 60 participants.

Step 1: Test blueprint review

Test blueprints were reviewed at the outset of the workshop and adjustments were made as considered appropriate by the content experts. As shown in the example below for English studies P5, a test blueprint shows the desired distribution of items by content standards (i.e., domains/theme and strands/sub-themes) and by cognitive level, as well as an estimate of the number of linking items or anchors by domain. Item percentage weights are shown for each cognitive level. In the case of English studies P5 shown in the example blueprint below, the suggested goal – as agreed by workshop English studies content experts – was to achieve a distribution of almost 60 per cent of items at the ‘knowing’ cognitive level, and approximately equal distribution of the remaining 40 per cent across the ‘reasoning’ and ‘applying’ levels. It is important to bear in mind that a blueprint serves as a guide for operational test form assembly and may require modifications, especially in the distribution of items by cognitive level per domain/strand depending on the availability of statistically and content-appropriate items.

Figure 2.3. Example blueprint

TEST FORM BLUEPRINT - ENGLISH LANGUAGE - P5										
CONTENT			ITEMS/TEXTS				COGNITIVE LEVEL			ANCHORS
#	THEME	SUB-THEME	ITEMS	ITEM TYPE	INDEPENDENT	TEXT TYPE	Know	Reason	Apply	
1	Reading comp	Explicit information	25	MCQs	No	Narrative (2) Expository (1)	4			6
2	Reading comp	Explicit information						3		
3	Reading comp	Inferential information						4		
4	Reading comp	Inferential information						2	2	
5	Reading comp	Summarizing							3	
6	Reading comp	Vocabulary							3	
7	Reading comp	Vocabulary					4			
8	Grammar	Verbs	2		Yes		2			3
9	Grammar	Conjunctions	2				2			
10	Grammar	Adverbs	1				1			
11	Grammar	Spelling	1				1			
12	Grammar	Coherence	1				1			
13	Grammar	Adjectives	1				1			
14	Grammar	Pronouns	1							
15	Grammar	Sentence level vocab	3				3			
16	Phonics	Syllabification	3				3			1
TOTALS			40			3	23/57%	9/23%	8/20%	12/30%

Note: MCQ = multiple choice questions

Step 2: Develop a test map shell in Excel

The role of a test map shell, developed in Excel, is to record the decisions made during the forms assembly process about which items will be placed on a test form, in what position on a form, along with their statistical and content definitions. An example is provided in Figure 2.4.

Figure 2.4. Test map shell

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Subj	Grade	Admin	Form	Pos	Func	ItemID	Type	Pvalue	Key	Max	Domain	Strand	Level
MA	5	2022	1	1	0	MA0522001	M	0,5175	D	1	Mensuration & Geometry	Time	Know

NOTES: Subj = Subject; Admin = Test administration year; Pos = Item position on form; Func = Item function on form; Type = Item type; Max = Maximum number of score points for item; Level = Cognitive level

The shell allows for all forms to be stored one after another, item by item in sequence, with the form number identified in column D. Once completed and approved, the test map will be uploaded to the data analysis software and linked with score data. The test map shown provides for the input of the following information:

- ▶ Columns A and B: The subject and grade of the test being assembled
- ▶ Column C: The year of test administration
- ▶ Columns D, E and F: The form number on which an item will appear, its position on the form, and its function (for NALABE 2022, two functions are identified: an item is either a unique operational item on a form, or it is an anchor item shared across multiple forms)
- ▶ Columns G and H: The unique item ID and its item type
- ▶ Column I: The p-value (or item difficulty level) of the item (in the case of NALABE 2022, this p-value derives from a pilot administration of the item)
- ▶ Columns J and K: The correct option or key and the maximum number of score points available for the item (since all items on NALABE 2022 are multiple choice items, their maximum score is 1)
- ▶ Columns L and M: The content standards the item is intended to measure (at the domain or theme and strand or sub-theme levels)
- ▶ Column N: The cognitive level that the item is designed to measure (either knowing, reasoning or applying)

Additional columns of information may be considered necessary (e.g., discrimination statistic) and can be added to the shell. All completed test maps for NALABE 2022 are to be found in Appendix B at the end of this document.

Step 3: Conducting the content statistics review of piloted items and selection of operational items

Selection of operational test items requires the following documents:

- ▶ Test blueprints in Appendix A
- ▶ Item pilot statistics for each subject/grade/form (Figure 2.5), together with any item performance graph (Figure 2.6); in the example shown below, the results of CTT analyses are shown in the top and bottom boxes, while the box to the right shows the results of IRT analyses listing discrimination and difficulty parameters

- All printed test forms administered in the pilot
- Item pool listing piloted test items summarizing key statistical and content information (Figure 2.7)
- Blank test map for recording item selection decisions

Figure 2.5. Example of pilot statistics form

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Keys:	1	2	1	3	4	3	1	3	3	2	3	4	4	2	1	3	1	4	2	4	
Total:	172	250	216	165	163	110	171	134	194	260	86	144	172	197	260	110	216	174	102	138	:
Key p-value:	0.30	0.43	0.37	0.29	0.28	0.19	0.30	0.23	0.34	0.45	0.15	0.25	0.30	0.34	0.45	0.19	0.37	0.30	0.18	0.24	0
A:	172	178	216	93	125	128	171	162	106	102	257	100	96	125	260	219	216	105	97	121	:
B:	304	250	108	225	111	267	206	183	102	260	141	146	153	197	114	154	158	104	102	241	:
C:	49	122	95	165	174	110	92	134	194	97	86	181	150	161	141	110	117	183	162	71	:
D:	50	23	151	85	163	66	104	89	167	108	78	144	172	89	55	83	75	174	208	138	:
Miss:	1	3	6	8	3	5	3	8	7	9	14	5	5	4	6	10	10	10	7	5	:
A p-value:	0.30	0.31	0.38	0.16	0.22	0.22	0.30	0.28	0.18	0.18	0.45	0.17	0.17	0.22	0.45	0.38	0.38	0.18	0.17	0.21	0
B p-value:	0.53	0.43	0.19	0.39	0.19	0.46	0.36	0.32	0.18	0.45	0.24	0.25	0.27	0.34	0.20	0.27	0.27	0.18	0.18	0.42	0
C p-value:	0.09	0.21	0.16	0.29	0.30	0.19	0.16	0.23	0.34	0.17	0.15	0.31	0.26	0.28	0.24	0.19	0.20	0.32	0.28	0.12	0
D p-value:	0.09	0.04	0.26	0.15	0.28	0.11	0.18	0.15	0.29	0.19	0.14	0.25	0.30	0.15	0.10	0.14	0.13	0.30	0.36	0.24	0
Miss p-value:	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0
Range:																					

21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
1	4	4	3	3	3	4	2	4	1	1	2	4	4	1	4	4	3	3	3	
228	78	229	190	118	144	209	242	181	205	272	234	128	176	232	96	100	129	129	207	
0.39	0.13	0.40	0.33	0.20	0.25	0.36	0.42	0.31	0.35	0.47	0.40	0.22	0.30	0.40	0.17	0.17	0.22	0.22	0.36	
228	190	109	115	119	141	110	104	106	205	272	102	98	156	232	145	135	114	189	134	
106	151	113	163	182	138	136	242	131	130	168	234	181	100	152	194	157	224	160	114	
121	153	113	190	118	144	109	111	147	115	73	133	140	130	88	124	174	129	129	207	
118	78	229	99	145	144	209	104	181	120	60	102	128	176	90	96	100	100	86	117	
3	4	12	9	12	9	12	15	11	6	3	5	29	14	14	17	10	9	12	4	
0.40	0.33	0.19	0.20	0.21	0.24	0.19	0.18	0.18	0.36	0.47	0.18	0.17	0.27	0.40	0.25	0.23	0.20	0.33	0.23	
0.18	0.26	0.20	0.28	0.32	0.24	0.24	0.42	0.23	0.23	0.29	0.41	0.31	0.17	0.26	0.34	0.27	0.39	0.28	0.20	
0.21	0.27	0.20	0.33	0.20	0.25	0.19	0.19	0.26	0.20	0.13	0.23	0.24	0.23	0.15	0.22	0.30	0.22	0.22	0.36	
0.20	0.14	0.40	0.17	0.25	0.25	0.36	0.18	0.31	0.21	0.10	0.18	0.22	0.31	0.16	0.17	0.17	0.17	0.15	0.20	
0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.01	0.01	0.01	0.05	0.02	0.02	0.03	0.02	0.02	0.02	0.01	
	0.13									0.47										

PTME	PVALUE	NAME
-0.037	0.2972	Vr1_mk
0.3327	0.424	Vr2_mk
0.374	0.3606	Vr3_mk
0.3575	0.2922	Vr4_mk
0.1551	0.2922	Vr5_mk
0.1122	0.2053	Vr6_mk
0.4175	0.2988	Vr7_mk
-0.0122	0.2187	Vr8_mk
0.2177	0.3372	Vr9_mk
0.3687	0.4491	Vr10_rr
0.0233	0.1669	Vr11_rr
0.252	0.2538	Vr12_rr
0.3616	0.2938	Vr13_rr
0.145	0.3372	Vr14_rr
0.3696	0.4357	Vr15_rr
0.0315	0.187	Vr16_rr
0.443	0.3623	Vr17_rr
0.3848	0.3139	Vr18_rr
-0.0011	0.1836	Vr19_rr
0.1698	0.2404	Vr20_rr
0.1662	0.3856	Vr21_rr
0.0297	0.1352	Vr22_rr
0.3689	0.389	Vr23_rr
0.1265	0.3356	Vr24_rr
-0.0943	0.207	Vr25_rr
0.3363	0.2521	Vr26_rr
0.4561	0.3589	Vr27_rr
0.3465	0.409	Vr28_rr
0.2831	0.3055	Vr29_rr
0.3272	0.3673	Vr30_rr
0.208	0.4474	Vr31_rr
0.3423	0.3973	Vr32_rr
0.3267	0.227	Vr33_rr
0.1876	0.2955	Vr34_rr
0.3761	0.414	Vr35_rr
0.0657	0.1619	Vr36_rr
0.2855	0.182	Vr37_rr
0.0227	0.222	Vr38_rr
0.1465	0.2237	Vr39_rr
0.2905	0.3673	Vr40_rr

Figure 2.6. Example of piloted item performance graph showing strongly discriminating item

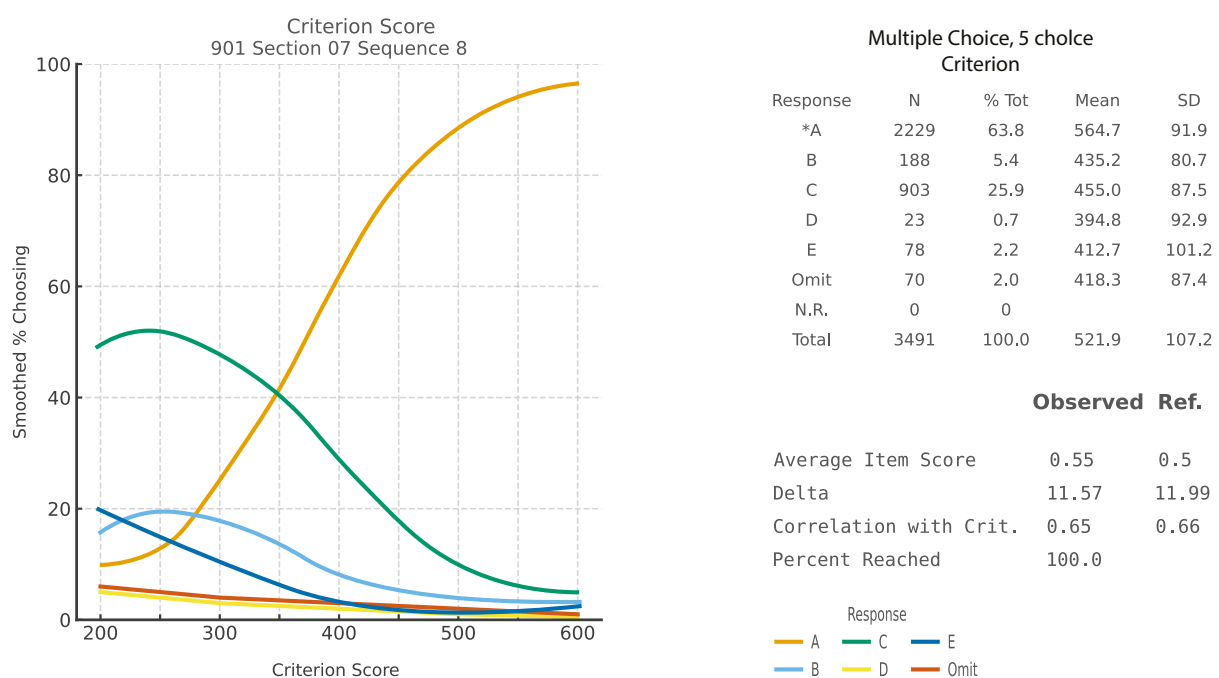


Figure 2.7. Example of item pool

Item ID	Domain	Strand	Cognitive level	P-value	Means distractors	Key	TextID	Text topic	Text type	Decision	Notes
EN0322001-A01	Reading Comprehension	Secondary idea	Reasoning	0.2	0.61/0.05/0.12	B	TNEN032201	Literacy	Narrative	Modify	Option A: article
EN0322002-A02	Reading Comprehension	Explicit	Knowledge	0.61	0.10/0.20/0.05	B	TNEN032201	Literacy	Narrative	Accept	
EN0322003-A03	Reading Comprehension	Implicit	Reasoning	0.43	0.19/0.23/0.10	B	TNEN032201	Literacy	Narrative	Accept	
EN0322004-A04	Reading Comprehension	Secondary idea	Reasoning	0.33	0.23/0.16/0.21	A	TNEN032201	Literacy	Narrative	Accept	
EN0322005-A05	Reading Comprehension	Secondary idea	Reasoning	0.19	0.37/0.23/0.15	D	TNEN032201	Literacy	Narrative	Accept	
EN0322006-A06	Reading Comprehension	Secondary idea	Reasoning	0.39	0.22/0.20/0.14	A	TNEN032201	Literacy	Narrative	Revise	Correct errors in stem
EN0322007-A07	Reading Comprehension	Implicit	Reasoning	0.45	0.22/0.17/0.10	A	TNEN032201	Literacy	Narrative	Accept	
EN0322008-A08	Reading Comprehension	Summary	Application	0.35	0.22/0.26/0.12	C	TNEN032201	Literacy	Narrative	Accept	
EN0322009-A09	Reading Comprehension	Secondary idea	Reasoning	0.27	0.35/0.21/0.10	C	TNEN032202	Lion	Narrative	Accept	
EN0322010-A10	Reading Comprehension	Secondary idea	Reasoning	0.37	0.21/0.19/0.18	B	TNEN032202	Lion	Narrative	Accept	
EN0322011-A11	Reading Comprehension	New word	Reasoning	0.46	0.26/0.15/0.09	A	TNEN032202	Lion	Narrative	Accept	
EN0322012-A12	Reading Comprehension	Secondary idea	Reasoning	0.41	0.27/0.18/0.13	A	TNEN032202	Lion	Narrative	Accept	
EN0322013-A13	Reading Comprehension	Secondary idea	Reasoning	0.33	0.19/0.19/0.22	A	TNEN032202	Lion	Narrative	Accept	
EN0322014-A14	Reading Comprehension	Secondary idea	Reasoning	0.38	0.24/0.17/0.14	A	TNEN032203	Lion2	Narrative	Accept	Remove "every day" in B
EN0322015-A15	Reading Comprehension	Secondary idea	Reasoning	0.45	0.21/0.19/0.09	A	TNEN032203	Lion2	Narrative	Accept	
EN0322016-A16	Reading Comprehension	Secondary idea	Reasoning	0.23	0.20/0.28/0.21	D	TNEN032203	Lion2	Narrative	Revise	
EN0322017-A17	Reading Comprehension	Main idea	Reasoning	0.23	0.37/0.19/0.14	B	TNEN032203	Lion2	Narrative	Accept	Change key to B
EN0322018-A18	Reading Comprehension	Main idea	Reasoning	0.28	0.30/0.19/0.16	B	TNEN032203	Lion2	Narrative	Accept	
EN0322019-A19	Reading Comprehension	Main idea	Reasoning	0.38	0.23/0.18/0.14	C	TNEN032203	Lion2	Narrative	Accept	
EN0322020-A21	Grammar	Tense	Knowledge	0.17	0.42/0.19/0.20	C				Accept	
EN0322021-A24	Grammar	Auxiliary (Be)	Knowledge	0.35	0.21/0.18/0.20	B				Accept	
EN0322022-A25	Grammar	Modals/Aux/Tense	Knowledge	0.38	0.26/0.20/0.10	A				Accept	
EN0322023-A26	Grammar	Auxiliary verbs	Knowledge	0.22	0.31/0.21/0.21	D				Accept	
EN0322023-A27	Grammar	Auxiliary verbs	Knowledge	0.28	0.31/0.18/0.16	B				Accept	

Participants worked in their content area and were divided into two groups – one focusing on the selection of items for form 1 and the other for form 2. Each content area determined and agreed upon its own rules for sequencing items on a form based on the content measured. Using the documents provided and listed above, each group identified items in the piloted pool that they believed best met the test blueprint. They then presented the results of their group work to the complete subject group in the manner shown in Figure 2.8 for resolution across forms. Note that each group summarized the composition of their form with the following information: item sequence number on form; short item code number; p-value; discrimination statistic; strand/sub-theme measured by item; and cognitive level. This information allowed participants to line up items across forms to ensure parallel forms.

Figure 2.8. Example of group worksheet from item selection process (P5 social studies)

FORM A					FORM B				
#	p-val	disc	strand	cog lev	#	p-val	disc	strand	cog lev
13 A12	0.48	0.45	mean	K	A14	0.54	0.46	Ways	A
14 A15	0.49	0.41	RP	K	A15	0.34	0.41	Ways	K
15 A16	0.50	0.46	mean	A	A16	0.40	0.52	RP	K
16 A20	0.33	0.42	Unit	K	A21	0.38	0.45	Ways	A
17 A22	0.34	0.44	Ways	A	A22	0.34	0.49	RP	R
18 A30	0.34	0.49	RP	R	B14	0.48	0.44	EBP	A
19 B14	0.43	0.44	EBP	A	B15	0.39	0.11	Mean	K
20 B16	0.39	0.31	mean	R	B16	0.38	0.31	mean	K
21 B23	0.37	0.49	mean	K	B19	0.31	0.13	Unit	K
22 B30	0.50	0.46	EBP	R	B22	0.37	0.49	Mean	K
23 B36	0.45	0.35	Unit	A	B36	0.44	0.38	Unit	A
24 B37	0.39	0.41	Unit	A	C15	0.44	0.37	Ways	K
25 C15	0.45	0.37	mean	K	C16	0.31	0.38	Unit	R
26 C18	0.30	0.37	Unit	R	C23	0.39	0.37	Mean	A
27 C23	0.40	0.37	mean	A	C26	0.39	0.34	Mean	K
28 C26	0.25	0.34	mean	K	C27	0.36	0.46	Unit	R
29 C27	0.36	0.44	Unit	R	D12	0.45	0.30	EBP	R
30 D12	0.46	0.45	mean	R	D27	0.32	0.25	Mean	R
31 D30	0.34	0.37	mean	K	D30	0.43	0.36	EBP	K
32 D32	0.43	0.36	EBP	K	D40	0.40	0.35	Unit	K

Inevitably, with two groups working independently on their own test form, some items were selected for both forms. This had to be resolved by deleting duplicates and finding replacements from the pool, such that each of the two forms would end up with completely different items measuring the same content and cognitive levels as per the test blueprint. This approach was adopted with slight adaptations per subject area for all targeted grades.

Due to some errors made in the assembly of some of the pilot test forms leading to a smaller pool of items available for operational test form assembly, we found it necessary to adopt a 'pseudo-forms' approach in the construction of the two forms for mathematics (all three grades) and basic science and technology (both grades). A pseudo-forms approach means that each form contains exactly the same items, with the second form slightly modifying the order in which the items are presented. This enables the two forms to serve a role in maintaining security in administration within class.

Step 4: Selecting anchor items in forms construction

At the conclusion of step 3, we have assembled two forms each with completely different items selected in such a way that the two forms can be considered statistically and content parallel. In the case of pseudo-forms, the two forms are clearly exactly parallel because they contain the same items, although sequenced differently.

The team addressed the modification of the assembled forms to integrate anchor items across the two forms. Creating a set of anchor items follows three basic guidelines:

- ▶ The set includes some 20 per cent of the total number of items on the form, erring on the side of 'more is better than less'.
- ▶ The set covers the blueprint at the domain and, to the extent possible, at the strand level. The set can be considered a mini version of the test.
- ▶ Statistically, linking items should be reliable items with strong discrimination indices and a range of p-values avoiding top and bottom extremes. These items are likely to play an anchoring role across test administration iterations, although this is not always the case.

With those guidelines in mind, and following the recommendations made in the test blueprint for anchor coverage, the two groups independently made suggestions for anchor items from those already available in their assembled form. They then presented their decisions to the whole subject group. Since the two forms, before anchoring, were composed of completely different items, each group had different items to propose as anchors. The remaining task was to agree across the two groups upon the final set, then decide on the location of these items on the form, using the following guidelines for anchor item location:

- ▶ Avoid the first few item positions and the last few item positions on a test form.
- ▶ Do not bunch too many anchor items together (i.e., distribute them across the form).
- ▶ Maintain the same location on all forms to the extent possible, and if not, do not vary the position by more than 1 or 2 positions.

A final task involved resolving any residual issues that may have emerged from the items that were deleted to accommodate anchors. This may result in changes in statistical and content coverage on the form which would need to be resolved. This final task is best carried out across the two groups so that parallel forms are maintained.

Step 5: Assembling print-ready test forms in Word

Once the final forms were constructed on the test map, print-ready forms were compiled. For this purpose, a blank Word document was developed so that items could be dropped into cells in a table, including item ID codes vertically presented to the right of the item. Forms assembled in Word were reviewed on multiple occasions to ensure that there were no formatting or presentation errors on the form.

Figure 2.9. Example of section of test form layout in word

READING COMPREHENSION	
Read the passages below. Then answer the questions that follow by choosing the most appropriate option lettered A-D.	
PASSAGE 1:	
Amina's mother gave her money to buy fish from the market. When she got to the market, she found out that the fish cost two hundred and fifty naira which is half of the money she was given. She bought the fish and went home with the balance. On her way home, she saw the ice-cream man. She was tempted to buy some ice-cream with her mother's change but she decided not to do so. When she got home, she gave her mother the remaining money and the fish. Amina's mother was happy that her daughter had learnt <i>honesty</i>. When her mother had finished preparing the <i>delicious</i> meal, she gave her some of the balance for her ice-cream, and a big portion of fried fish to eat with delicious rice and stew.	
1. Why did Amina go to the market?	
a. To collect her mother's change.	b. To buy fish for her mother.
c. To find out the cost of fish in the market.	d. To buy some ice-cream.
2. What was the temptation Amina faced?	
a. To keep the balance of her mother's money.	b. To use her mother's money to buy ice-cream.
c. To buy rice and stew.	d. To visit her friend on her way to the market.

2.2.2 Non-cognitive assessments – Questionnaires

The non-cognitive questionnaires included a learner questionnaire, a teacher questionnaire, a head teacher questionnaire, a principal questionnaire and a parent questionnaire.

Learner questionnaire

This questionnaire requests personal data from learners such as school, gender, age, person lived with, classroom information and assessment of teacher behaviour, with a response mode of yes and no. Information on academic achievement is also captured and rated as excellent, very good, good, average and below average. There were also items focusing on liking of subjects and reasons for response. Self-assessment of performance was also included, along with use of information and communications technology (ICT) gadgets.

Teacher questionnaire

This questionnaire collects personal information such as state, gender, age, employment status and highest educational qualification, among others. Teacher professional development participation and impact was also explored, as was mentoring and being mentored, relationship with learners and parents, teacher self-assessment, instructional supervision, implementation of supportive classroom, use of ICT, challenges encountered as a teacher, teacher job satisfaction, and relationship with the host community.

Head teacher/principal questionnaire

This questionnaire was used to obtain information about the head teacher/principal such as age, gender and highest educational qualification, along with information about the school such as school location, level of basic education, teacher distribution of the core subjects of mathematics, English studies, basic science and technology and social studies, and enrolment of learners. Other information collected included availability, adequacy and usage of school facilities; availability, adequacy and usage of water, sanitation and hygiene (WASH) facilities; availability, condition, adequacy and usage of instructional materials; and availability, condition, adequacy and usage of sport and recreational facilities. This questionnaire also gathered information on school/community relations, community support and community parental control, head teacher/principal attitude and other issues.

Parent questionnaire

The information collected with this questionnaire includes personal data like gender, age, marital status, income, highest educational qualification, distance from home to school, parental status, employment status and occupation. Other information included school issues focusing on parental involvement, regular school-based management committees (SBMCs), and parental support for the child.

2.3 Sampling

This section focuses on the procedures adopted to develop a national sample of learners for the targeted grade levels of P3, P5 and JS2 for the NALABE 2022 operational administration. The national sample of schools and learners needed to be large enough to provide reliable state-level estimates for the 36 states and FCT that make up Nigeria, all of which participated in the administration. The sample was not developed to enable reliable estimates at any level below the state, although a rational distribution of the sample was made across LGAs in each state. Sampling procedures adopted used a probability design in which every school and learner in all states and the FCT had an equal opportunity to be selected for inclusion in the administration of the assessment (with clearly outlined rules for exclusion discussed below).

The section concludes with an explanation of the administration of the assessment focusing on the logistics plan developed based on the sampling plan, expected challenges in the field, and measures adopted to guarantee security in administration.

2.3.1 Populations investigated

The target population for the NALABE 2022 study consisted of all public and private, urban and rural primary and junior secondary schools in the 36 states of Nigeria and the FCT, across 6 zones and 774 LGAs. According to the 2018 National Personnel Audit (NPA) of public and private basic education schools in Nigeria, there was a total of 113,450 public and private primary schools and 31,053 junior secondary schools. The study targeted the learner populations of the P3, P5 and JS2 classes, with a total of 4,886,922 in P3 (17.5 per cent of the total primary learner population), 4,117,427 in P5 (14.8 per cent of the total primary learner population), and 2,307,237 in JS2 (33.7 per cent of the total junior secondary learner population). Tables 2.11 and 2.12 provide the population statistics relevant to the NALABE 2022 study.

Table 2.11. Population statistics for primary levels

Population groups	Public			Private			Grand total
	Urban	Rural	Total	Urban	Rural	Total	
Schools	12,162	51,252	63,414	28,783	21,253	50,036	113,450
Learners P1–6	7,311,313	15,073,442	22,384,755	3,116,000	2,388,632	5,504,632	27,889,387
Learners P3	1,265,132	2,580,729	3,845,861	594,299	446,762	1,041,061	4,886,922
Learners P5	1,171,994	2,177,994	3,349,988	443,413	324,026	767,439	4,117,427

Table 2.12. Population statistics for junior secondary levels

Population groups	Public			Private			Grand total
	Urban	Rural	Total	Urban	Rural	Total	
Schools	4,096	8,933	13,029	10,640	7,384	18,024	31,053
Learners JS1–3	2,715,471	2,473,622	5,189,093	931,695	721,165	1,652,860	6,841,953
Learners JS2	921,473	834,718	1,756,191	309,091	241,991	551,082	2,307,273

2.3.2 Determination of sample size

Sample size determination and representativeness are central to the effective generalization and comparability of results across the populations surveyed in the country. The following estimations were used:

- ▶ Margin of error of estimate set at 0.00205 for P3
- ▶ Margin of error of estimate set at 0.00205 for P5
- ▶ Margin of error of estimate set at 0.003067 for JS2
- ▶ Confidence interval = 95 per cent
- ▶ Standard deviation for P3 mathematics (P3 not part of the sampled classes in NALABE 2017)
- ▶ Standard deviation for P5 mathematics = 5.89 (based on 2017 NALABE study)
- ▶ Standard deviation for JS2 mathematics = 4.189 (based on 2017 NALABE study)

The calculation of primary and junior secondary sample sizes was the following:

Table 2.13. Calculation of sample sizes

P3/P5	JS2
▪ Margin of error = $t S/\sqrt{n}$ ▪ ME = Margin Error ▪ T = t distribution score ▪ n = Sample size	
Primary class sample ▪ $0.002 = 1.96 \times 5.89/\sqrt{n}$ ▪ $0.002\sqrt{n} = (1.96 \times 5.89)$ ▪ $\sqrt{n} = (1.96 \times 5.89)/0.00205$ ▪ $n = 65,011.3$ ▪ $n = 66,000$ (approx.) to make it divisible by 36 states and FCT ▪ Sample by State = $66,000/37 = 1,800$ learners per State/FCT	Junior Secondary class sample ▪ $0.002 = 1.96 \times 4.189/\sqrt{n}$ ▪ $0.002\sqrt{n} = (1.96 \times 4.189)$ ▪ $\sqrt{n} = (1.96 \times 4.189)/0.003067$ ▪ $n = 21979.56$ ▪ $n = 22,000$ (approx.) to make it divisible by 36 states and FCT ▪ Sample by State = $22,000/37 = 600$ learners per State/FCT

2.3.3 Sampling of schools, classrooms and learners

Selection of LGAs to be covered in NALABE 2022

The State Universal Basic Education Boards (SUBEBs) were responsible for selecting the number of LGAs to represent the state based on ease of reach. Administering NALABE 2022 in some LGAs was difficult due to security conditions and other geographical factors. A total of 14 out of 37 states/FCT – including Abia, Akwa Ibom, Edo, Imo, Jigawa, Plateau and Lagos – targeted all their LGAs. The remaining 23 states targeted a selection of LGAs. In all, 669 LGAs out of 774 total (86.4 per cent of the total) were selected and 105 (13.6 per cent) were excluded. The results of NALABE 2022 represent the 669 participating LGAs.

Appendix D provides a listing of all participating LGAs for each state and the FCT. The table compares actual participating LGA names and numbers combined for P3, P5 and JS2 grade levels with the total number of LGAs per state.

Sampling of schools in primary and secondary levels

A simple random sampling of schools was conducted in each state, with school type (i.e., public or private) and school location (i.e., urban and rural) as strata. UBEC guided states to conduct sampling from a pool of schools that have a minimum of 50 learners in targeted grades. It was observed, however, that schools with less than 50 learners in targeted grades were also sampled.

In each state, 60 primary schools were planned to be randomly sampled – 40 urban public schools, 10 rural public schools and 10 urban private schools. All private schools were sampled in an urban setting, although there are many private schools in rural areas as well. The planned sample of primary schools was 2,220 (60 schools x 37 states/FCT). Although the UBEC report of the 2018 NPA of public and private basic education schools in Nigeria shows more rural schools than urban schools in the public sector, the choice of more urban schools was based on accessibility to schools and security challenges in the rural areas, though there were more learners in urban private schools than rural schools.

At junior secondary school level, 20 junior secondary schools were planned to be sampled across LGAs in each state and FCT, comprising 10 urban public schools, 5 rural public schools and 5 urban private schools. This made a total of 740 junior secondary schools (20 schools x 37 states/FCT).

Sampling of classrooms in primary and secondary levels

Sampling of classrooms was planned based on one intact classroom with at least 30 learners per school. The planned number of classrooms to be selected was the same as for schools (i.e., 2,200 in both P3 and P5 and 740 in JS2). Schools with fewer than 30 learners in a classroom in each of the three targeted levels of P3, P5 and JS2 were not considered for selection.

Sampling of learners in primary and secondary levels

It was planned to randomly select 30 learners in one class of P3 and P5 respectively at the primary school level. Similarly, 30 learners in one class of JS2 were planned to be randomly selected in each of the selected junior secondary schools.

With a total of 60 schools in a state and 30 learners per school, 1,800 learners in each of P3 and P5 were expected to be selected per state. At the junior secondary level, with 20 schools selected and 30 learners per school, 600 learners per state were targeted for participation in JS2.

The total planned number of learners in P3 and P5 was 66,600 in each of the two levels, for a total of 133,200 learners in primary schools, while 22,200 JS2 learners were targeted in junior secondary schools. Table 2.14 and Table 2.15 show the planned distributions of selected schools and learners per state, with corresponding totals at the national level.

Table 2.14. Planned distribution of sampled schools per state

Primary schools per state				Junior secondary schools per state				PS and JS schools per state	National totals			
Public		Private	Total	Public		Private	Total	Total	Public		Private	Total
Urban	Rural			Urban	Rural				Urban	Rural		
40	10	10	60	10	5	5	20	80	1,850	555	555	2,960

Table 2.15. Planned distribution of sampled learners per state

Number of learners per school by class				Total number of learners per state by class				National totals			
P3	P5	JS2	Total	P3	P5	JS2	Total	P3	P5	JS2	Total
30	30	30	90	1,800	1,800	600	4,200	66,600	66,600	22,200	155,400

Planned and actual sample size

Table 2.16 and Table 2.17 provide a summary of planned sample numbers at the national level by subject and grade level compared with actual participating numbers per subject and grade level, for learners and schools. Note that targeted participation numbers were achieved for learners and schools above the 95 per cent rate, which is a highly commendable response rate and gives testimony to the success of the administration and the level of commitment provided by state education administration personnel.

Appendix C provides a comparison of planned versus actual participating sample numbers for learners and schools in each of the 36 states and FCT.

Table 2.16. Planned distribution of sampled learners per state compared with actual sample

Learners	National totals P3			National totals P5			National totals JS2		
	Planned	Actual	%	Planned	Actual	%	Planned	Actual	%
Mathematics	66,600	62,677	94%	66,600	63,889	96%	22,200	21,913	99%
English studies	66,600	63,134	95%	66,600	64,584	97%	22,200	21,829	98%
Basic science and technology	-	-	-	66,600	63,096	95%	22,200	21,344	96%
Social studies	-	-	-	66,600	64,611	97%	22,200	21,807	98%

Table 2.17. Planned distribution of sampled schools per state compared with actual sample

Schools	National totals P3			National totals P5			National totals JS2		
	Planned	Actual	%	Planned	Actual	%	Planned	Actual	%
Mathematics	2,220	2,181	98%	2,220	2,183	98%	740	735	99%
English studies	2,220	2,171	98%	2,220	2,201	99%	740	735	99%
Basic science and technology	-	-	-	2,220	2,206	99%	740	731	99%
Social studies	-	-	-	2,220	2,210	100%	740	739	100%

2.3.4 Selection of head teachers/principals, teachers, parents and learners for non-cognitive survey

Head teachers/principals

All head teachers of all sampled primary schools and all principals of all sampled junior secondary schools participated in the non-cognitive survey to provide data on their schools and about themselves.

Teachers

In each of the sampled schools, teachers were sampled to provide information about themselves and their work at school. At the primary school level, 13,320 teachers were sampled. The sample was designed to include two teachers from the two targeted subjects in P3 and one teacher from each of the four targeted subjects in P5, making a total of six teachers per primary school. At the junior secondary level, one teacher for each of the targeted subjects participated in the study. In all, 2,960 teachers in the sampled junior secondary schools across the 36 states and FCT were selected to participate in the study.

Parents

Parents of learners who participated in the NALABE cognitive assessment also provided information on themselves and their households. At the primary school level, 133,200 parents were sampled. At the junior secondary level, 22,200 parents (the same number as for JS2 learners) were sampled. Only one parent per learner was asked to provide answers to the parent questionnaire.

Learners

All the learners who participated in the cognitive tests also responded to the questionnaires for the non-cognitive data collection.

2.4 Test administration

The operational administration of the 6th NALABE, of both cognitive and non-cognitive instruments, was conducted by UBEC during a 10-day window from 25 September to 3 October 2022, in all 36 states and the FCT. The following steps were taken during data collection exercise:

2.4.1 Training of UBEC field officers

The UBEC director of quality assurance trained field officers on the following topics:

- ▶ Introducing themselves to the head teacher/principal of the school and discussing details of the NALABE 2022 administration assignment at their school.
- ▶ Carrying out a random selection of 30 learners from an intact P3, P5 or JS2 class.
- ▶ Providing appropriate guidance to learners regarding how to shade OMR response sheets and questionnaires. School code, learner's identification number and class code were provided in the school code list.
- ▶ Guiding learners on how to correctly fill out and sign the attendance sheet.
- ▶ Distributing the two parallel operational test forms among the 30 participating learners in a staggered way based on the seating arrangement of learners.
- ▶ Collecting the OMR sheets after administration, arranging them by subject test and grade level, and placing them in the correct envelope provided.
- ▶ Ensuring the OMR sheets are properly shaded with the correct codes and signed with a pencil.
- ▶ Ensuring that each learner's name and codes are written on the questionnaire before collection.
- ▶ Arranging the OMR sheets and the scripts serially after administration and before submission to the team leader in preparation for scanning.
- ▶ Where possible, inviting parents to the school with their child to complete the parent questionnaire.
- ▶ Collecting the parents' questionnaires before the commencement of the learners' achievement tests on the second day. In doing this, efforts were made to identify each parent with his or her child.
- ▶ Arranging the questionnaires serially, appropriately labelled and packaged in the envelope provided for submission to the team leader for data entry at UBEC headquarters in Abuja.

How to shade the OMR

The state, LGA, school codes and learners' serial numbers were provided by the field officers using the school list provided by the ICT unit of the Commission. Each selected school had a unique school code. Learners were expected to shade the appropriate circled number that corresponds to the given school code as shown in Figure 2.10.

Figure 2.10. Example OMR sheet with shading of codes



UNIVERSAL BASIC EDUCATION COMMISSION
2022 NATIONAL ASSESSMENT OF LEARNING ACHIEVEMENTS IN BASIC EDUCATION (NALABE)
ACHIEVEMENT TEST ANSWER SHEET

INSTRUCTIONS TO CANDIDATES

1. Write your State No (State code, LGA code, School code, pupil's No, Test Code) and shade as appropriate.
2. Use HB pencil throughout.
3. Shade the Circle completely like ☒.
4. Erase completely any answer you wish to change.
5. Under no case shade the Circle beside your Class.

CANDIDATE'S NAME
 Surname: _____
 Other Names: _____

SUBJECT

ENGLISH ☒

TEST TYPE

Form A ☒

Form B ☐

GENDER

MALE ☒

FEMALE ☐

LEVEL

PRIMARY 3 ☐

PRIMARY 5 ☒

JSS 2 ☐

STATE CODE	LGA CODE	SCHOOL SERIAL NUMBER	CANDIDATE SERIAL NUMBER
☒ 0 ☐ 0	☒ 0 ☐ 0	☒ 0 ☐ 0	☐ 0 ☒ 0
☐ 1 ☒ 1	☐ 1 ☒ 1	☐ 1 ☐ 1	☐ 1 ☐ 1
☐ 2 ☐ 2	☐ 2 ☐ 2	☐ 2 ☐ 2	☐ 2 ☐ 2
☐ 3 ☐ 3	☐ 3 ☐ 3	☐ 3 ☐ 3	☐ 3 ☐ 3
☐ 4 ☐ 4	☐ 4 ☐ 4	☐ 4 ☐ 4	☐ 4 ☐ 4
☐ 5 ☐ 5	☐ 5 ☐ 5	☐ 5 ☐ 5	☒ 5 ☐ 5
☐ 6 ☐ 6	☐ 6 ☐ 6	☐ 6 ☐ 6	☐ 6 ☐ 6
☐ 7 ☐ 7	☐ 7 ☐ 7	☐ 7 ☐ 7	☐ 7 ☒ 7
☐ 8 ☐ 8	☐ 8 ☐ 8	☐ 8 ☐ 8	☐ 8 ☐ 8
☐ 9 ☐ 9	☐ 9 ☐ 9	☐ 9 ☐ 9	☐ 9 ☐ 9

A learner's unique ID number on the OMR sheet and non-cognitive questionnaire was made up of nine digits. These digits were comprised as follows:

- ▶ State code (two digits): Provided to test administrators (from Abia 01 to Zamfara 37)
- ▶ LGEA code (two digits): Provided to test administrators, arranged based on the available and selected number of LGAs in each state
- ▶ School code (two digits): Provided to test administrators and systematically arranged per state as follows:
 - 01–40: 40 urban public primary schools
 - 41–50: 10 rural public primary schools
 - 51–60: 10 urban private primary schools
 - 61–70: 10 urban public junior secondary schools
 - 71–75: 5 rural public junior secondary schools
 - 76–80: 5 urban private junior secondary schools
- ▶ Learner's personal ID number (three digits): Consisting of the grade level number (3, 5 or 2) followed by a number from 1 to 30 in each of the selected classes, as follows:
 - 301–330: P3 learners
 - 501–530: P5 learners
 - 201–230: JS2 learners

Learners were expected to write their three-digit ID number on each OMR answer sheet corresponding to the achievement tests they participated in and for the learners' and parents' questionnaires that were completed. Assuming a learner in P5 was assigned number 07 for this test administration, the learner was expected to shade 507 in the appropriate row and column on the OMR sheet and learner questionnaire, and the parent was expected to use the same three-digit ID number on the parent questionnaire sheet. The format for providing personal information for questionnaires was slightly different, as shown in Figure 2.11.

Figure 2.11. Example personal data sheet for questionnaires

SECTION A: PERSONAL DATA

1. Name: [REDACTED]

2. State: ABIA

3. LGA: 01

4. School: AHIABA PRIMARY SCHOOL

5. School Code: 01

6. Learner's Number: 507

7. Are you a male or female: Please tick (✓) one?

Female ☐

Male ☒

2.4.2 Posting of field officers

Senior staff on grade levels 8 to 16 participated in the exercise. A total of 5,291 field officers were involved in the test administration and scanning of the OMR sheets in the field. Of these, 1,850 officers were drawn from UBEC and other sister agencies. The remaining 3,441 officers were drawn from SUBEBs and LGEAs. Monitoring team members were involved in the administration of the instruments at the school level. One officer was assigned to each school to handle P3, P5 or JS2 classes.

2.4.3 Distribution of NALABE 2022 materials

Distribution of the NALABE 2022 materials was done at three levels:

At the national level

The team leaders for each state collected the following materials from the UBEC department of quality assurance in Abuja:

- ▶ 2,000 OMR sheets and 2,000 question booklets each for P3 mathematics and English studies
- ▶ 2,000 OMR sheets and 2,000 question booklets each for P5 mathematics, English studies, basic science and technology, and social studies
- ▶ 700 OMR sheets and 700 question booklets each for JS2 mathematics, English studies, basic science and technology, and social studies

- ▶ 2,000 copies of learner questionnaires and parent questionnaires for P3 and P5 each, and 700 copies of learner questionnaires and parent questionnaires for JS2
- ▶ 85 copies of head teacher/principal questionnaires
- ▶ 250 copies of teacher questionnaires for P3, P5 and JS2 teachers
- ▶ Large envelopes for packing and returning the completed OMR sheets

At the state level

The materials from UBEC were taken to the SUBEB where they were distributed to the LGA team leaders, after training, according to the number of schools in each LGA.

At the LGA level

The following distribution was made to each school from the LGA secretariat:

- ▶ 30 OMR sheets and 30 question booklets each for P3 mathematics and English studies
- ▶ 30 OMR sheets and 30 question booklets each for P5 mathematics, English studies, basic science and technology, and social studies
- ▶ 30 OMR sheets and 30 question booklets each for JS2 mathematics, English studies, basic science and technology, and social studies
- ▶ 30 copies of learner questionnaires and parent questionnaires for P3, P5 and JS2.
- ▶ 1 copy of head teacher/principal questionnaire
- ▶ 2 copies of teacher questionnaires for P3 and P5 teachers
- ▶ 4 copies of teacher questionnaires for JS2 teachers
- ▶ Large envelopes for packing and returning the completed OMR sheets

After the administration, each test administrator collated the OMR sheets in the school according to subject, learner, parent, teacher and head teacher/principal questionnaires. These were returned to the LGA team leader. The materials were examined, and any error found in collation was corrected. The reviewed materials were returned to the state headquarters and handed over to the state team leader. The OMR sheets were then scanned by the technical officer. At the end of the exercise, the non-cognitive instruments and soft copy of scanned OMR sheets were returned to UBEC headquarters for necessary processing.

2.4.4 Instructions for data administration

Test administrators were instructed on the following key issues:

- ▶ Pack the OMR sheets and questionnaires in number sequence and by type.
- ▶ Collect, package and return completed questionnaires, answer sheets and any other materials used in the administration of the tests. The answer sheets should be arranged serially.
- ▶ Ensure that the correct code numbers were shaded on all test sheets and written on personal data sheets.
- ▶ Ensure that the OMR sheets were well prepared for scanning at the state level.
- ▶ Team leaders at state, LGA and school levels were instructed to cross-check, package and return all learner, parent, teacher, head teacher/principal questionnaires and other useful materials to the desk officer in charge of NALABE at the quality assurance department in UBEC headquarters in Abuja.

- ▶ Team leaders or test administrators should submit all other materials to the NALABE desk officer immediately on arrival from the state. This should not be later than one week after the exercise.

2.4.5 Field work

The field officers went to their respective schools with the following materials:

- ▶ Achievement test question booklets for mathematics, English studies, basic science and technology, and social studies
- ▶ Learner questionnaires
- ▶ Teacher questionnaires
- ▶ Head teacher/principal questionnaires
- ▶ Parent questionnaires
- ▶ OMR sheets (30 per class per subject) for the four subjects listed above

2.4.6 Order of administration

The order in which the NALABE 2022 instruments were administered is presented in Table 2.18.

Table 2.18. Order of administration of NALABE 2022

#	Steps
1	Teacher and head teacher/principal questionnaires
2	English studies MCQ test
3	Basic science and technology MCQ test
4	Parent questionnaires (to be taken home by learners and brought back the following day)
5	Mathematics MCQ test
6	Social studies MCQ test
7	Collection of parent questionnaires
8	Collection of teacher and head teacher/principal questionnaires
9	Learner questionnaires
10	Document preparation, checking of codes and collation by test form
11	Scanning of OMR forms

Note: MCQ = multiple choice questions

2.4.7 Quality assurance at data administration level

Teams of experts from academia, development partners and civil society were engaged in the quality monitoring process. Each sampled school received unscheduled visits from the monitoring teams and local education officers. The extensive and robust test administration and monitoring procedures were designed to ensure consistency across states and schools such that differences in performance would not be attributable to factors unrelated to performance. Furthermore, precision in data collection and submission from field staff were effectively managed to minimize both systematic and random error sources. Specifically, test administrators and monitors ensured similar testing environments. Such increased precision improved the quality of results and the confidence placed on the statistical analyses. Indeed, consistent administration procedures and precision of data from a representative sample strengthened the power to generalize results to accurately reflect performance levels of learners in the target populations.

2.5 Data processing and analysis

This section provides details of the post-test administration process, focusing on the following topics: scanning and entry of data; cleaning of data and organization of data files; the development of a data analysis plan; data analysis procedures based on both CTT and IRT; weighting of data; and standard setting.

2.5.1 Process after test administration

Once the administration of NALABE 2022 had been completed at the school level, the OMR sheets were scanned in each of the 36 states and the FCT under the coordination of technical personnel posted to the state. The soft copies of the scanned OMR sheets were then submitted to the desk officer at UBEC headquarters in Abuja. These copies were collated onto a hard disk and submitted to a local consultant who carried out the following activities:

- ▶ Screen and edit the files for the 36 states and FCT for all 20 test forms (10 form 1 and 10 form 2, for a total of 740 files).
- ▶ Merge the files from 60 primary schools and 20 junior secondary schools for the respective subjects into 20 files per state.

Using eVAL OMR reader software, read the OMR sheets for the 36 states and FCT for 20 subjects (i.e., 10 form 1 and 10 form 2, for a total of 740 files). Missing cases were treated as '0' and multiple responses were treated as '9'.

During the process of file screening and editing, UBEC detected a number of cases where learners had incorrectly shaded their class, state code and/or exam number. In the data cleaning process, discussed below, issues of this type (among others) had to be reconciled. It was noted that for future iterations of the NALABE, far more attention should be placed by field offices and learners on correctly filling out the OMR sheets with the necessary demographic data.

All files containing the cognitive data for all 36 states and FCT were submitted to UBEC's international data analysis contractor for further data reconciliation and analysis, supported by UBEC.

The completed non-cognitive instruments for learners, parents, teachers, head teachers and principals were submitted to the department of quality assurance at UBEC headquarters in Abuja for onward submission to the UBEC ICT unit for data entry. Data files were then submitted to UBEC's international data analysis contractor for further data reconciliation and analysis.

All the raw data from cognitive and non-cognitive assessments were later submitted to, and reanalysed by, another international consulting firm (Creative Learning).

2.5.2 Cleaning of data files

Cognitive survey data

In respect to the cognitive survey data, the raw dataset with uncleaned data contained 481,199 cases.² As shown in Appendix C, the total number of planned learner cases across all four subjects and three grade levels was 488,400; the total number of actual participating cases was 472,637.

After data cleaning procedures to remove blank lines and empty cases and addressing minor inconsistencies (e.g., matching of school level code, subject code and file name; spelling discrepancies in the entry of the names of variables for school type, school location and gender), the final number of 468,884 cases – including test response data, personal characteristics and other necessary case features – were used for data analysis.

Table 2.19 defines the criteria for acceptable sample data integrity established by the OECD Programme for International Student Assessment (PISA) (OECD, 2015). As the table shows, NALABE 2022 far exceeded the recommended minimum participation rates for schools and learners.

Table 2.19. Computation of achieved sample size used in NALABE 2022

#	Criteria (PISA 2015 Technical Standards)	Proposed	Achieved	% achieved
1	A minimum school participation rate of 85 per cent of the originally sampled schools	16,280	16,092	98.8%
2	A minimum class participation rate of 95 per cent of the originally sampled schools ³	16,280	16,092	98.8%
3	A minimum learner participation rate of 85 per cent of the originally sampled learners	488,400	468,884	96.0%
4	A minimum combined school, classroom and learner participation rate of 75 per cent of original combined sample	-	-	97.4%

Non-cognitive survey data

With regards to the data collected from the non-cognitive survey, after rigorous data cleaning, the following number of responses were obtained as valid for analysis.

Table 2.20. Number of valid responses in non-cognitive survey

Respondents	Valid responses	
	P3/P5	JS2
Learners	113,030	18,182
Parents	88,343	14,829
Teachers	12,447	2,967
Head teachers/principals	1,807	461

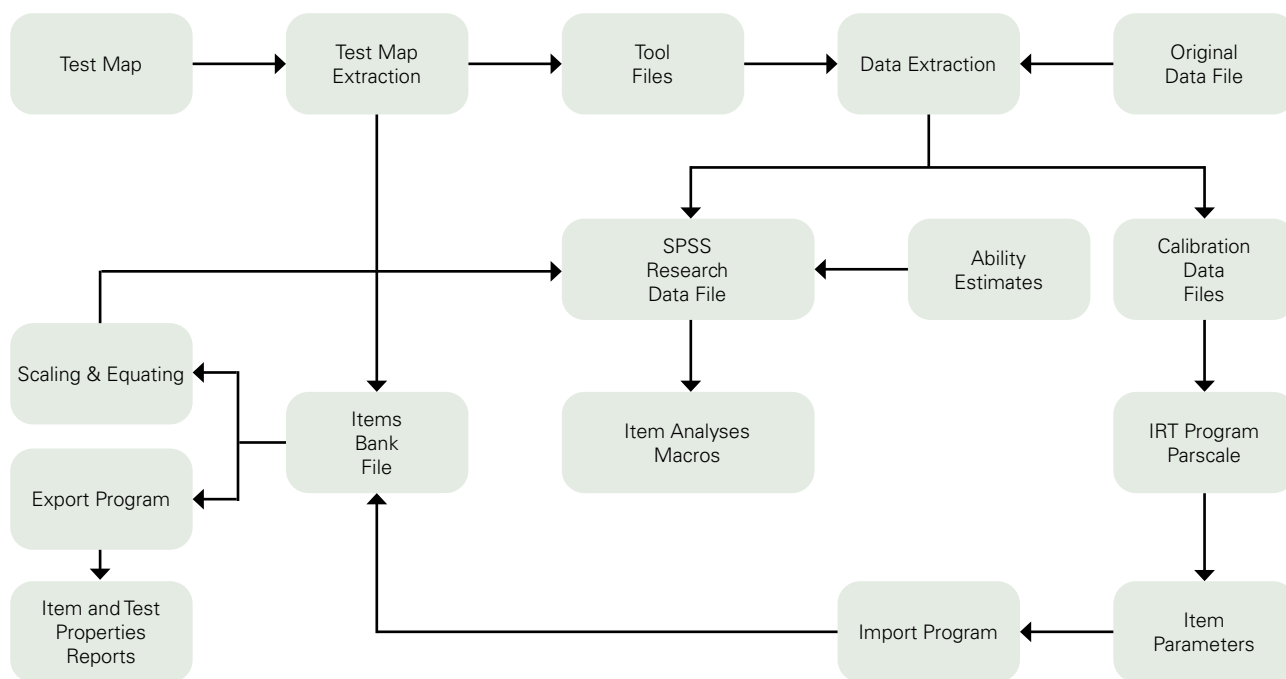
2.5.3 Operational data analysis

The international consulting firm Creative Learning conducted data analysis using the Assessment Data Analysis System (ADAS), designed to carry out data analyses for large-scale assessments. ADAS is a comprehensive suite of programmes for data management and item analysis based on CTT and IRT. It enables incorporation of item parameters from both measurement models, where CTT parameters are produced by SPSS and IRT by PARSCALE. ADAS is designed for large-scale assessment systems to enable effective analysis of large numbers of items and forms and includes quality control checks. This suite of programmes has the following general characteristics:

- ▶ **Production mode:** Capacity to process a large number of items, test forms and examinees and store the results automatically in a single database for effective further processing.
- ▶ **Efficiency:** Uses minimal resources to provide high-quality products in a short time.
- ▶ **Richness and flexibility:** Provides a variety of statistical procedures that can be easily customized to meet customers' needs; uses the CTT and IRT models to produce item statistics such as difficulty, discrimination, option quality and differential item functioning (DIF) indices, as well as test reliability statistics.
- ▶ **Graphical outputs:** Provides graphic illustrations of item quality generated, such as item option analysis plots and DIF plots.
- ▶ **Standardized processing:** Components of ADAS and their functional relationships are presented in Figure 2.12. All the input information to the system is contained in two source files, the test map and the original data file, which are further processed through the outlined procedures.

- **IRT integration:** Teamed up with IRT software, in this case PARSCALE, ADAS uses IRT parameters to carry out scaling and equating procedures.

Figure 2.12. ADAS processes



Classical item statistics and graphs

Item difficulty

Item difficulty refers to the proportion of learners who answered the item correctly. Item difficulty is also known as p-value and ranges between 0 and 1, with higher values indicating that an item was correctly answered by a higher proportion of learners. For example, a p-value of 0.85 means that 85 per cent of learners answered the item correctly, which indicates it is a relatively easy item. By conventional rule of thumb, items that have p-values higher than 0.9 are generally considered too easy to include on a test, and those with p-values less than 0.3 for multiple-choice items or less than 0.1 for constructed-response items are considered too difficult.

Item discrimination

Item discrimination refers to a measure distinguishing high-performing from low-performing learners on an item. The method applied to compute this index is the point-biserial correlation for dichotomous items and the Pearson correlation for polytomous items. This method analyses the relationship between performance on a given item and the total score obtained on a test. An item is considered to have a good discrimination when the learners who answered it correctly mainly obtained higher scores on the test and the learners who answered it incorrectly mainly obtained lower scores on the test. As a rule of thumb, a satisfactory discrimination is one that yields an item-total correlation of 0.30 or above; down to 0.25 can be considered acceptable, but below 0.25 is considered too low for use in operational tests.

Option analysis and graphs

For multiple-choice items, it is important to analyse the performance of correct and incorrect options (i.e., keys and distractors). The statistical information used for the evaluation of options includes the percentage of learners

choosing each option and option point-biserial correlations (i.e., the degree of agreement between choosing an option and the total score on a test). Some common issues that can appear in option analysis are:

- ▶ **The key was not selected by most of the learners:** This situation may indicate that the key has been incorrectly identified, or the item is too difficult.
- ▶ **Any of the distractors was selected by less than 2 per cent of the learners:** This situation may indicate that the distractor is obviously incorrect, causing virtually nobody to select it.
- ▶ **The item was omitted by more than 20 per cent of the learners:** This may indicate a problem with the readability of the item in the booklet or confusion with the item question.
- ▶ **Positive option correlation for any distractor:** This may indicate that the item has more than one correct option or that the key was incorrectly identified.
- ▶ **Negative option correlation for the key:** This may mean that the key was erroneously identified or that the item does not offer a correct option.

To facilitate the evaluation of multiple-choice item options it is convenient to create 'option graphs' that show the relationship between the test performance (usually expressed in three or four levels) and the percentage of learners choosing each option (the item mean). Two examples of option graphs are presented in Figures 2.13 and 2.14. It can be observed that the keyed option increases and distractors decrease with the level of performance on the test is a desirable pattern. On the other hand, an undesirable pattern can be observed where multiple options increase with the level of performance on the test.

Figure 2.13. Example of desirable pattern of options

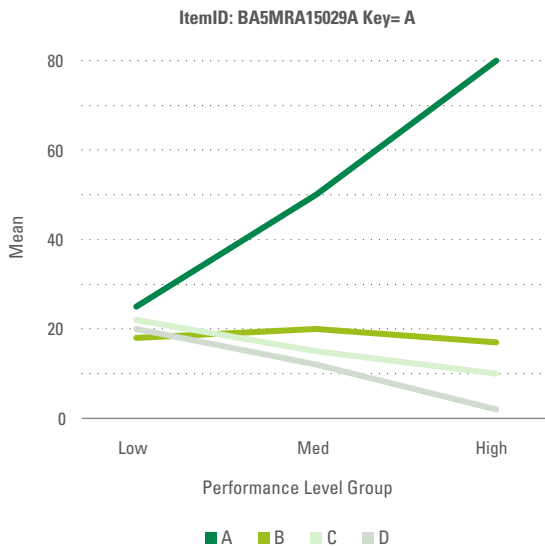
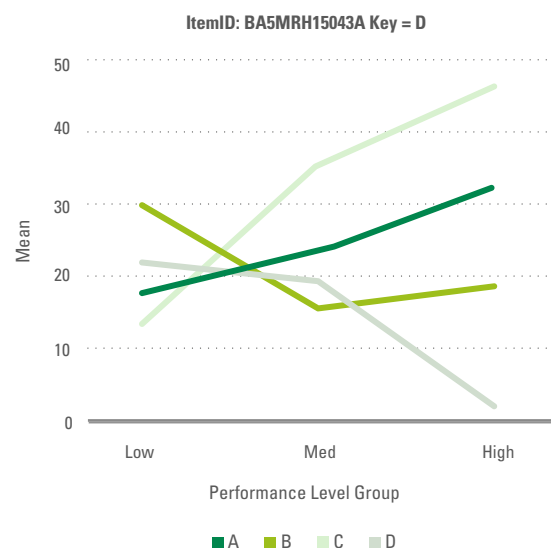


Figure 2.14. Example of undesirable pattern of options



Differential item functioning

DIF statistics are used to identify items on which members of one group (conventionally called the focal group) perform differently from members with comparable ability in the second group (conventionally called the reference group). In other words, DIF refers to the unexpected differences in performance on a studied item between a reference and a focal group after they have been matched with respect to the total score on the test.

The results of DIF analysis can be conveniently depicted using graphs with conditional item means. The conditional item means graph shows the relationship between performance on the total test score and performance on a studied item for two contrasted groups after they have been matched on the total test score.

Figures 2.15 and 2.16 demonstrate examples of learner performance on two different studied items for groups of girls and boys that were matched on the total test performance, expressed in seven score levels.

Figure 2.15. Example of conditional item means for an item exhibiting DIF favouring boys

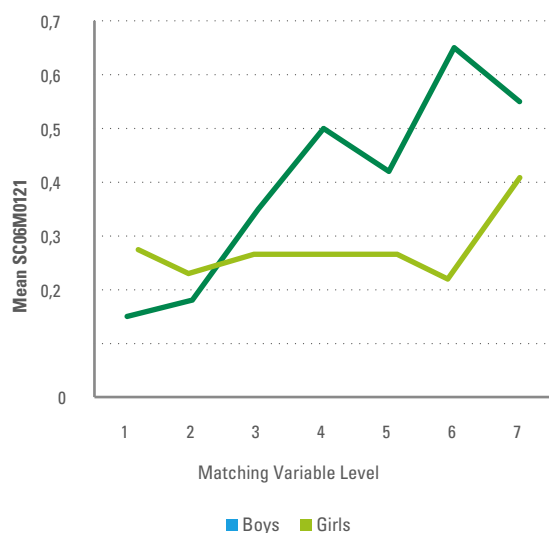
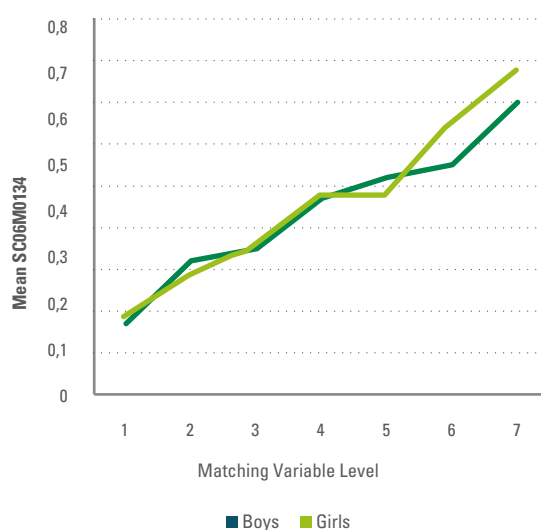


Figure 2.16. Example of conditional item means for an item NOT exhibiting DIF



For operational data analysis, a comparison was made for each item checking for DIF between girls and boys, but other comparisons of interest may be considered in the future (e.g., learners from urban vs. rural settings, learners from different ethnic groups or from different language backgrounds).

DIF between gender groups for operational items was evaluated using the Educational Testing Services (ETS) categories method, which is strongly supported by the professional literature and widely used in large-scale assessment practice. The method is based on both statistical significance and the size of the difference. Based on the ETS categories method, each item is classified into one of three DIF levels:

- **Category A:** No or negligible DIF, no contrast group favoured;
- **Category B:** Moderate DIF, one contrast group is slightly favoured by the studied item;
- **Category C:** Large DIF, one contrast group is strongly favoured by the studied item.

Items in categories B and C are flagged, and their content should be carefully examined for potential bias against a particular group. As a general guideline, some category B items may be included in the operational tests, if necessary, but category C items should be avoided.

An item is considered biased if it measures attributes irrelevant to the intended curriculum or is somehow a less acceptable measure of the construct for one subgroup. DIF does not necessarily mean that an item is biased. DIF only indicates that the examinees of equal proficiency from different subgroups have an unequal probability of responding correctly to an item. The results of DIF analyses provide a starting point for the study of item bias, and the final decision as to whether a studied item is biased should be made based on both DIF and content analysis.

The items on the NALABE 2022 assessments did not show any significant discrimination between boys and girls. The results of item and test analyses for all NALABE items are presented in Appendix B.

Item Response Theory analysis

Choice of IRT model

Considering the nature of NALABE items, the options were narrowed to either one-parameter logistic (1-PL) or two-parameter logistic (2-PL) models, as these are the most frequently used IRT models in the practice of educational assessment. The decision about the IRT model for calibration of NALABE was based on the following principles:

- ▶ Fit between the provisions of the theoretical model and empirical data is considered as one of the major criteria for making decisions about models to be used in practice. No mathematical model can perfectly describe natural phenomena; mathematical models can, however, be tested for their fit to empirically collected data, and those that demonstrate better fit can be considered more fruitful for describing the nature of the measured construct (as George E. P. Box said, “All the models are wrong, but some are useful”).
- ▶ Convergence between models stemming from different conceptual domains can be considered another criterion for the selection of models – for example, convergence between IRT and CTT models of measurement, including reasonableness, common sense and logical acceptability.

Based on obtained results of model-data fit, and alignment between item parameters based on IRT and CTT concepts of measurement, it was decided that the 2-PL IRT model would be used for calibration and the creation of the IRT scale scores for NALABE 2022 data.

Choice of IRT software

IRT analyses for NALABE 2022 utilized a versatile IRT software package, PARSCALE for Windows version 4.1 (Muraki and Bock, 2003), which has the capacity to run multi-parameter models, performs estimation of ability scores, and is suitable for equating purposes.

PARSCALE is a programme that performs estimation of item parameters and test scoring under a variety of IRT models. It allows for the inclusion of different item types, and consequently different IRT models, into the framework of the same analysis. This unique feature makes it especially useful for the calibration of educational tests, which typically consist of various item formats (e.g., multiple choice, short answer, open-ended and writing prompt items). Further, it allows parameters for selected items to be fixed to specific values defining the metrics to which the parameters of other items will be estimated. This feature is especially useful for equating designs that employ anchor items.

The programme can estimate parameters under the 1-PL, 2-PL, and 3-PL models for dichotomous items, and for polytomous items it can apply the graded response model, a rating scale version of the graded response model, the partial credit model, and the generalized partial credit model. It can also perform multi-group item calibration offering testing for the rater’s effect, the DIF and the trend. PARSCALE offers abundant output providing a large number of classical and IRT statistics. For example, for any model, it allows the computation of item information at numerous logit scale points (thetas) and saves the values into an external text file. It also provides advanced chi-square item and test fit statistics. All these features make this programme extremely useful in the development and psychometric analyses of educational tests.

IRT metrics for learner ability

Options for constructing the reporting scale for NALABE 2022 that the technical team took into consideration include the following two approaches:

1. **IRT pattern-scoring method using a weighted maximum likelihood algorithm:** A general characteristic of IRT ability estimation is that person score estimates are independent of any particular set of items (test-free

scores), and, provided that the parameters of the two forms are placed on the same scale, the scores on the two forms obtained by pattern-scoring are directly comparable. The IRT scores (ability estimates) are initially generated in logit metrics (with mean of 0 and standard deviation 1), which is then converted into a client-approved reporting scale that facilitates score interpretation.

- 2. IRT test characteristic curve (TCC):** This method involves construction of a TCC, which depicts the relationship between learners' true scores and the IRT logit scale. Through this TCC, the learners' true scores are mapped onto the IRT logit scale. This process is actually using learners' raw scores as the best proxy for true scores. The next step is the same as above – learners' ability estimates expressed in the logit scale need to be converted to the reporting scale.

The final decisions about IRT metrics for learners' ability and construction of the reporting scale were made by choosing the TCC method for mapping learners' ability onto the logit scale. Construction of the reporting scale was anchored to proficiency levels, with 500 as the threshold for meets, 550 for exceeds, and 450 for partially meets minimum proficiency. This reporting scale has predefined scale score ranges for each proficiency level, so that a learner's scale score automatically conveys his/her proficiency level.

2.5.4 Sampling weights

The sampling weights for NALABE 2022 were determined using the industry standard definition of a sampling weight as an inverse of the probability of being selected into the sample. School and learner weights reflect the sample design by considering the approach to stratified cluster-based sampling and include adjustments for the different probability of a learner being selected from schools of different size. Weights are also determined for school type (public/private), location (urban/rural) and state strata based on the ratio of the respective population and sample distributions.

The final weights were determined as a product of the school and learner weight, school type weight, location weight and state weight. The creation of sampling weights relied on the sampling frame containing information about the schools in the population and the schools selected in the sample. Details of the procedure for the creation of sampling weights are presented below. The following technical steps were carried out to obtain the final sampling weights:

- ▶ Sampling frame was defined as all schools that have at least 30 learners enrolled in targeted grades.
- ▶ The research file (containing the scores in both percent-correct and IRT metrics) was matched with the sampling frame to obtain school/grade enrolment information (i.e., measure of size, or MOS). For schools that do not match with the sampling frame, the average school/grade enrolment in the corresponding stratum (state/school type/location) was imputed. In cases of insufficient information for imputing, the school enrolment was set to the number of sampled learners (30).
- ▶ Computing school weight:
 - Compute learner probability, defined as the ratio between the number of participating learners in the school (i.e., the actual number of learners in the data) and the MOS in the corresponding school
 - Compute school weight, defined as the ratio: $1 / \text{learner probability}$
 - Trim school weight to maximum weight = median + median $\times$ 4
- ▶ Computing school type weight (public vs. private):
 - For each state, calculate the representation of learners from public and private schools in the state population (enrolment by type in the state / total state enrolment)
 - Calculate the representation of learners from schools by type in the state sample (participation by type in the state / total state participation)

- Compute school type weight as the ratio: type representation in the population / type representation in the sample
- Trim school type weight to maximum weight = median + median x 4
- ▶ Computing school location weight (urban vs. rural):
 - Compute the representation of learners from schools by location in the state population (enrolment by location in the state / total state enrolment)
 - Compute the representation of learners from schools by location in the state sample (participation by location in the state / total state participation)
 - Compute school location weight as the ratio: location representation in the population / location representation in the sample
 - Trim school location weight to maximum weight = median + median x 4
- ▶ Computing state weight:
 - Calculate the representation of each state in the national population (state enrolment / national enrolment)
 - Calculate the representation of each state in the national sample (state participation / national participation)
 - Compute state weight as the ratio: state representation in the population / state representation in the sample
 - Trim state weight to maximum weight = median + median x 4
- ▶ Calculating the total weight:
 - Calculate total weight as the product of the four trimmed weights (school, type, location, and state weights)
 - Trim the total weight to maximum weight = median + median x 4
- ▶ Calculating the final proportional total weight:
 - Calculate the mean of total trimmed weight
 - Calculate proportional total weight by dividing the total trimmed weight by its mean. This procedure centres the weight distribution of the total sample to 1, which avoids increasing Type I errors in statistical tests but does not affect the obtained weighted results.

All the statistical procedures were carried out using the final proportional total weight.

2.5.5 Standard setting

Reporting the results of NALABE 2022 by reference to proficiency standards was determined to be the most valuable approach to reporting test results, with significant benefits to be obtained for educational policy development, monitoring progress in learning and planning of instruction, at the national, zonal, state and local levels. Proficiency standards or benchmarks are a necessary component of standards-based assessments and are used for the evaluation of learner performance relative to specified learning criteria. Proficiency standards are used in national assessment systems as descriptions of national learning targets.

In the case of Nigeria, a national reading framework with proficiency standards and benchmarks for grade levels P1-P3 was developed and then approved in November 2022. In addition, Nigeria participated in an international effort to develop a global proficiency standards framework⁴ for mathematics and reading in grade levels 1–9, under the auspices of the United States Agency for International Development (USAID), the United Nations Educational, Scientific and Cultural Organization Institute of Statistics, the World Bank and other major international funding agencies. Thus, the concept of proficiency standards and benchmarking of learning outcomes against learning standards is beginning to become an integral aspect of assessment reporting and follow-up procedures used in the country. NALABE 2022 is the first time that proficiency standards have been developed to meet national needs, and with national, state and local experts on subjects, curriculum, assessment and policy fully involved in the development process.

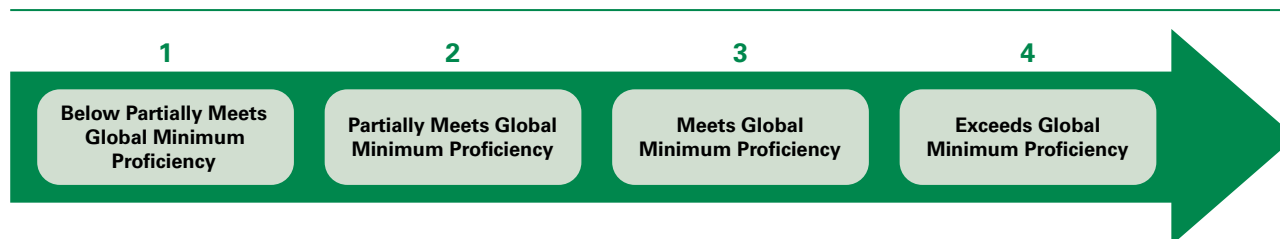
Setting proficiency standards for NALABE 2022 was carried out in a workshop held in Abuja in July 2023 under the leadership of UBEC, with Cito assessment experts and the support of USAID's LEARN to Read project. About 50 experts, including local assessment, curriculum and subject experts with classroom experience in the targeted grades (P3, P5 and JS2) participated in the workshop.

Proficiency standards were developed for all targeted tests on NALABE 2022, a total of 10 tests. The process, as is usual, first focused on developing the proficiency descriptors for all tests and for each level on the proficiency standards scale (see Appendix E), based on an analysis of the content measured on each test in terms of themes, sub-themes, topics and expectations (i.e., what learners should know and be able to do). In this phase of the process, it was possible to take advantage of the structure of the Global Proficiency Framework (GPF), a framework with four levels (below partially meets proficiency, partially meets proficiency, meets proficiency, and exceeds proficiency), along with the general definitions of each level, which serve to anchor general and specific level definitions and allow for cross-grade and cross-level comparisons of proficiency scores. It is worth emphasizing that this feature of proficiency standards allows for cross-subject and cross-grade-level comparisons since the general definitions of each proficiency level are common across subjects and grade levels. This is an extremely useful feature of this approach.

Table 2.21. General definitions of proficiency levels from GPF

Proficiency level	Definition
Below partially meets minimum proficiency	Learners lack the most basic knowledge and skills. As a result, they generally cannot complete the most basic grade-level tasks.
Partially meets minimum proficiency	Learners have limited knowledge and skills. As a result, they can partially complete basic grade-level tasks.
Meets minimum proficiency	Learners have developed sufficient knowledge and skills. As a result, they can successfully complete the most basic grade-level tasks.
Exceeds minimum proficiency	Learners have developed superior knowledge and skills. As a result, they can complete complex grade-level tasks.

Figure 2.17. Four proficiency levels from GPF



Subject and grade-level-specific definitions were based on those descriptions available in GPF for mathematics and English studies in cases where there was alignment of content standards between GPF and NALABE 2022. Content that was measured on the NALABE but was not captured by GPF (e.g., grammar, literature and some aspects of vocabulary in English studies, and some constructs in mathematics) allowed for an expansion of the proficiency level descriptions. In the case of basic science and technology and social studies, neither of these subjects was targeted in GPF. Thus, for these subjects at grade levels P5 and JS2, proficiency level descriptors were written for all expectations measured on NALABE 2022, using the GPF structure in terms of number of levels, names of levels and general definitions of levels (see Appendix E for all proficiency level descriptions by subject and grade level).

At the second stage of the process, the Angoff methodology was used to set cut points on each assessment scale. The same participants who were responsible for the proficiency level descriptions also served as technical experts for making judgments to determine cut points that delineate learner performance into levels on the scale. Multiple rounds of judgments (between three and four, depending on the subject/grade) were made until there was agreement on what the cut points should be. After each round of judgments, participants were provided with agreement data showing the range of judgments provided by participants. They were also given impact data showing

what the NALABE 2022 test results mapped onto the proficiency scale would look like, in terms of percentages of learners falling into each level if cut points at the end of a round were to be accepted. At the end of each round, both agreement and impact feedback were discussed before making judgments for the next round. As is usual in the Angoff procedure, rounds of judgments were conducted until participants agreed on the cut points achieved. The final agreed-upon cut points are shown in Table 2.22 in both raw score and per cent correct metrics.

Table 2.22. NALABE cut scores in terms of raw scores and percent-correct scores

Maths P3 (max. 30)			Maths P5 (max. 40)			Math JS2 (max. 40)		
PM	M	E	PM	M	E	PM	M	E
10	19	26	11	25	35	13	24	35
33%	63%	87%	28%	63%	88%	33%	60%	88%
English P3 (max. 30)			English P5 (max. 40)			English JS2 (max. 40)		
PM	M	E	PM	M	E	PM	M	E
7	21	29	10	25	36	9	24	34
24%	70%	97%	25%	63%	90%	23%	60%	85%
			Science & tech P5 (max. 40)			Science & tech JS2 (max. 40)		
			PM	M	E	PM	M	E
			10	19	30	11	24	35
			25%	48%	75%	28%	60%	88%
			Social studies P5 (max. 40)			Social studies JS2 (max. 40)		
			PM	M	E	PM	M	E
			10	21	35	11	24	35
			25%	53%	88%	28%	60%	88%

Note 1: PM = Partially meets; M = Meets; E = Exceeds.

Note 2: Percent-correct scores have been rounded up or down where necessary.

The following section provides some observations and conclusions drawn from the cut-point decisions reached.

- All cut points represent expected achievement for learners at the bottom of the indicated level, e.g., in English JS2, a score of 9 (23 per cent) is required for a learner's score to be placed in the bottom of the 'partially meets' level, a minimum score of 24 (60 per cent) is required for a score to be placed in the 'meets' level, and a minimum score of 34 (85 per cent) is required for placement in the 'exceeds' level.
- On a 40-point test (i.e., for JS2 and P5), any cut point set at 10 (25 per cent) or below at the 'partially meets' level represents a score that can be achieved by guessing (since there are four options to choose from in each item). For a 30-point test (P3), cut points set at 7 (23 per cent) or below represent a score that can be achieved by guessing.
- The degree to which scores at each proficiency level (for 40-point tests and 30-point tests separately) are close to each other (i.e., within approximately 1 point) indicates similar levels of difficulty. For example, in JS2, all cut points at each proficiency level are homogenous except at the level discriminating between level 1 (below partially meets) and level 2 (partially meets) learners, where there is a range of 9 to 13 points (23–33 per cent). This wider range at the level 1/2 cut point would seem to suggest that it is harder to be classified at level 2 when the cut point is higher, e.g., for JS2 mathematics. This needs to be understood in the context of how demanding the proficiency standards captured in the proficiency level descriptors are viewed by the subject experts setting the standards. In JS2 mathematics, for example, it is possible that the proficiency standards at level 2 are considered more demanding than for other subjects at this level.

- In P5, there is a 6-point range (19–25, or 48–63 per cent) across the subjects at the ‘meets proficiency’ level, with mathematics and English studies set reasonably high and basic science and technology and social studies set lower. Again, this must be understood in the context of the subject experts’ appreciation of how challenging the proficiency standards captured in the proficiency level descriptors are viewed.
- Overall, comparing JS2 and P5 standards across subjects, there would appear to be a reasonably high degree of homogeneity in the standards set by experts. The only differences that stand out are the following: classification into the ‘partially meets’ level in JS2 mathematics, as pointed out above, appears to be challenging; and classification into the ‘exceeds’ level in P5 basic science and technology is set 5–6 points (30–36 score points, or 75–90 per cent) lower than for other subjects, suggesting it is easier to achieve the ‘exceeds’ level in P5 basic science and technology. Again, this must be understood in terms of the proficiency standards expected at this level for this subject versus the other subjects.
- All cut points shown in the above table represent final agreed-upon decisions taken by the subject experts in the setting cut scores phase of the proficiency standards workshop. These results were submitted to the NALABE 2022 Commission for their consideration. Analyses were then conducted to map all NALABE 2022 test results onto the corresponding subject/grade-level proficiency scale at national, state and zonal levels and by subgroups.

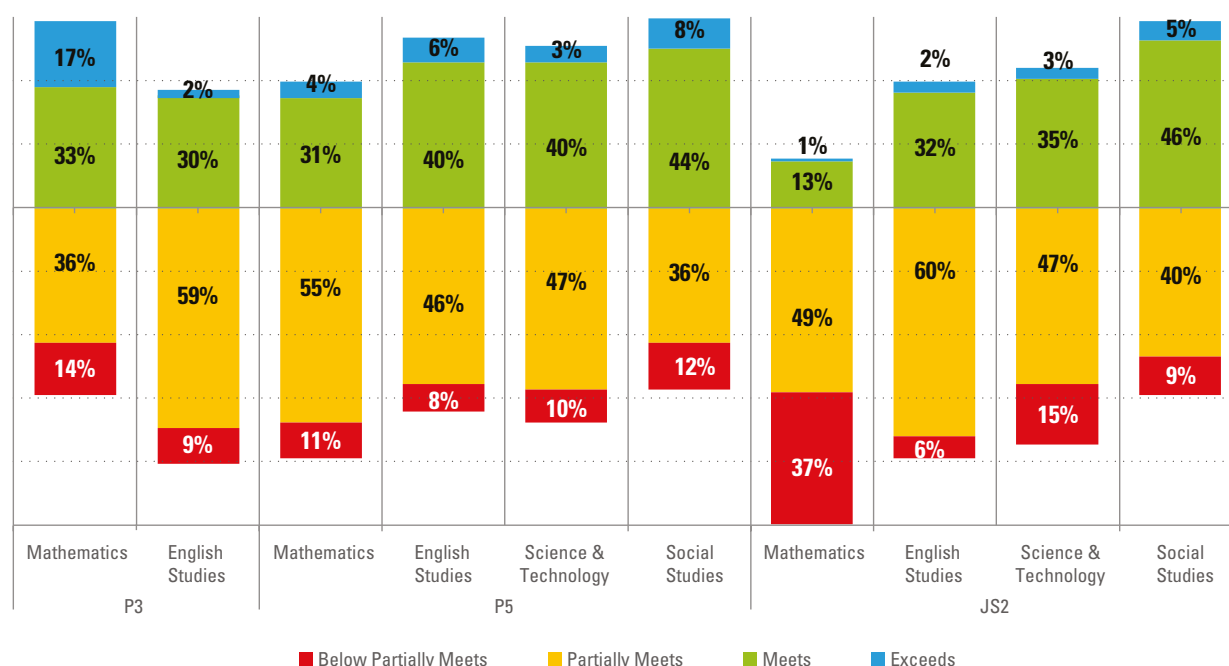
Assuming the final agreed-upon cut points shown in table above, learner performance on NALABE 2022 at the national level for each subject and grade level – in terms of percentages of learners in sampled schools performing at each of the four proficiency levels – would be as summarized in Table 2.23.

Table 2.23. Unweighted percentages of learners in proficiency levels per subject and grade level

% per level	Mathematics				English studies				Basic science & technology				Social studies			
	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4
P3	14	36	33	17	9	59	30	2	-	-	-	-	-	-	-	-
P5	11	55	31	4	8	46	40	6	10	47	40	3	12	36	44	8
JS2	37	49	13	1	6	60	32	2	15	47	35	3	9	40	46	5

Note: L1 = Below partially meets; L2 = Partially meets; L3 = Meets; L4 = Exceeds

These results are presented Figure 2.18 in vertical bar graphs comparing scores across subjects by grade level. To remind the reader, the figures refer to the unweighted percentage of learners nationally who would be classified at each level on the proficiency scale assuming the final cut points discussed. Thus, in JS2 mathematics, 37 per cent of learners in sampled schools performed at the below partially meets proficiency level, 49 per cent at the partially meets level, while 13 per cent meet objectives in JS2 and 1 per cent of learners exceed expectations.

Figure 2.18. Provisional results of NALABE 2022 assuming cut point decisions made in July 2023

It is common to discuss results in terms of two groups: those that meet or exceed expectations (the top two levels on the scale) and those that do not meet expectations (the bottom two levels on the scale). Thus, in JS2 mathematics, we observe from Table 2.24 that 14 per cent of learners in sampled schools met or exceeded expectations while 86 per cent did not meet expectations. This would appear to support the notion that mathematics at the JS2 grade level is quite challenging. By comparison, in P3 mathematics, 50 per cent of learners in sampled schools achieved expectations while 50 per cent did not, supporting the obvious fact that mathematics at P3 grade level is much easier for learners to grasp. The table shows percentages of learners before sampling weights were used.

Table 2.24. Unweighted percentages of learners in combined proficiency levels

% per level	Mathematics		English studies		Basic science & technology		Social studies	
	Below or partially meets	Meets or exceeds	Below or partially meets	Meets or exceeds	Below or partially meets	Meets or exceeds	Below or partially meets	Meets or exceeds
P3	50	50	68	32	-	-	-	-
P5	66	35	54	46	57	43	48	52
JS2	86	14	66	34	62	38	49	51

2.5.6 Connecting performance data with context data

To examine the relationship between learner ability and other school, head teacher/principal, teacher, parent and learner characteristics, the learner performance data and the context data were merged. The context data were collected from head teachers, principals, teachers, parents and learners. For the learner data, the merging was straightforward, because there were learner identification numbers in both data sources. When checking these merges, however, about 16 per cent of the learners' gender did not match across the performance data and the context data, so these cases were deleted from further analyses. Other background variables of learners were not used for matching, because the coding of these background variables did not match across the performance data and the context data. For the analysis using the learners' performance data and the learners' context data, the weights from the performance data were used.

For the analysis combining the learners' performance data and each of the context data from head teachers, principals, teachers and parents respectively, the same weights that were used for cognitive data were used in the non-cognitive data analyses.

After merging the weighted cognitive data with scores for the relevant survey, the high-performing and low-performing schools were identified along with their scores on background factors. Subsequently, the plots of high- versus low-performing schools were developed showing percentages of respondents answering the questions. These plots were produced for the learner data, parent data, teacher data, principal data and head teacher data.

Finally, the head teacher, principal, teacher, parent and learner context data and the learner performance data were merged into one dataset to conduct multiple regression analyses, which allows us to examine how different school, teacher, parent and learner factors are uniquely associated with learners' performance, controlling for other factors. Since the context data on teachers and parents are not linked to their learners, these data are aggregated to school level. The regression analyses were conducted for primary learners (P3 and P5 combined) and junior secondary learners separately. Ordinary least squares (OLS) and logistic regression models were estimated to examine how different context factors were associated with the scale performance scores and the probability of meeting the minimum proficiency level.

2.5.7 How the results in NALABE 2022 are presented

The NALABE results are presented using three types of metrics: proficiency levels, IRT-based scale scores, and traditional percent-correct scores.

Proficiency levels

Proficiency levels indicate learner performance categories based on benchmarks (cut scores) set by mathematics, English studies, basic science and technology, and social studies experts using the national curriculum guides and modelling development of performance standards upon the GPF. The following proficiency levels were established for NALABE during the benchmarking workshop in July 2023:

1. Below partially meets minimum proficiency (level 1)
2. Partially meets minimum proficiency (level 2)
3. Meets minimum proficiency (level 3)
4. Exceeds minimum proficiency (level 4)

Learners who perform within level 1 lack the most basic knowledge and skills in the subject. Those learners whose performance is within level 2 have limited knowledge and skills in the subject. Learners in these two groups do not reach a minimum level of achievement. Learners who perform within level 3 have developed sufficient knowledge and skills in the subject, and learners whose performance is at level 4 have developed superior knowledge and skills in the subject. Learners achieving at level 4 can be considered high achievers, and are likely to represent only a small percentage of all learners. The desirable level that we would like to see all learners achieving at is level 3, and thus it should be considered the target level.

Each of the four levels has a general conceptual definition with common meaning for all subjects and classes. This general definition allows us to compare percentages of learners who fall in a specific level. For example, if in P5 mathematics 40 per cent of learners perform at level 3 (i.e., have developed sufficient knowledge and skills in the subject) and in P5 English studies 55 per cent of learners perform at the same level 3, we can say that P5 English studies learners are on average more successful at meeting proficiency expectations than P5 mathematics P5 learners. If we compare P5 and JS2 English studies learners (e.g., 55 per cent in P5 versus 25 per cent in JS2 at level 3), then we can say that P5 English studies learners are on average more successful than JS2 learners. Each of the four levels for a subject and class has a specific performance level descriptor based on what learners

are expected to know and be able to do, considering both the curriculum and content measured on the test. This makes the proficiency level percentage scores a very useful approach to helping teachers determine what support learners need to improve and move to upper proficiency levels.

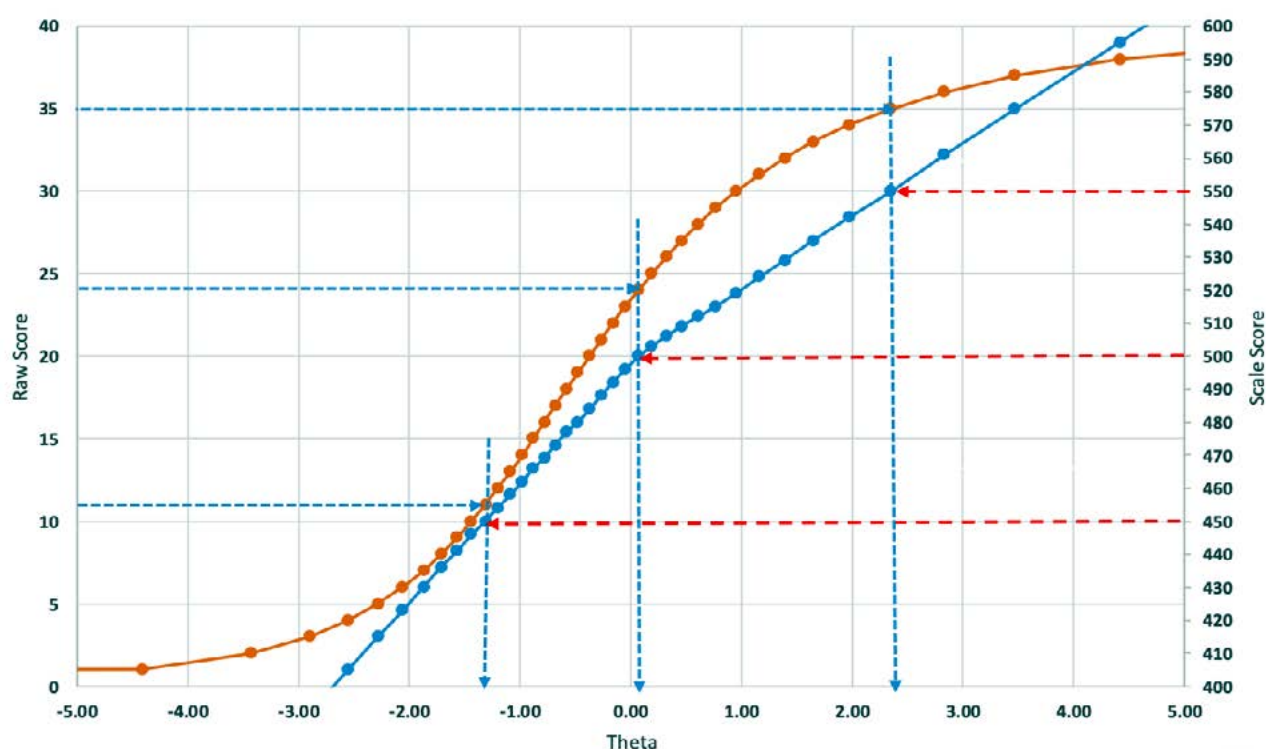
Scale scores

Scale scores are scores based on IRT, designed to describe learners' performance in a meaningful way by anchoring the scale to the cut scores delineating the proficiency levels. This type of scale is considered one of the best practices and is commonly used in advanced national assessment systems. There are multiple advantages of IRT-based scale scores anchored to the proficiency levels:

- Scale scores are meaningful to users because they convey the learner's proficiency level, and as such, they bear the same richness of information integrated in proficiency level descriptors.
- Being based on IRT, scale scores allow for comparison across different forms of the same test, which is technically called equating. This comparability is necessary between the multiple test forms used within the same administration year, as well as across administration years. This is an important feature for NALABE as it will enable monitoring of national, state and regional educational performance across time.

Construction of the scale scores anchored to proficiency levels is illustrated using the example of the JS2 social studies test, which is depicted in Figure 2.19. The curved line in orange colour presents IRT-based test characteristics curve (TCC), which converts raw score scale to theta scale. The blue line is a linear interpolation line anchored to proficiency levels, which converts the theta scale to the NALABE reporting scale.

Figure 2.19. Illustration of the two-step IRT-based scaling for JS2 social studies



The construction of scale scores uses two steps: 1) non-linear transformation of raw scores to theta using IRT-based TCC, and 2) linear transformation of theta to reporting scale scores. For example, the first step is mapping the cut scores for JS2 social studies (partially meets = 11, meets = 24 and exceeds = 35) onto the TCC and identifying corresponding IRT theta scores (-1.31, 0.07 and 2.35, respectively). These theta scores are matched with the conventionally defined cut scores on the reporting scale (450, 500, and 550, respectively) to identify three points on a two-dimensional plane, which define the two lines used in the linear transformation of theta scores into the reporting scale scores with the following ranges:

- ▶ Below partially meets: 400–449
- ▶ Partially meets: 450–499
- ▶ Meets: 500–549
- ▶ Exceeds: 550–600

Percent-correct scores

Percent-correct scores are calculated as percentages of obtained points in relation to the maximum number of points on a test. This type of score is primarily used for formative purposes to inform instructional support teams on developing remedial and enrichment activities, as percent-correct scores are well established in educational practice and easy to understand by practitioners. Percent-correct scores are especially useful when disaggregating total scores into domain and subdomain scores to provide rich descriptions of learners' strengths and weaknesses, which are very useful in the context of assessment-informed instruction (i.e., use of data for improving learning).

2.5.8 Limitations

Like many other large-scale projects of this size and complexity, NALABE 2022 had its own challenges. From that perspective, the results may have limited value, mostly due to factors related to sampling and data collection procedures, which may have affected data accuracy and data integrity.

- ▶ It was not known to what degree the states had followed the instructions from the operating manual. This primarily refers to selecting the schools into the sample, as randomness could not be assured. The same applies to the exclusion rules related to minimum enrolment in targeted grades. Although a minimum of 50 learners per targeted grade was defined for sampling of schools, this may not have been strictly followed. Thus, after multiple communications, it was agreed that the sampling frame would be defined as all schools that have a minimum of 30 learners enrolled in targeted grades (excluding schools from 105 LGAs that were omitted because of accessibility issues).
- ▶ Private schools in rural areas are excluded from the sampling framework, although there are many such schools. This reduces the representativeness of the sample considering that the entire category is omitted, which cannot be fixed by sampling weights as there is no data to be weighted.
- ▶ Review of population data suggests that there are many schools with less than 30 learners in the targeted classes, accounting for about 40–50 per cent of the total learner population. Thus, the sample in NALABE may not be a nationally representative sample of P3/P5/JS2 learners in the country. This would yield biased results if there was a systematic difference in learning between those in small schools and those in large school.
- ▶ The official enrolment data appeared to be of questionable accuracy. Several spot checks revealed large discrepancies, with enrolment for some participating schools found to be less than 30 – in some cases even zero enrolment – although data had been collected for 30 learners. Triangulating enrolment data from official government sources with the enrolment collected from head teachers and principals showed relatively low convergence between the two sources.

- Data cleaning procedures identified relatively large numbers of duplicates of the entire learner vector of responses, which was not evenly distributed across states – i.e., in some states the number of identical response records was much higher than can be expected by chance. This raises suspicions regarding data integrity and the possibility of inflated scores.

Despite these challenges, the data analysed provide a vast amount of useful information about learner performance at national and state levels, which can be used for summative and formative purposes, as well as lessons learned that will be extremely useful for improving sampling and data collection procedures in the next NALABE cycle. These limitations point to ways in which procedures can be improved for future iterations of the NALABE.

Chapter 3:

Learners' performance in core subjects

3



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1st Term, 7th Week, 30/10/2018

Numeracy : Odd and even.

Word/Phrases Daily Practice

odd
even

Complete the even numbers

subtract $2, 4, 6, 8, 10, 12, 14$

take away $16 - 22 - 28$

Minus Count 30-34-50-

expand eq. 45-27-

What is the difference $= 23 = 10 + 10 + 2 + 1$

Start with the $-12 - 12 - 2 =$

Largest number $\overbrace{45 \ 35 \ 25 \ 22 \ 20}$

Expand the small-u

smallest number

 $35 - 14 =$

48-22:

$$62 - 31 =$$
$$47 - 46 =$$

36-255

39-355

11th Term, 7th Week, 29/10/2013

Asusu 1400 :- Ine ihe e kwuru

1st Term, 7th Week, 29/11/2018

Basic Science and Technology

Air Flotation

Ans. Flotation is the process whereby

Some objects move about in the air for

Some time before dropping to the ground.
The objects are able to float in the air.

The objects are able to float in the air because air can carry them.

Objects that float in the air are:-

Ballon	4	Parachute
	5	Kites

1 Ballon

2 Bird
3 Animals

3 myplane

4 Parachute
5 Kites

61 Hot air

not at all Ballon.

1st Term, 2nd Wk

Cultural and Creati

Shapes and Size

Basic

1 Circle

22

2 Square

This chapter presents the performance of Nigerian learners on the NALABE 2022 survey assessment in mathematics and English studies in classes P3, P5 and JS2, and in basic science and technology and social studies in P5 and JS2. The NALABE results are presented using three types of metrics: proficiency levels, IRT-based scale scores, and classical percent-correct scores.

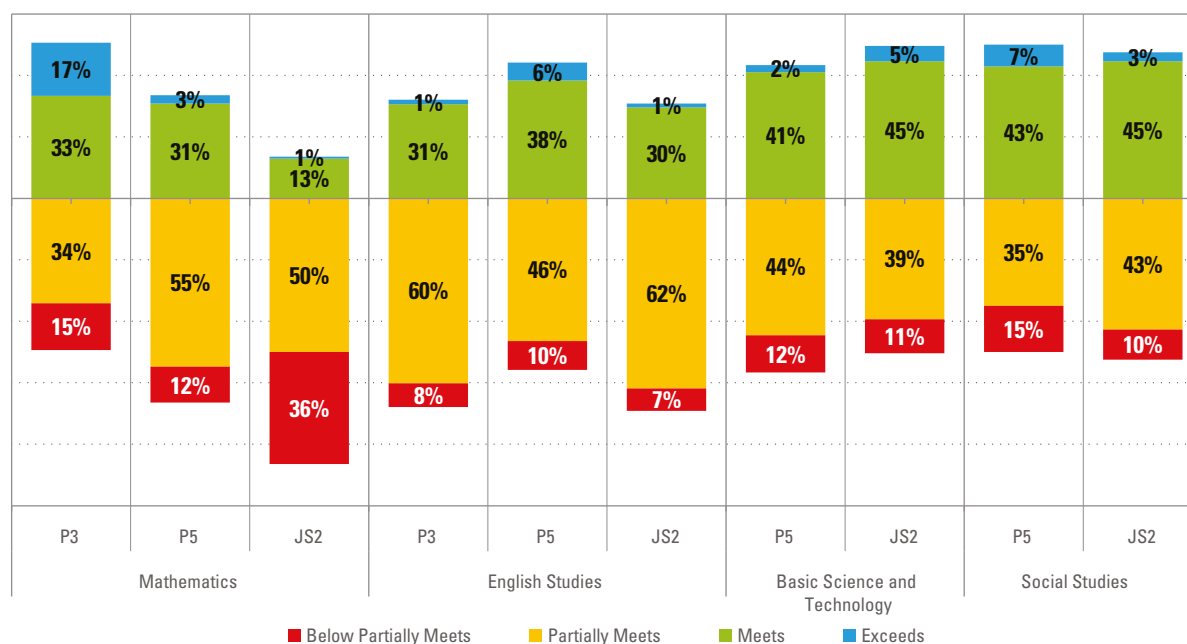
- **Proficiency levels** indicate learner performance categories based on benchmarks (cut scores) set by subject experts using the national curriculum guides and modelling development of performance standards upon the GPF. The four proficiency levels are:
 - Below partially meets minimum proficiency (level 1)
 - Partially meets minimum proficiency (level 2)
 - Meets minimum proficiency (level 3)
 - Exceeds minimum proficiency (level 4)
- **Scale scores** are designed to describe learners' performance by anchoring the scale to the cut scores delineating the proficiency levels. This allows readers to understand how well learners performed within their proficiency level. The scale scores for each proficiency level are:
 - Below partially meets: 400–449
 - Partially meets: 450–499
 - Meets: 500–549
 - Exceeds: 550–600
- **Percent-correct scores** are calculated as percentages of obtained points in relation to the maximum number of points on a test. Percent-correct scores are used to measure the learner's performance in specific subject domains and cognitive levels. These scores must be understood in light of subject-specific definitions per cognitive level because these definitions are not always made explicit in the corresponding framework document. In addition, percent-correct scores cannot be compared across subjects or other levels within a subject because they are test-specific.

3.1 Performance by proficiency level across subjects and classes

Figure 3.1 presents the percentage of learners who achieved at different proficiency levels in each subject and class. Learners who fall under level 4 (exceeds the minimum proficiency) and level 3 (meets the minimum proficiency) attained the minimum proficiency. On the contrary, learners at level 2 (partially meets the minimum proficiency) and at level 1 (below partially meets the minimum proficiency) did not reach the minimum proficiency.

In terms of the percentage of learners who attained the minimum proficiency (levels 3 and 4), the highest performance was observed in P3 mathematics, JS2 basic science and technology, and P5 social studies. In these subjects and classes, half of learners (50 per cent) attained the minimum proficiency. In P3 mathematics, 17 per cent of learners also exceeded the minimum proficiency (level 4).

The lowest performance was found in JS2 mathematics, where only 14 per cent of learners attained the minimum proficiency (levels 3 and 4). This means 86 per cent of learners failed to meet the expectations, with more than one third of learners (36 per cent) achieving at the lowest proficiency level (level 1). The following sections provide the findings in each subject and class in detail.

Figure 3.1. Percentage of learners at proficiency levels by class and subject

3.2 Performance in mathematics

Mathematics serves society in diverse ways, and it is an indispensable tool for technological and other forms of human development. Through mathematics, learners develop critical thinking skills that are essential for planning in governance, business, discoveries, inventions and so on. The domains of mathematics that were assessed in NALABE 2022 include numbers and numeration, basic operations, algebraic processes, mensuration and geometry, and everyday statistics.

Key findings in mathematics

- Half of P3 learners (50 per cent) reached the minimum proficiency (i.e., levels 3 and 4), with 17 per cent performing at the top level (level 4). The percentage of learners reaching the minimum proficiency in mathematics declined, however, to 34 per cent in P5 and 14 per cent in JS2. In other words, 67 per cent of learners in P5 and 86 per cent of learners in JS2 did not reach the expected level in mathematics.
- Mathematics in P5 and JS2 gets progressively more difficult as the content becomes more challenging. The increasing difficulty is mirrored in the mean scale scores with 499 in P3, 485 in P5 and 461 in JS2. The results in P3 mathematics were the best across all subjects and classes, while JS2 mathematics had the lowest performance in NALABE 2022.
- There was no significant gender difference in performance in any of the classes. When school location and school type are factored in, however, male learners slightly outperformed female learners in rural schools in P3 and P5. On the other hand, female learners slightly outperformed male learners in private schools in P3, urban schools in P5 and rural schools in JS2.

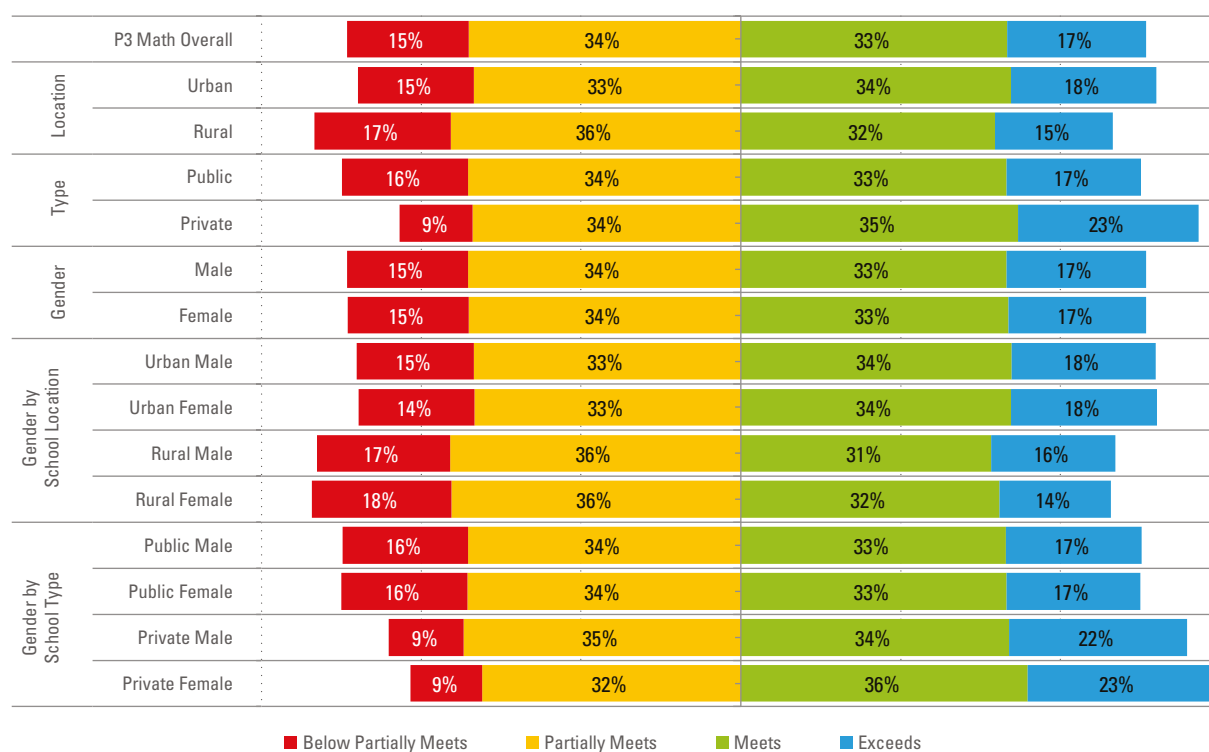
- Urban school learners outperformed rural school learners in P3 and P5. The urban school advantage was observed for both female and male learners in P3 and P5. On the contrary, in JS2, rural school learners outperformed their urban school counterparts. This rural school advantage in JS2 held for both female and male learners.
- Private school learners outperformed public school learners in P3, P5 and JS2. The private school advantage held for both female and male learners in all the classes.
- No clear pattern emerged in terms of percentage of correct scores by content domain. Only in P3 did we see learners achieving higher percent-correct scores on knowledge items over reasoning and application items. In P5 and JS2 there was no clear pattern.
- There was a significant gap between states in mathematics learning achievement. At the state level, Imo, Kebbi and Kogi states emerged as consistently high performers.

3.2.1 National performance in P3 mathematics

The P3 mathematics test items were organized around content and cognitive domains. The content domain had five components: numbers and numeration, basic operations, algebraic processes, mensuration and geometry, and everyday statistics. The cognitive domain had three components: knowing (facts, concepts and procedures), reasoning (knowledge and conceptual understanding to solve problems) and applying (solving problems in unfamiliar or complex situations and multistep problems). Table 3.1 and Figure 3.2 present the mean scale scores and the percentages of learners performing at different proficiency levels on the P3 mathematics assessment.

Table 3.1. National performance in P3 mathematics: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners assessed	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		62,579	499	48	15%	34%	33%	17%	50%
School location	Urban	47,601	500	48	15%	33%	34%	18%	52%
	Rural	14,978	495	48	17%	36%	32%	15%	47%
School type	Public	56,872	498	48	16%	34%	33%	17%	50%
	Private	5,707	508	46	9%	34%	35%	23%	58%
Gender	Male	30,956	499	48	15%	34%	33%	17%	50%
	Female	31,623	499	48	15%	34%	33%	17%	50%
Gender by school location	Urban male	23,461	500	48	15%	33%	34%	18%	52%
	Urban female	24,139	501	48	14%	33%	34%	18%	52%
	Rural male	7,495	496	48	17%	36%	31%	16%	47%
	Rural female	7,484	494	47	18%	36%	32%	14%	46%
Gender by school type	Public male	28,080	498	48	16%	34%	33%	17%	50%
	Public female	28,792	498	48	16%	34%	33%	17%	50%
	Private male	2,876	507	47	9%	35%	34%	22%	56%
	Private female	2,831	509	46	9%	32%	36%	23%	59%

Figure 3.2. National performance in P3 mathematics: Percentages of learners at proficiency levels

P3 mathematics national results

Half of P3 learners (50 per cent) at the national level attained the minimum proficiency in mathematics (levels 3 and 4), with 17 per cent performing at the top level (level 4). This means that half of learners in P3 mathematics did not meet expectations, with 34 per cent at level 2 and 15 per cent at level 1. Remedial support should be designed to target those learners who find themselves in levels 1 and 2. The mean scale score for P3 mathematics nationally was 499 on a scale of 400–600.

As will be noted in the later sections, P3 learners were more successful than P5 and JS2 learners when comparing the percentage of learners who achieved minimum proficiency (50 per cent in P3, 34 per cent in P5 and 14 per cent in JS2). Thus, mathematics gets progressively more challenging and support at P3 is fundamental to creating the basis for improvements in higher classes as well as in other subjects that require mathematics skills.

P3 mathematics results by school location

Learners in urban schools performed slightly higher than their peers in rural schools, with mean scale scores of 500 in urban schools and 495 in rural schools. A total of 52 per cent of learners in urban schools achieved minimum proficiency (i.e., levels 3 and 4) compared to 47 per cent in rural schools.

P3 mathematics results by school type

Private schools significantly outperformed public schools on average, with mean scale scores of 508 and 498, respectively. Minimum proficiency was achieved by 58 per cent of private school learners (i.e., levels 3 and 4) while 50 per cent of learners in public schools achieved the same levels. The percentage of learners who fell in the lowest proficiency level (level 1) was only 9 per cent in private schools but 16 per cent in public schools, representing a difference of 7 percentage points. The tendency for private schools to outperform public schools – with high performance being especially marked among females in private schools – is observed across subjects and classes.

P3 mathematics results by gender

There was no difference in performance of boys and girls. Both groups performed with mean scale scores of 499 (the national mean), and equal proportions of 50 per cent of male and female learners reached the minimum proficiency level.

P3 mathematics results by gender and school location

The urban school advantage held for both female and male learners. The percentage of female learners with the minimum proficiency (levels 3 and 4) was 52 per cent in urban schools and 46 per cent in rural schools. Similarly, the share of male learners achieving the minimum proficiency was 52 per cent in urban schools and 47 per cent in rural schools. The mean scale scores of females and males in urban schools were respectively 7 and 4 points higher than their rural school counterparts.

Within rural schools, male learners performed slightly better than female learners, with mean scale scores of 496 for males and 494 for females. There was no perceptible gender difference in urban schools.

P3 mathematics results by gender and school type

The private school advantage held for both female and male learners. The percentage of learners with the minimum proficiency (levels 3 and 4) was higher in private schools than public schools by 9 percentage points among females (59 per cent in private schools and 50 per cent in public schools) and 6 percentage points among males (56 per cent in private schools and 50 per cent in public schools). The mean scale scores for private school learners were also higher than those for public school learners, by 11 points for females (509 vs. 498) and by 9 points for males (507 vs. 498).

Within private schools, female learners outperformed male learners. The percentage of private school learners with the minimum proficiency (levels 3 and 4) was 59 per cent for females and 56 per cent for males. The mean scale score for female learners in private schools (509 points) was also higher than that of male learners in private schools by 2 points (507 points). No gender difference was observed in public schools.

P3 mathematics results by content themes and cognitive levels

Table 3.2 presents the mean percent-correct scores of learners by content domain and cognitive level. In both cases, these scores represent performance on sub-tests rather than whole tests. As such, the scores cannot be plotted on the proficiency scale since the scale was developed based on whole test performance data.

Table 3.2. National performance in P3 mathematics: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores				
Content themes	Numbers & numeration	Basic operations	Algebraic processes	Mensuration & geometry	Everyday statistics
Pct-correct score mean	59	61	68	61	49
N	62,579	62,579	62,579	62,579	62,579
Std. deviation	27	29	33	25	35
Cognitive levels	Know	Reason	Apply		
Pct-correct score mean	65	56	58		
N	62,579	62,579	62,579		
Std. deviation	26	28	26		

Of the five domains measured in P3 mathematics, learners were most successful in the area of algebraic processes (68 per cent correct on average) and least successful on everyday statistics (49 per cent correct on average). Scores on the other key P3 domains (numbers and numeration, basic operations, and mensuration and geometry) fell between 59 and 61 per cent correct.

Mean percent-correct scores on knowledge items were 65 per cent. Scores were respectively 9 and 7 percentage points lower on reasoning (56 per cent) and applying items (58 per cent). As expected, these results show that knowledge items, which are cognitively less complex, are more accessible and easier for learners than items that are designed to measure cognitively more complex skills.

P3 mathematics results by state

Table 3.3 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's d). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

There were significant differences in learning achievement among the states. The top five performing states in scale scores in P3 mathematics were Kogi, Imo, Kebbi, Katsina and Zamfara. The mean scale score of these five states was 528, which is 29 points above the national mean score of 499. In the top three states, three quarters of learners met the minimum proficiency level (levels 3 and 4). It is noteworthy that the top two performing states, Kogi and Imo, had more learners at level 4 (exceeds the minimum proficiency) than at level 3 (meets the minimum proficiency).

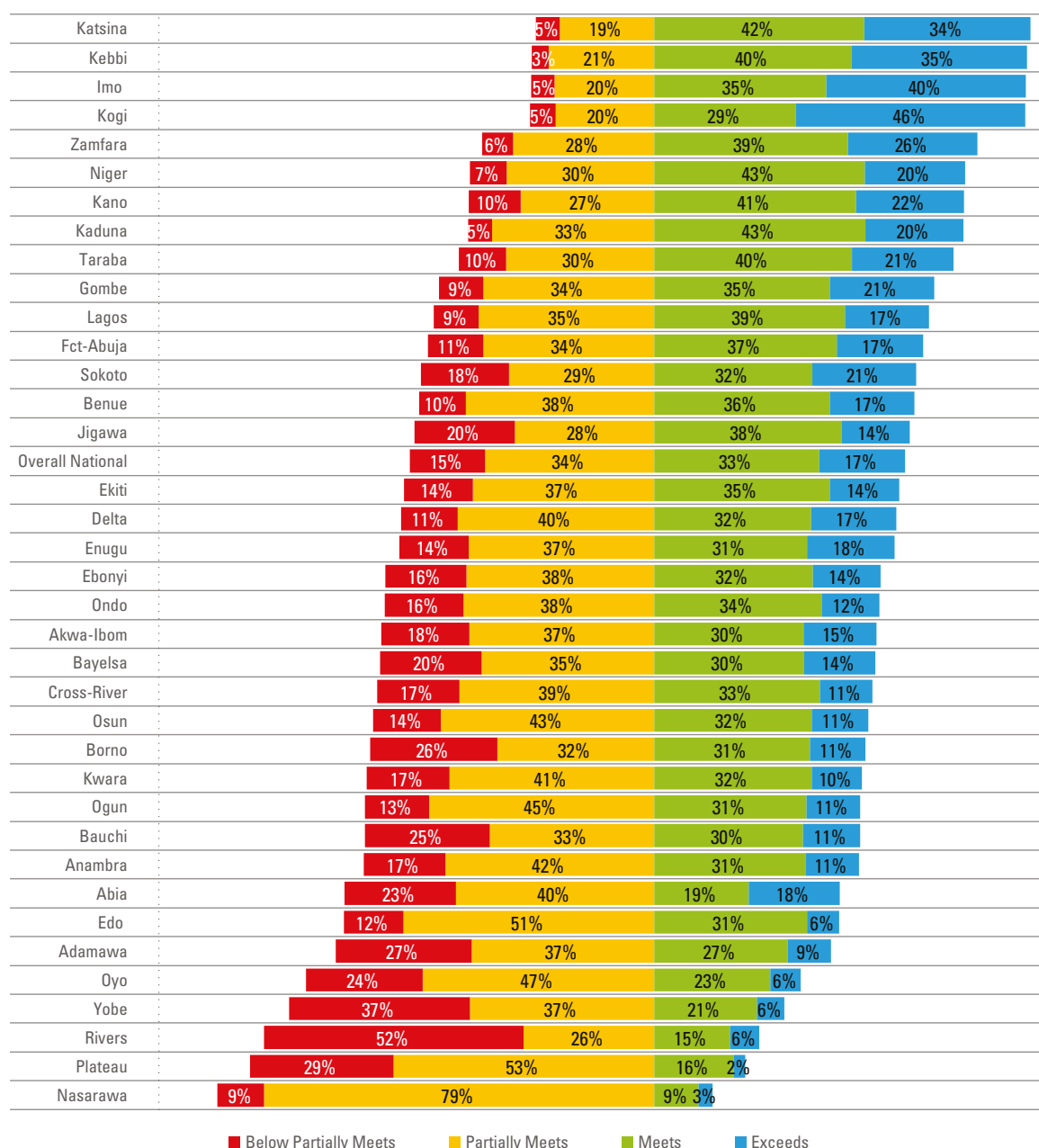
The bottom five performing states were Rivers, Plateau, Yobe, Oyo and Nasarawa. Their mean scale score was 470, which is 29 points lower than the national average and 58 points lower than the top five performing states. An average of 21 per cent of learners in these states achieved the minimum proficiency level.

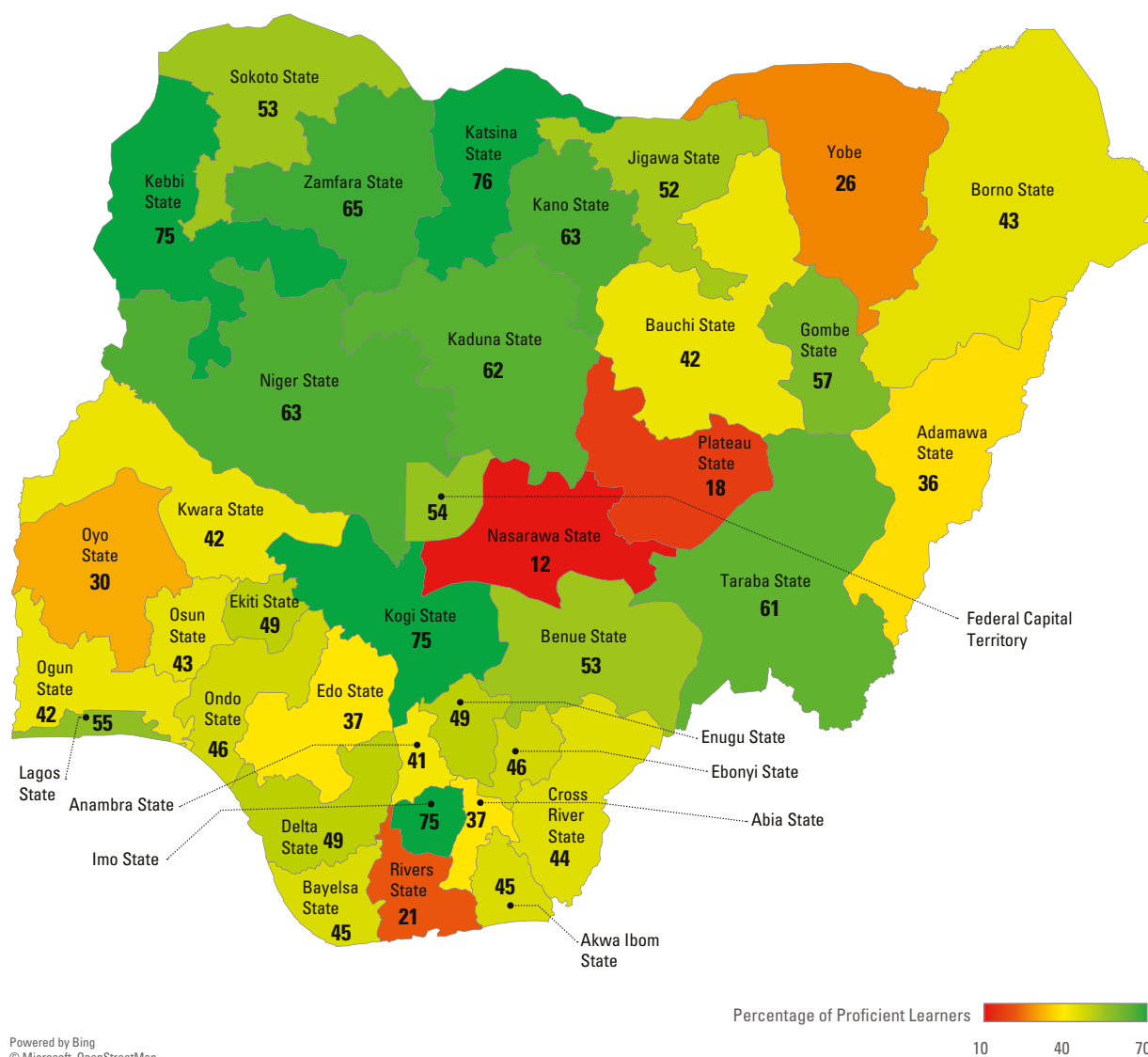
Table 3.3. State performance in P3 mathematics: Mean scale scores and percentages of learners at proficiency levels

State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Kogi	297	535	50	5%	20%	29%	46%	75%
Imo	1,422	531	49	5%	20%	35%	40%	75%
Kebbi	3,118	530	46	3%	21%	40%	35%	75%
Katsina	3,506	527	44	5%	19%	42%	34%	76%
Zamfara	2,097	515	44	6%	28%	39%	26%	65%
Kaduna	3,480	511	41	5%	33%	43%	20%	62%
Niger	2,378	511	44	7%	30%	43%	20%	63%
Kano	3,905	510	45	10%	27%	41%	22%	63%
Taraba	1,839	508	45	10%	30%	40%	21%	61%
Gombe	2,630	508	45	9%	34%	35%	21%	57%
Lagos	1,562	504	43	9%	35%	39%	17%	55%
Benue	935	503	44	10%	38%	36%	17%	53%
FCT-Abuja	1,119	502	46	11%	34%	37%	17%	54%
Sokoto	2,517	501	52	18%	29%	32%	21%	53%
Delta	1,032	500	46	11%	40%	32%	17%	49%
National mean	62,579	499	48	15%	34%	33%	17%	50%
Enugu	108	499	48	14%	37%	31%	18%	49%
Ekiti	93	498	46	14%	37%	35%	14%	49%
Jigawa	2,814	495	49	20%	28%	38%	14%	52%
Ebonyi	152	494	47	16%	38%	32%	14%	46%
Ondo	1,260	493	44	16%	38%	34%	12%	46%
Akwa Ibom	3,928	493	47	18%	37%	30%	15%	45%
Osun	417	493	42	14%	43%	32%	11%	43%
Bayelsa	133	492	50	20%	35%	30%	14%	45%
Cross River	445	491	46	17%	39%	33%	11%	44%
Ogun	1,286	491	41	13%	45%	31%	11%	42%
Abia	470	491	53	23%	40%	19%	18%	37%
Anambra	375	490	43	17%	42%	31%	11%	41%
Kwara	424	489	41	17%	41%	32%	10%	42%
Edo	868	487	37	12%	51%	31%	6%	37%
Borno	3,506	486	48	26%	32%	31%	11%	43%
Bauchi	3,099	485	48	25%	33%	30%	11%	42%
Adamawa	2,480	480	45	27%	37%	27%	9%	36%
Nasarawa	1,502	478	27	9%	79%	9%	3%	12%
Oyo	3,730	478	39	24%	47%	23%	6%	30%
Yobe	1,983	469	42	37%	37%	21%	6%	26%
Plateau	1,136	467	34	29%	53%	16%	2%	18%
Rivers	536	458	48	52%	26%	15%	6%	21%

Figure 3.3 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.3. State performance in P3 mathematics: Percentages of learners at proficiency levels



Map 3.1. Percentage of learners meeting or exceeding proficiency in P3 mathematics by state

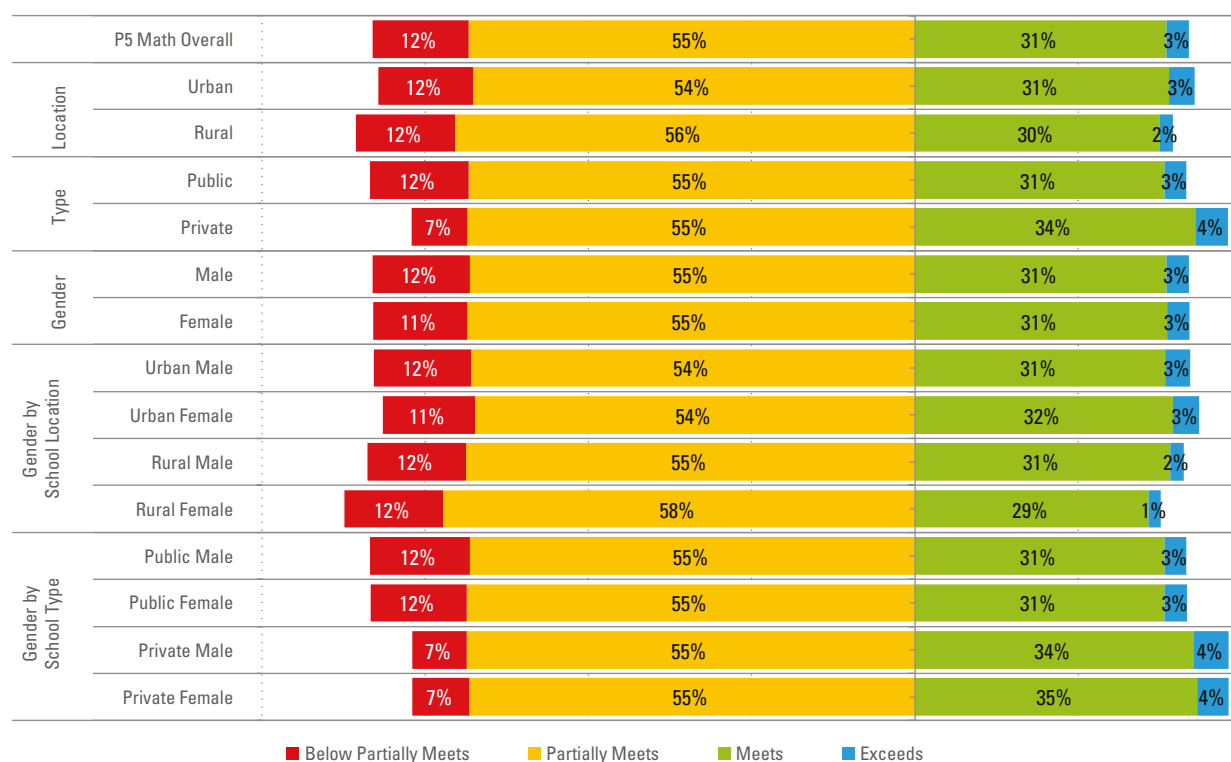
Note: Numbers indicate the percentage of proficient learners for each state.

3.2.2 National performance in P5 mathematics

P5 mathematics test items were organized around five domains: numbers and numeration, basic operations, algebraic processes, mensuration and geometry, and everyday statistics. Table 3.4 and Figure 3.4 present the mean scale scores and the percentages of learners performing at different proficiency levels on the P5 mathematics assessment.

Table 3.4. National performance in P5 mathematics: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		63,873	485	32	12%	55%	31%	3%	34%
School location	Urban	47,760	485	33	12%	54%	31%	3%	34%
	Rural	16,113	483	30	12%	56%	30%	2%	32%
School type	Public	59,759	484	32	12%	55%	31%	3%	33%
	Private	4,115	490	31	7%	55%	34%	4%	38%
Gender	Male	31,685	485	32	12%	55%	31%	3%	34%
	Female	32,165	485	32	11%	55%	31%	3%	34%
Gender by school location	Urban male	23,528	485	32	12%	54%	31%	3%	34%
	Urban female	24,211	486	33	11%	54%	32%	3%	35%
	Rural male	8,156	484	30	12%	55%	31%	2%	33%
	Rural female	7,954	482	30	12%	58%	29%	1%	30%
Gender by school type	Public male	29,704	484	32	12%	55%	31%	3%	33%
	Public female	30,036	484	32	12%	55%	31%	3%	33%
	Private male	1,980	490	32	7%	55%	34%	4%	38%
	Private female	2,129	490	31	7%	55%	35%	4%	38%

Figure 3.4. National performance in P5 mathematics: Percentages of learners at proficiency levels

P5 mathematics national results

There was a sizable drop in average achievement in P5 mathematics compared to P3 performance. In fact, only 34 per cent of P5 learners met the minimum proficiency level (levels 3 and 4), which is 16 percentage points lower than that in P3. This means over 60 per cent of P5 learners did not achieve expectations in the mathematics curriculum. These results clearly show that there is a qualitative step-up in the difficulty of this subject in P5 which needs to be tackled by teachers. In terms of mean scale score, P5 learners attained a score of 485, compared to 499 in P3.

P5 mathematics results by school location

The performance in P5 was in slight favour of urban schools over rural schools. The percentage of P5 learners who achieved the minimum proficiency was 34 per cent in urban schools and 32 per cent in rural schools. Similarly, learners in urban schools outperformed rural school learners in the mean scale scores by 2 points, with 485 points in urban schools and 483 in rural schools.

P5 mathematics results by school type

As in P3 mathematics, private school learners outperformed public school learners in P5 mathematics. On average, 38 per cent of private school learners attained the minimum proficiency level, compared to 33 per cent of public school learners. There was a 6-point difference in the mean scale scores in favour of private schools (490) over public schools (484).

P5 mathematics results by gender

There was no gender difference in both the percentage of learners meeting the proficiency level and the mean scale score in P5 mathematics results. In both groups, 34 per cent of learners met the minimum proficiency (levels 3 and 4) and had a mean scale score of 485.

P5 mathematics results by gender and school location

The urban school advantage appeared for both female and male learners, but more evidently for females. The percentage of female learners with the minimum proficiency (levels 3 and 4) was 5 percentage point higher in urban schools (35 per cent) than rural schools (30 per cent), while the difference among male learners was just 1 percentage point in favour of urban schools (34 per cent vs. 33 per cent). Female learners in urban schools also had the highest mean scale score, at 486 points.

Although there was no perceptible gender difference in performance overall, there emerged interesting patterns when school location was factored in. In urban schools, female learners slightly outperformed male learners, with a 1-percentage-point difference in the proportion of learners with the minimum proficiency. In rural schools, however, male learners outperformed female learners by 3 percentage points in the share of learners with the minimum proficiency.

P5 mathematics results by gender and school type

The private school advantage appeared and remained regardless of gender difference. The percentage of learners achieving the minimum proficiency (levels 3 and 4) was 5 percentage points higher for private school males (38 per cent) than public school males (33 per cent) and for private school females (38 per cent) over public school females (33 per cent). There were no perceptible gender differences within each of the school types.

P5 mathematics results by content theme and cognitive level

Table 3.5 presents the mean percent-correct scores of learners by content domain and cognitive level in P5 mathematics. Of the five domains measured in P5 mathematics, learners were most successful in the area of basic operations (66 per cent correct) and least successful, as in P3, in everyday statistics (42 per cent correct). Scores on the other key P5 domains fell in the range between 47 and 60 per cent correct.

With regards to cognitive levels, the mean percent-correct scores on knowledge items in P5 mathematics was 50 per cent. On both reasoning and applying items, scores were surprisingly higher – although by small margins – with mean percent-correct scores of 53 and 54 per cent respectively.

Table 3.5. National performance in P5 mathematics: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores				
Content themes	Numbers & numeration	Basic operations	Algebraic processes	Mensuration & geometry	Everyday statistics
Pct-correct score mean	47	66	60	51	42
N	63,873	63,873	63,873	63,873	63,873
Std. deviation	24	31	27	22	25
Cognitive levels	Know	Reason	Apply		
Pct-correct score mean	50	53	54		
N	63,873	63,873	63,873		
Std. deviation	22	23	24		

P5 mathematics results by state

Table 3.6 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

There were significant differences in learning achievement among the states. The top five performing states in P5 mathematics were Imo, Katsina, Kogi, Kebbi and Kaduna. The mean scale score of these five states was 503, which is 18 points above the national mean scale score of 485. Four of these five top-performing states were also in the top five in P3. In Imo and Katsina states, approximately 60 per cent of P5 learners achieved the minimum proficiency.

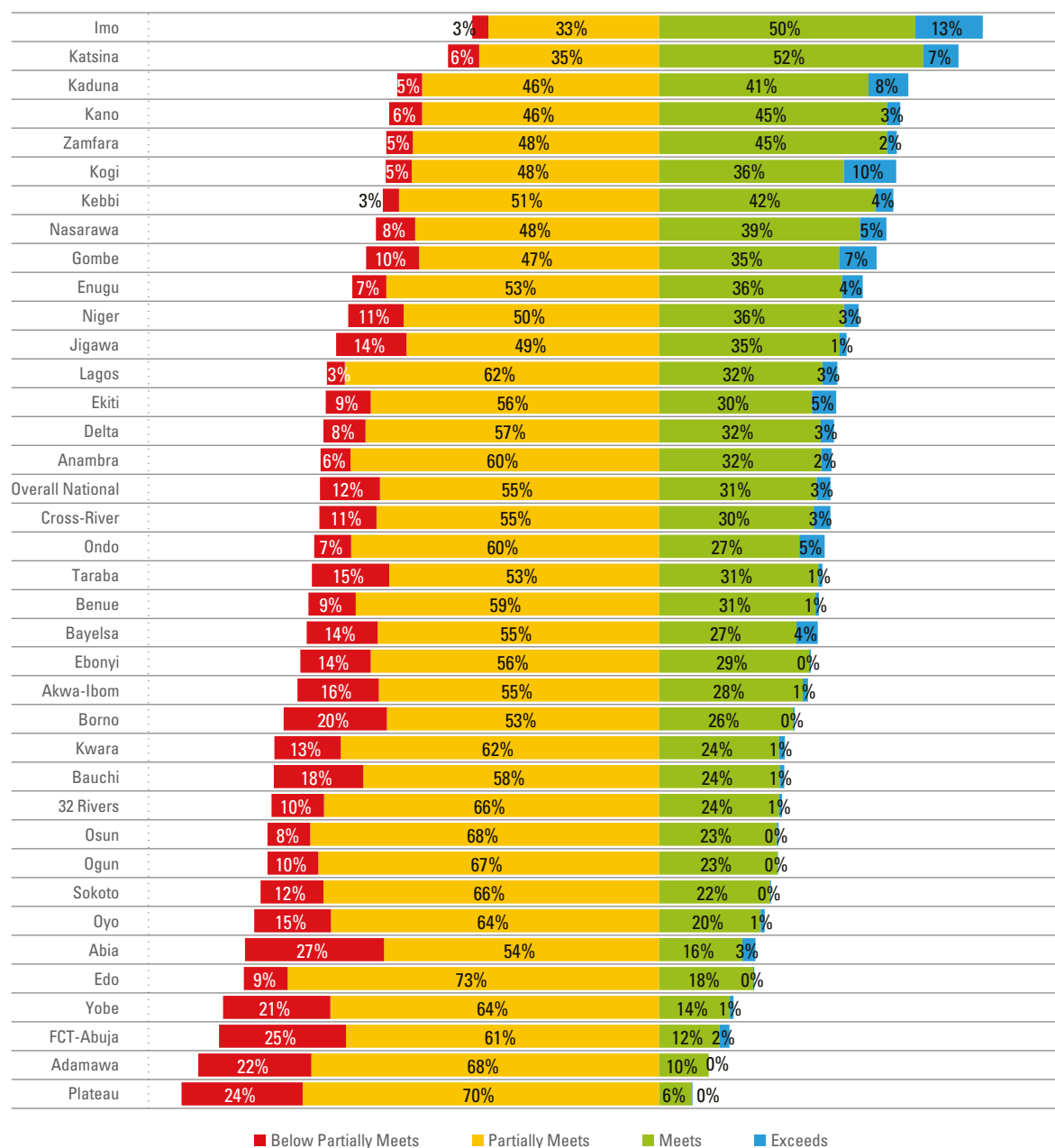
The bottom five performing states were Plateau, FCT-Abuja, Adamawa, Abia and Yobe. Their mean scale score was 466, which is 19 points lower than the national average and 37 points lower than the top five performing states. In these states, 13 per cent of learners achieved the minimum proficiency on average. Only 0–3 per cent of learners exceeded the minimum proficiency (level 4) in these states.

Table 3.6. P5 mathematics: Mean scale scores and percentages of learners at proficiency levels by state

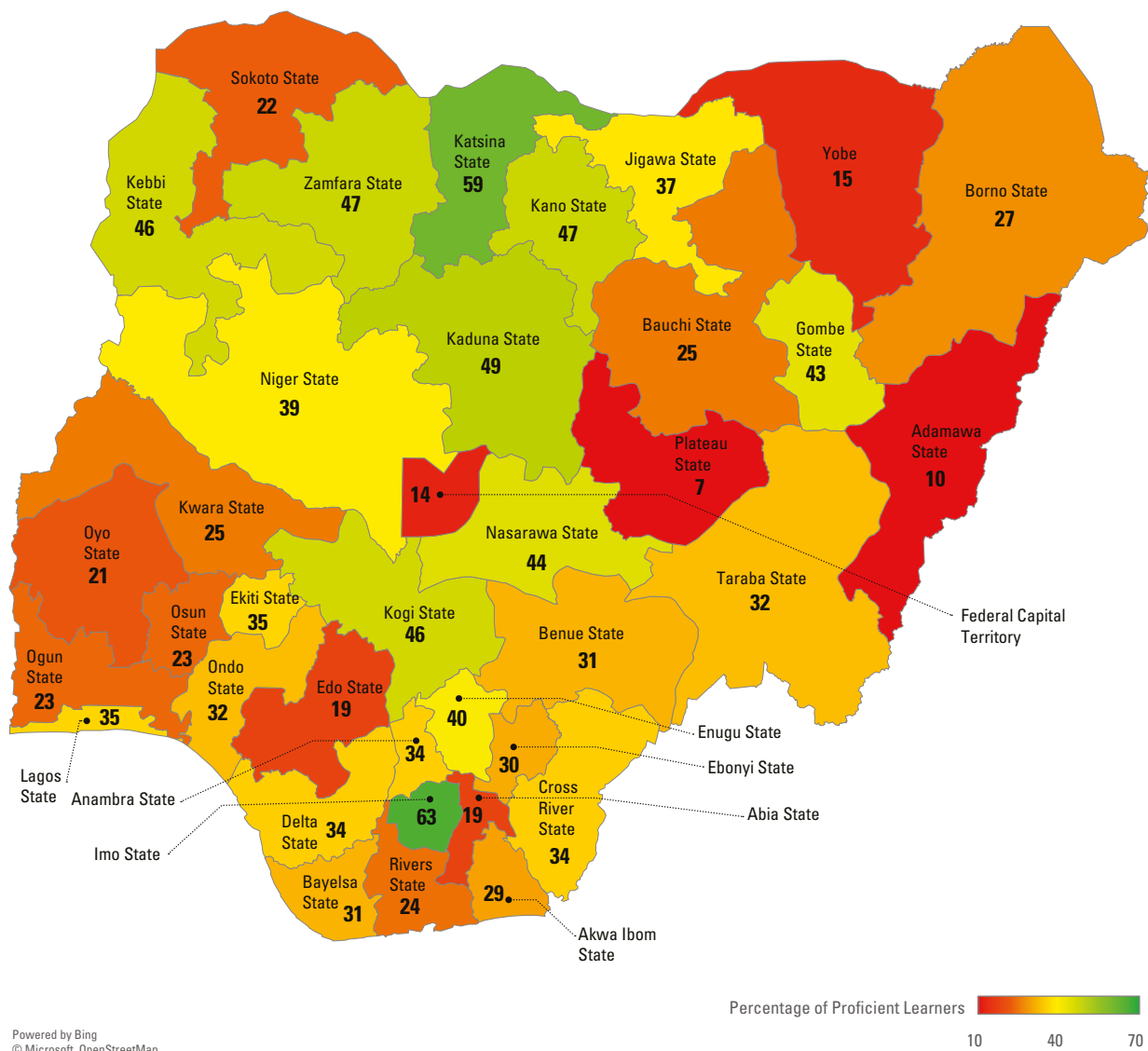
State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Imo	1,843	511	36	3%	33%	50%	13%	63%
Katsina	3,385	503	34	6%	35%	52%	7%	59%
Kogi	292	501	38	5%	48%	36%	10%	46%
Kebbi	2,983	499	28	3%	51%	42%	4%	46%
Kaduna	3,349	499	34	5%	46%	41%	8%	49%
Zamfara	2,112	495	28	5%	48%	45%	2%	47%
Nasarawa	926	494	33	8%	48%	39%	5%	44%
Kano	4,034	492	29	6%	46%	45%	3%	47%
Gombe	2,377	492	39	10%	47%	35%	7%	43%
Enugu	147	490	30	7%	53%	36%	4%	40%
Lagos	2,343	490	26	3%	62%	32%	3%	35%
Ekiti	148	488	33	9%	56%	30%	5%	35%
Anambra	565	488	27	6%	60%	32%	2%	34%
Niger	2,248	488	33	11%	50%	36%	3%	39%
Ondo	1,408	488	31	7%	60%	27%	5%	32%
Delta	1,141	487	29	8%	57%	32%	3%	34%
Cross River	375	485	32	11%	55%	30%	3%	34%
Jigawa	2,742	485	31	14%	49%	35%	1%	37%
National mean	63,873	485	32	12%	55%	31%	3%	34%
Benue	837	483	28	9%	59%	31%	1%	31%
Bayelsa	144	483	34	14%	55%	27%	4%	31%
Taraba	1,153	480	32	15%	53%	31%	1%	32%
Ebonyi	302	480	28	14%	56%	29%	0%	30%
Ogun	1,545	480	25	10%	67%	23%	0%	23%
Osun	407	479	24	8%	68%	23%	0%	23%
Rivers	523	479	25	10%	66%	24%	1%	24%
Kwara	360	479	29	13%	62%	24%	1%	25%
Edo	1,693	478	22	9%	73%	18%	0%	19%
Akwa Ibom	3,771	478	32	16%	55%	28%	1%	29%
Sokoto	2,595	478	25	12%	66%	22%	0%	22%
Bauchi	3,152	477	28	18%	58%	24%	1%	25%
Oyo	3,801	475	27	15%	64%	20%	1%	21%
Borno	3,453	475	30	20%	53%	26%	0%	27%
Yobe	2,589	470	27	21%	64%	14%	1%	15%
Abia	653	469	32	27%	54%	16%	3%	19%
Adamawa	2,229	466	24	22%	68%	10%	0%	10%
FCT-Abuja	1,261	466	29	25%	61%	12%	2%	14%
Plateau	982	462	21	24%	70%	6%	0%	7%

Figure 3.5 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.5. Percentages of learners at proficiency levels in P5 mathematics by state



Map 3.2. Percentage of learners meeting or exceeding proficiency in P5 mathematics by state



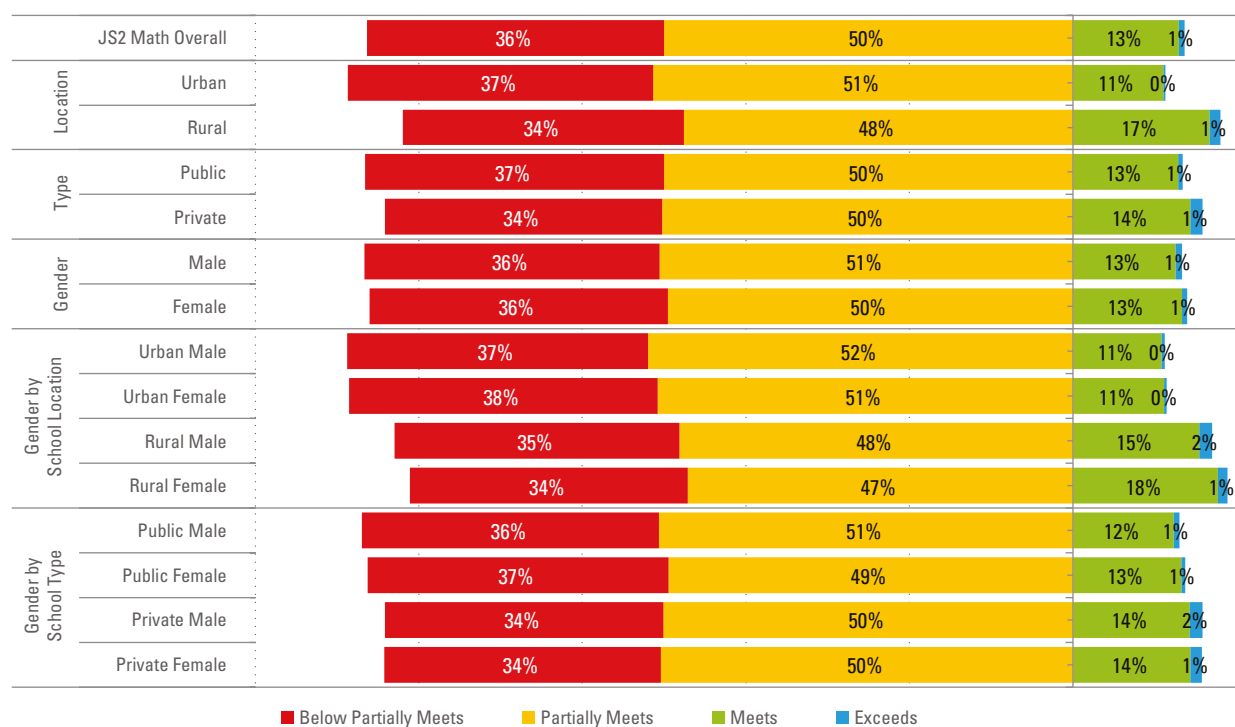
Note: Numbers indicate the percentage of proficient learners for each state.

3.2.3 National performance in JS2 mathematics

JS2 mathematics test items were organized around five components, as with P3 and P5: numbers and numeration, basic operations, algebraic processes, mensuration and geometry and everyday statistics. Table 3.7 and Figure 3.6 present the mean scale scores and the percentages of learners performing at different proficiency levels on the JS2 mathematics assessment.

Table 3.7. National performance in JS2 mathematics: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		21,874	461	31	36%	50%	13%	1%	14%
School location	Urban	14,316	459	29	37%	51%	11%	0%	11%
	Rural	7,558	465	34	34%	48%	17%	1%	18%
School type	Public	19,875	460	31	37%	50%	13%	1%	13%
	Private	1,999	464	31	34%	50%	14%	1%	15%
Gender	Male	9,843	461	31	36%	51%	13%	1%	13%
	Female	12,031	461	30	36%	50%	13%	1%	14%
Gender by school location	Urban male	6,301	459	29	37%	52%	11%	0%	11%
	Urban female	8,014	459	28	38%	51%	11%	0%	11%
	Rural male	3,542	464	33	35%	48%	15%	2%	17%
	Rural female	4,016	465	34	34%	47%	18%	1%	19%
Gender by school type	Public male	8,922	461	31	36%	51%	12%	1%	13%
	Public female	10,953	460	30	37%	49%	13%	1%	14%
	Private male	922	464	32	34%	50%	14%	2%	16%
	Private female	1,077	463	31	34%	50%	14%	1%	16%

Figure 3.6. National performance in JS2 mathematics: Percentages of learners at proficiency levels

JS2 mathematics national results

The learning achievement further dropped in JS2 mathematics compared to P5 mathematics. In terms of the percentage of learners reaching the minimum proficiency, only 14 per cent of JS2 learners met the expectations (levels 3 and 4), which was much lower than P3 (50 per cent) and P5 (34 per cent). Only 1 per cent of JS2 learners exceeded the minimum proficiency (level 4). In terms of mean scale score, JS2 learners attained an average score of 461, a sizable drop from 485 in P5.

JS2 mathematics results by school location

Unlike P3 and P5, learning achievement in JS2 mathematics was higher in rural schools than urban schools. In fact, 18 per cent of rural school learners reached the minimum proficiency (levels 3 and 4) while only 11 per cent of urban school learners achieved the expectations. The rural advantage in JS2 mathematics was mainly derived from the proportion of learners who placed in level 3 (17 per cent in rural schools vs. 11 per cent in urban schools). In terms of mean scale scores, rural school learners outperformed their urban counterparts by 6 points (465 in rural schools vs. 459 in urban schools).

JS2 mathematics results by school type

As in P3 and P5 mathematics, JS2 learners in private schools outperformed their counterparts in public schools, with the proportion of learners meeting the minimum proficiency (levels 3 and 4) totalling 15 per cent in private schools and 13 per cent in public schools. This trend was also reflected in the scale scores, with mean averages of 464 points in private schools and 460 points in public schools.

JS2 mathematics results by gender

There was no significant gender difference in both mean scale scores and the proportions of learners meeting the minimum proficiency level. Both groups obtained 461 mean scale scores, and 13 per cent of males and 14 per cent of females achieved the minimum proficiency (levels 3 and 4).

JS2 mathematics results by gender and school location

The rural school advantage in JS2 mathematics over urban schools appeared for both males and females. The percentage of learners achieving the minimum proficiency (levels 3 and 4) was 6 percentage points higher for rural males (17 per cent) than urban males (11 per cent) and 8 percentage points higher for rural females (19 per cent) compared to urban females (11 per cent). Females in rural schools demonstrated the highest achievement in mean scale scores with 465.

Within rural schools, females slightly outperformed male learners in achieving minimum proficiency (levels 3 and 4), with females (19 per cent) scoring 2 percentage points higher than males (17 per cent). There was no perceivable gender difference in urban schools.

JS2 mathematics results by gender and school type

Private school advantage was observed for both males and females in JS2 mathematics. The percentage of learners achieving the minimum proficiency (levels 3 and 4) was 3 percentage points higher for private school males (16 per cent) than public school males (13 per cent) and 2 percentage points higher for private school females (16 per cent) compared to public school females (14 per cent). The mean scale score for private school learners was 3 points higher than that of public school learners for both males and females. Within each of the school types, there were no significant differences by gender.

JS2 mathematics results by content theme and cognitive level

Table 3.8 presents the mean percent-correct scores of learners by content domain and cognitive level in the JS2 mathematics assessment. Of the five domains measured in JS2 mathematics, learners were most successful in numbers and numeration (49 per cent correct) and least successful in basic operations and algebraic processes (31 per cent correct). Scores on the other two domains ranged between 40 and 43 per cent correct.

Concerning performance by cognitive level, the mean percent-correct scores on knowledge and reasoning items were 42 per cent and 35 per cent, respectively. On applying items, scores were surprisingly higher than the other two cognitive areas, at 43 per cent.

Table 3.8. National performance in JS2 mathematics: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores				
Content themes	Numbers & numeration	Basic operations	Algebraic processes	Mensuration & geometry	Everyday statistics
Pct-correct score mean	49	31	31	40	43
N	21,874	21,874	21,874	21,874	21,874
Std. deviation	21	25	18	23	24
Cognitive levels	Know	Reason	Apply		
Pct-correct score mean	42	35	43		
N	21,874	21,874	21,874		
Std. deviation	20	18	20		

JS2 mathematics results by state

Table 3.9 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

The results showed large variations between states in JS2 learners' performance in mathematics. The top five performing states in JS2 mathematics were Kebbi, Imo, Gombe, Jigawa and Sokoto. The mean scale score of these five states was 476, which is 15 points higher than the national average of 461. Even in these top states, only 26 per cent of learners reached the minimum proficiency (levels 3 and 4).

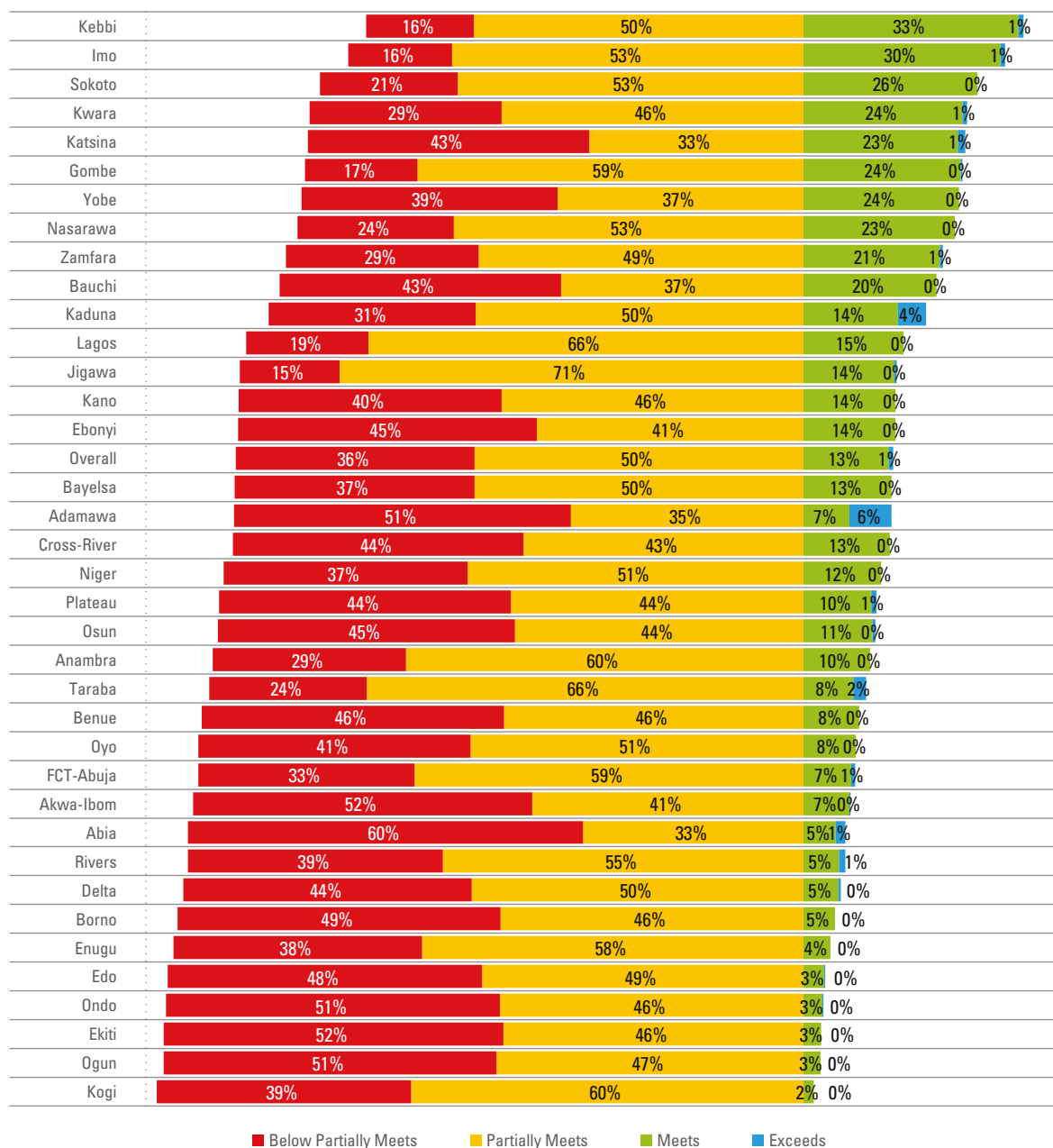
The bottom five performing states were Ondo, Ekiti, Borno, Ogun and Abia. Their mean scale score was 448, which is 13 points lower than the national average and 28 points lower than the top five performing states. Only 4 per cent of learners achieved the minimum proficiency (levels 3 and 4) on average.

Table 3.9. JS2 mathematics: Mean scale scores and percentages of learners at proficiency levels by state

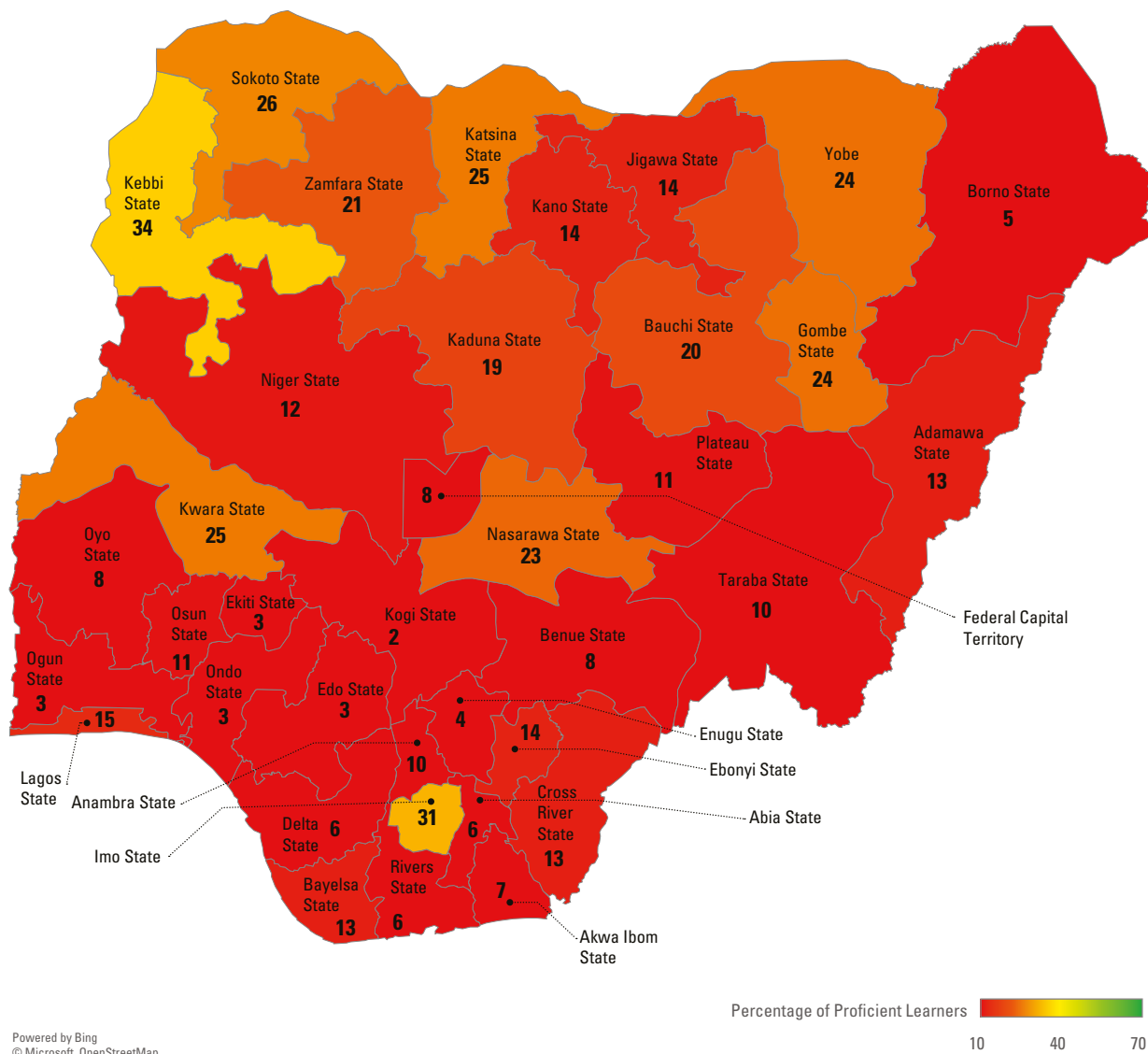
State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Kebbi	735	480	31	16%	50%	33%	1%	34%
Imo	1,208	478	30	16%	53%	30%	1%	31%
Gombe	454	476	31	17%	59%	24%	0%	24%
Jigawa	856	474	28	15%	71%	14%	0%	14%
Sokoto	434	474	29	21%	53%	26%	0%	26%
Kwara	301	470	31	29%	46%	24%	1%	25%
Lagos	1,158	470	26	19%	66%	15%	0%	15%
Nasarawa	156	469	29	24%	53%	23%	0%	23%
Kaduna	1,086	468	36	31%	50%	14%	4%	19%
Taraba	251	467	30	24%	66%	8%	2%	10%
Zamfara	395	467	33	29%	49%	21%	1%	21%
Katsina	715	464	39	43%	33%	23%	1%	25%
Anambra	491	462	25	29%	60%	10%	0%	10%
Yobe	634	462	34	39%	37%	24%	0%	24%
National mean	21,874	461	31	36%	50%	13%	1%	14%
Kano	1,151	461	32	40%	46%	14%	0%	14%
Niger	466	460	28	37%	51%	12%	0%	12%
FCT-Abuja	908	459	27	33%	59%	7%	1%	8%
Bayelsa	157	459	27	37%	50%	13%	0%	13%
Bauchi	582	458	34	43%	37%	20%	0%	20%
Enugu	194	457	23	38%	58%	4%	0%	4%
Cross River	236	456	28	44%	43%	13%	0%	13%
Adamawa	514	456	41	51%	35%	7%	6%	13%
Ebonyi	185	456	29	45%	41%	14%	0%	14%
Plateau	127	456	34	44%	44%	10%	1%	11%
Rivers	1,141	455	27	39%	55%	5%	1%	6%
Oyo	1,088	455	26	41%	51%	8%	0%	8%
Osun	246	455	29	45%	44%	11%	0%	11%
Delta	857	454	26	44%	50%	5%	0%	6%
Benue	248	453	26	46%	46%	8%	0%	8%
Kogi	124	451	21	39%	60%	2%	0%	2%
Edo	755	451	23	48%	49%	3%	0%	3%
Akwa Ibom	1,100	449	26	52%	41%	7%	0%	7%
Abia	202	449	28	60%	33%	5%	1%	6%
Ogun	1,016	449	21	51%	47%	3%	0%	3%
Borno	935	448	26	49%	46%	5%	0%	5%
Ekiti	219	448	20	52%	46%	3%	0%	3%
Ondo	549	447	23	51%	46%	3%	0%	3%

Figure 3.7 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.7. Percentages of learners at proficiency levels in JS2 mathematics by state



Map 3.3. Percentage of learners meeting or exceeding proficiency in JS2 mathematics by state



Note: Numbers indicate the percentage of proficient learners for each state.

3.3 Performance in English studies

The main goal of teaching English studies at the primary school level is to develop sustainable literacy skills in learners and to lay a solid foundation for their higher academic pursuits. At secondary school level, the objective of teaching and learning English studies is to enable Nigerian children to get a better insight into the various aspects of the language, thus becoming more competent in it and more able to use it with greater effectiveness. The domains of English studies that were assessed in NALABE 2022 include reading comprehension, grammatical accuracy and literary appreciation.

Key findings in English studies

- ▶ The results show that 32 per cent of P3 learners, 44 per cent of P5 learners and 31 per cent of JS2 learners achieved the minimum proficiency (levels 3 and 4). From the other side of the coin, the percentages of learners who failed to perform at the expected level were as high as 68 per cent in P3, 56 per cent in P5 and 69 per cent in JS2.
- ▶ The mean scale scores were 483 points in P3, 493 points in P5 and 485 points in JS2. Given the importance of developing a good level of reading skills in order to improve skills in subjects across the curriculum, it is necessary to target those learners who fall short on the proficiency scale, particularly in P3.
- ▶ Female learners outperformed male learners in English studies in P5 and JS2, but not in P3. The female advantage in P5 and JS2 was observed in public schools, private schools and urban schools. The female advantage was also identified in rural schools in JS2 but not in P5.
- ▶ Learners in urban schools slightly outperformed their rural counterparts, particularly in P3 and P5. The urban advantage in P3 and P5 held for both female and male learners to varying degrees.
- ▶ There is significant difference between private schools and public schools across all three classes in favour of private school learners. The private school advantage in English studies held for both female and male learners across the classes.
- ▶ By content domain, learners were most successful in reading comprehension in all three classes, which is a point of departure for more generalized improvement in language skills. No clear pattern emerged in performance by cognitive level.
- ▶ At the state level, Imo, Kebbi, Kogi, Kaduna and Katsina all emerged as consistently high performers, with the state of Imo emerging as the top performer in English studies in all three classes.

3.3.1 National performance in P3 English studies

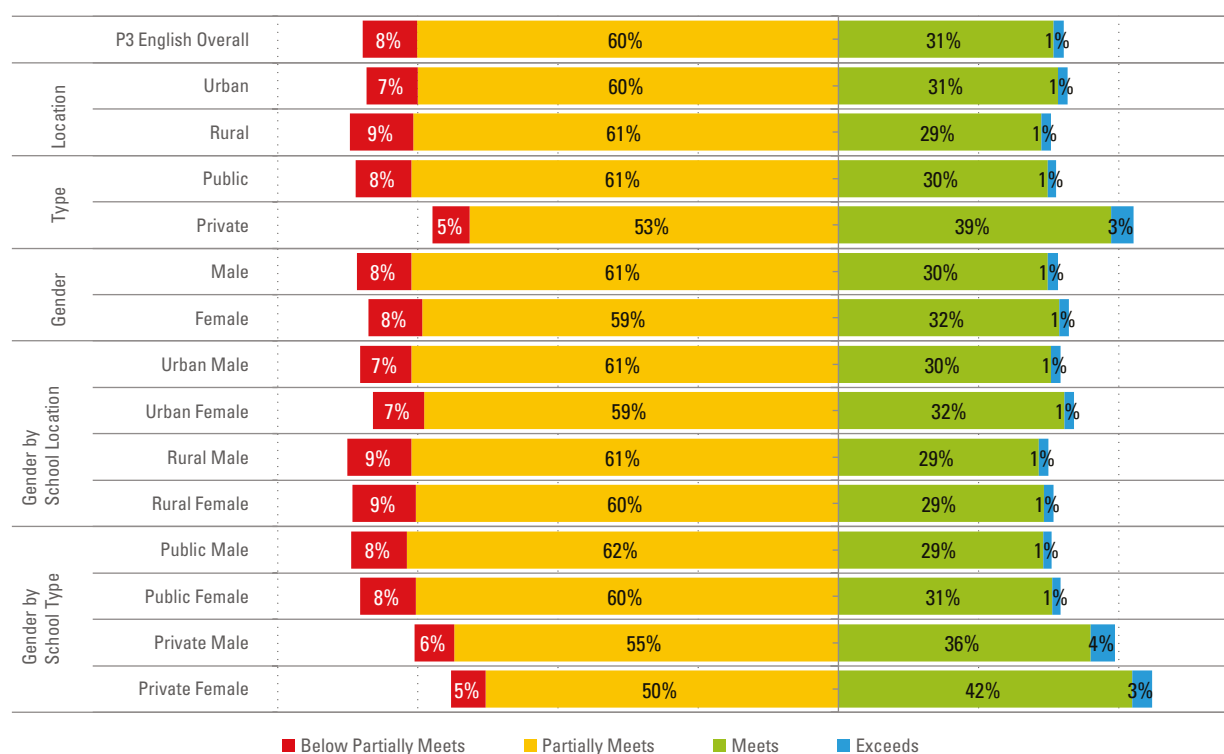
The domains of English studies tested in P3 were reading comprehension and grammatical accuracy, through all three cognitive categories of knowledge, reasoning and application. Table 3.10 and Figure 3.8 present the mean scale scores and the percentages of learners performing at different proficiency levels on the P3 English studies assessment.

Table 3.10. National performance in P3 English studies: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of Learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		62,967	483	26	8%	60%	31%	1%	32%
School location	Urban	48,022	484	26	7%	60%	31%	1%	33%
	Rural	14,945	482	26	9%	61%	29%	1%	30%
School type	Public	57,146	482	26	8%	61%	30%	1%	31%
	Private	5,821	490	28	5%	53%	39%	3%	42%
Gender	Male	30,920	483	26	8%	61%	30%	1%	31%
	Female	32,047	483	26	8%	59%	32%	1%	33%

Category		No. of learners	Scale scores		Percentages of Learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Gender by school location	Urban male	23,366	483	26	7%	61%	30%	1%	32%
	Urban female	24,655	484	26	7%	59%	32%	1%	34%
	Rural male	7,553	482	27	9%	61%	29%	1%	30%
	Rural female	7,392	482	26	9%	60%	29%	1%	31%
Gender by school type	Public male	27,999	482	26	8%	62%	29%	1%	30%
	Public female	29,146	483	26	8%	60%	31%	1%	32%
	Private male	2,920	488	28	6%	55%	36%	4%	39%
	Private female	2,901	491	28	5%	50%	42%	3%	45%

Figure 3.8. National performance in P3 English studies: Percentages of learners at proficiency levels



P3 English studies national results

It is noteworthy that only 32 per cent of learners met the minimum proficiency (levels 3 and 4) in P3 English studies, with only 1 per cent exceeding the minimum proficiency (level 4). In other words, 68 per cent failed to meet the expectations, with 60 per cent placing at level 2. These results are in stark contrast to achievements in P3 mathematics and probably reflect the challenges in early grades developing necessary reading skills.

P3 English studies results by school location

P3 learners in urban schools performed marginally better than their counterparts in rural schools, with mean scale scores of 484 and 482 respectively. On average, 33 per cent of urban school learners and 30 per cent of rural school learners attained the minimum proficiency (levels 3 and 4).

P3 English studies results by school type

Learners from private schools outperformed their counterparts in public schools by 8 points in the mean scale scores, with 490 points in private schools and 482 points in public schools. The percentage of learners meeting the minimum proficiency (levels 3 and 4) was 42 per cent in private schools, which is 11 percentage points higher than public schools (31 per cent).

P3 English studies results by gender

There was no significant difference by gender in performance at the national level in P3 English studies. The mean scale scores for female and male learners were the same at 483, while a slightly higher percentage of females attained the minimum proficiency (33 per cent) than male learners (31 per cent).

P3 English studies results by gender and school location

The urban school advantage was observed for both female and male learners. The proportion of female learners meeting the minimum proficiency was 3 percentage points higher in urban schools (34 per cent) than rural schools (31 per cent). Among male learners, the percentage in urban schools (32 per cent) was 2 percentage points higher than in rural schools (30 per cent). Female learners in urban schools showed the highest mean scale score, at 484 points.

P3 English studies results by gender and school type

The private school advantage in English studies also appeared for both female and male learners. The percentage of learners achieving the minimum proficiency (levels 3 and 4) was 13 percentage points higher for private school females (45 per cent) than public school females (32 per cent) and 9 percentage points higher for private school males (39 per cent) compared to public school males (30 per cent).

P3 English studies results by content theme and cognitive level

Table 3.11 presents the mean percent-correct scores of learners by content domain and cognitive level. In both cases, these scores represent performance on sub-tests rather than whole tests. As such, the scores cannot be plotted on the proficiency scale since the scale was developed based on whole test performance data.

Of the two content domains measured in P3 English studies, learners on average were more successful in reading comprehension (55 per cent correct) and less successful on grammatical accuracy (52 per cent correct). In terms of cognitive levels, the mean percent-correct score was the highest on reasoning items (56 per cent correct) and the lowest on application items (52 per cent correct), with knowledge items placing in the middle (54 per cent correct).

Table 3.11. National performance in P3 English studies: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores		
Content themes	Reading comprehension	Grammatical accuracy	
Pct-correct score mean	55	52	
N	62,968	62,968	
Std. deviation	24	26	
Cognitive levels	Know	Reason	Apply
Pct-correct score mean	54	56	52
N	62,968	62,968	62,968
Std. deviation	23	31	31

P3 English studies results by state

Table 3.12 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

The results showed large variations between states in P3 learners' performance in English studies. The top five performing states in P3 English studies were Imo, Kebbi, Katsina, Kogi and Kaduna. The mean scale score of these five states was 495, which is 12 points above the national average of 483. On average, 52 per cent of learners in these five states attained the minimum proficiency (levels 3 and 4).

The bottom five performing states were Ondo, Plateau, Adamawa, Oyo and Rivers. Their mean scale score was 466, which is 17 points lower than the national average and 29 points lower than the top five performing states. On average, only 14 per cent of learners achieved the minimum proficiency (levels 3 and 4) in these states. Notably, almost all P3 learners in Ondo state failed to achieve the minimum proficiency.

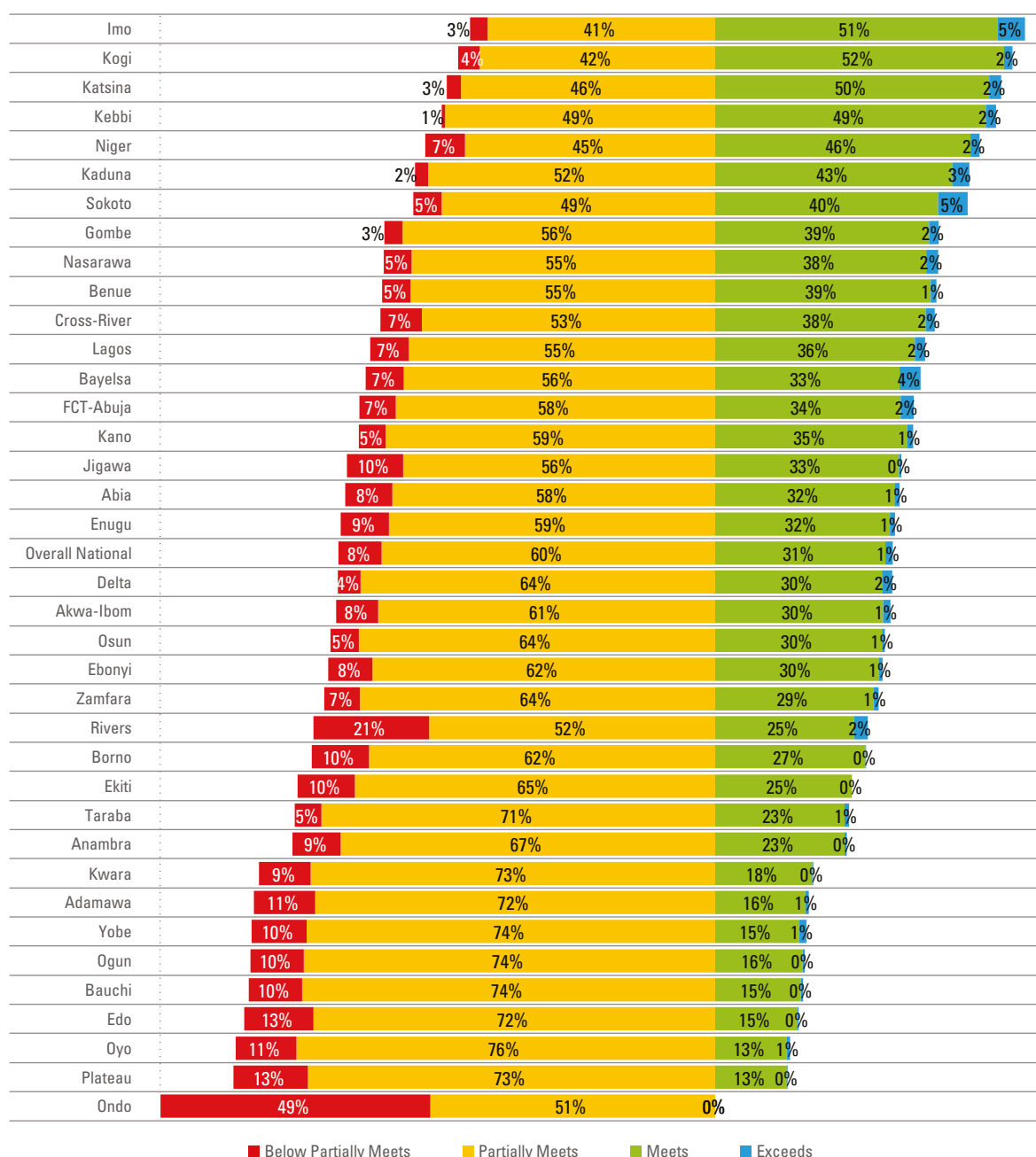
Table 3.12. P3 English studies: Mean scale scores and percentages of learners at proficiency levels by state

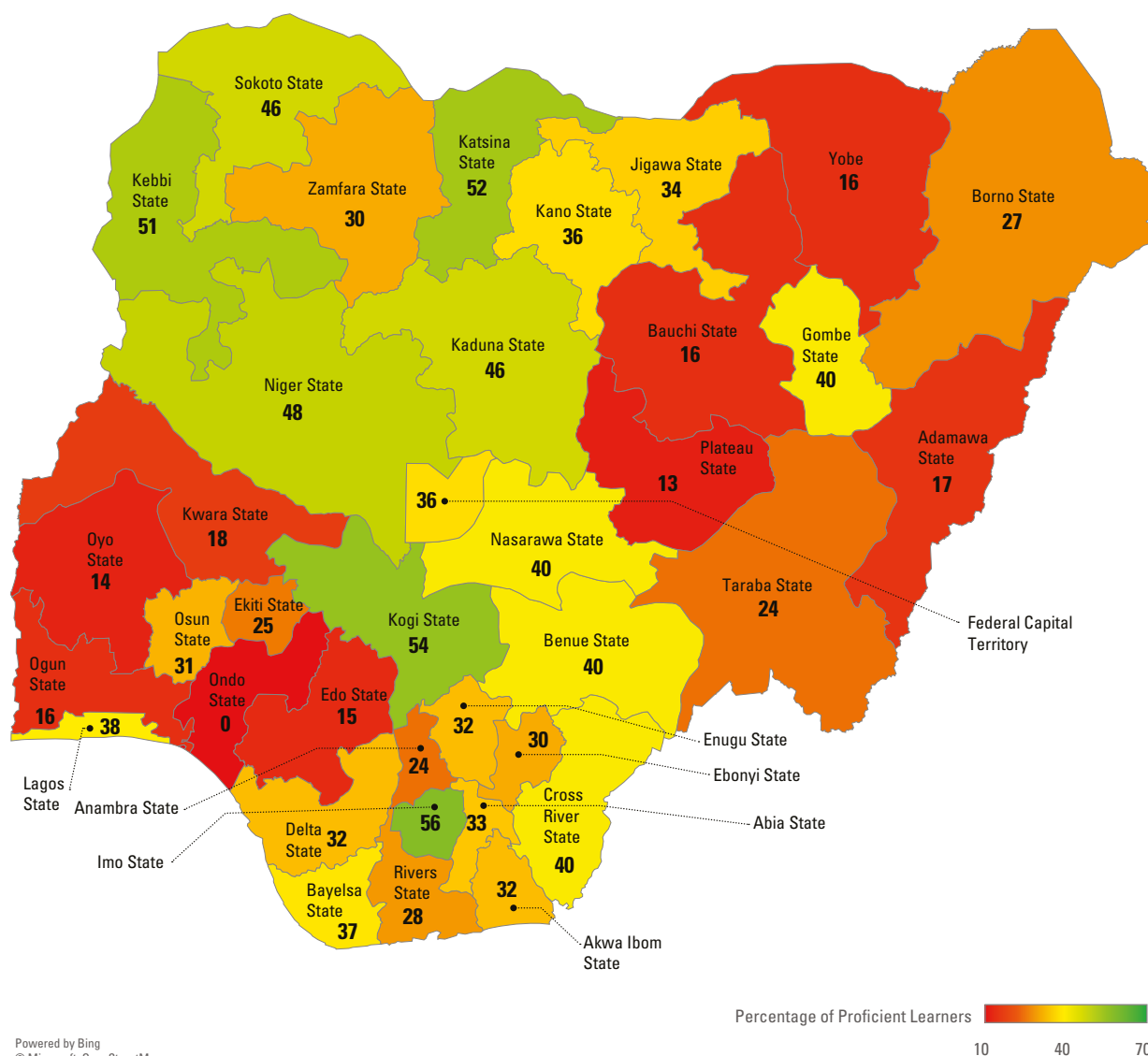
State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Imo	1,481	498	29	3%	41%	51%	5%	56%
Kebbi	3,165	496	21	1%	49%	49%	2%	51%
Katsina	3,458	495	22	3%	46%	50%	2%	52%
Kogi	311	494	24	4%	42%	52%	2%	54%
Kaduna	3,444	494	25	2%	52%	43%	3%	46%
Sokoto	1,355	492	29	5%	49%	40%	5%	46%
Gombe	2,498	491	25	3%	56%	39%	2%	40%
Niger	2,565	490	27	7%	45%	46%	2%	48%
Nasarawa	1,133	489	27	5%	55%	38%	2%	40%
Benue	1,502	488	24	5%	55%	39%	1%	40%
Bayelsa	163	487	28	7%	56%	33%	4%	37%
Kano	3,973	487	23	5%	59%	35%	1%	36%
Lagos	1,567	486	27	7%	55%	36%	2%	38%
Cross River	481	486	28	7%	53%	38%	2%	40%
FCT-Abuja	1,189	486	27	7%	58%	34%	2%	36%
Delta	1,095	485	25	4%	64%	30%	2%	32%
Zamfara	2,393	483	24	7%	64%	29%	1%	30%
National mean	62,968	483	26	8%	60%	31%	1%	32%
Osun	369	483	22	5%	64%	30%	1%	31%
Akwa Ibom	3,729	482	26	8%	61%	30%	1%	32%
Ebonyi	162	482	26	8%	62%	30%	1%	30%
Enugu	114	482	25	9%	59%	32%	1%	32%
Abia	518	482	27	8%	58%	32%	1%	33%
Taraba	2,100	481	23	5%	71%	23%	1%	24%
Jigawa	2,835	481	26	10%	56%	33%	0%	34%
Borno	3,369	479	25	10%	62%	27%	0%	27%
Anambra	404	478	24	9%	67%	23%	0%	24%

State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Ekiti	98	477	25	10%	65%	25%	0%	25%
Bauchi	3,223	475	22	10%	74%	15%	0%	16%
Kwara	417	475	23	9%	73%	18%	0%	18%
Yobe	2,023	475	24	10%	74%	15%	1%	16%
Ogun	1,360	474	22	10%	74%	16%	0%	16%
Edo	923	473	22	13%	72%	15%	0%	15%
Rivers	447	472	33	21%	52%	25%	2%	28%
Oyo	4,107	472	23	11%	76%	13%	1%	14%
Adamawa	2,559	472	23	11%	72%	16%	1%	17%
Plateau	1,190	469	22	13%	73%	13%	0%	13%
Ondo	1,250	447	14	49%	51%	0%	0%	0%

Figure 3.9 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.9. State performance in P3 English studies: Percentages of learners at proficiency levels



Map 3.4. Percentage of learners meeting or exceeding proficiency in P3 English studies by state

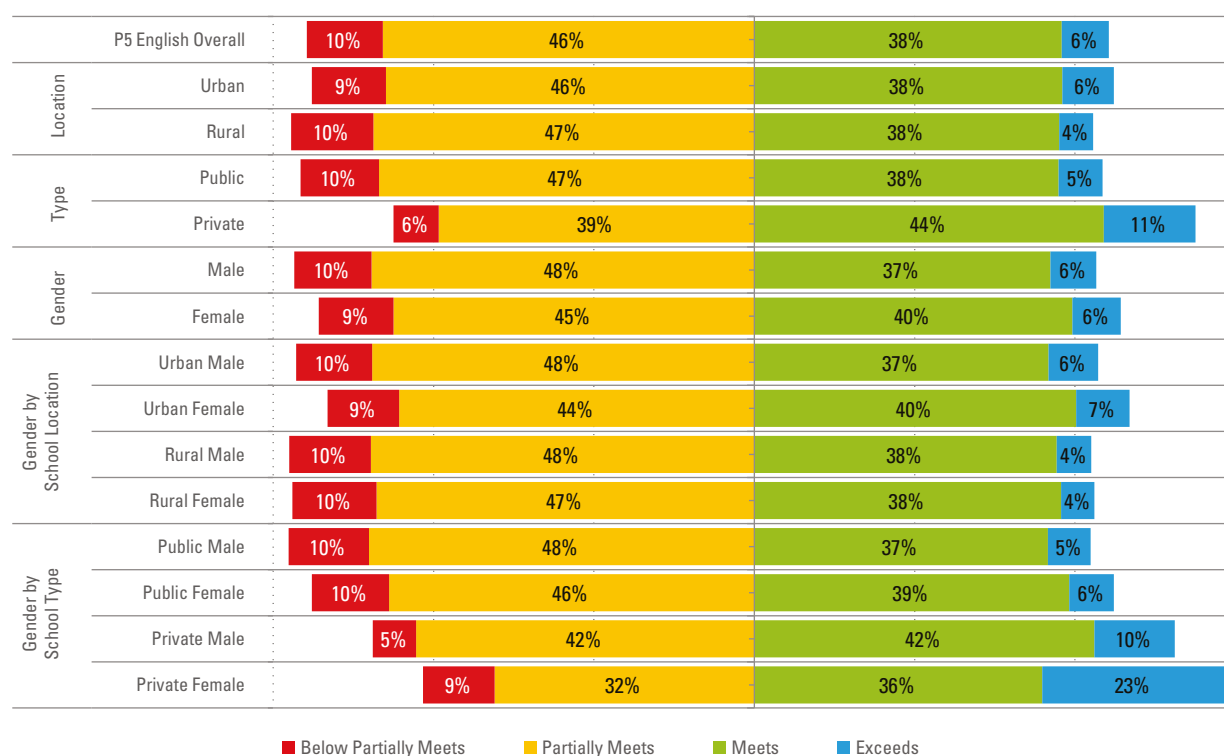
Note: Numbers indicate the percentage of proficient learners for each state.

3.3.2 National performance in P5 English studies

The domains of English studies tested in P5 were reading comprehension and grammatical accuracy through the knowledge, reasoning, and application cognitive categories. Table 3.13 and Figure 3.10 present the mean scale scores and the percentages of learners performing at different proficiency levels on the P5 English studies assessment.

Table 3.13. National performance in P5 English studies: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		64,531	493	34	10%	46%	38%	6%	44%
School location	Urban	48,187	494	35	9%	46%	38%	6%	45%
	Rural	16,349	490	33	10%	47%	38%	4%	42%
School type	Public	60,284	492	34	10%	47%	38%	5%	43%
	Private	4,252	504	36	6%	39%	44%	11%	55%
Gender	Male	31,951	492	34	10%	48%	37%	6%	43%
	Female	32,580	494	34	9%	45%	40%	6%	46%
Gender by school location	Urban male	23,647	492	34	10%	48%	37%	6%	43%
	Urban female	24,534	495	35	9%	44%	40%	7%	47%
	Rural male	8,303	490	33	10%	48%	38%	4%	42%
	Rural female	8,046	490	33	10%	47%	38%	4%	42%
Gender by school type	Public male	29,938	491	34	10%	48%	37%	5%	42%
	Public female	30,340	493	34	10%	46%	39%	6%	45%
	Private male	2,012	502	502	5%	42%	42%	10%	52%
	Private female	2,240	505	505	6%	37%	45%	13%	57%

Figure 3.10. National performance in P5 English studies: Percentages of learners at proficiency levels

P5 English studies national results

The proportion of learners who met the minimum proficiency (levels 3 and 4) in English studies in P5 was 44 per cent, a tangible increase from 32 per cent in P3. About 6 per cent of P5 learners exceeded the minimum proficiency (level 4). At the same time, however, 56 per cent of P5 learners failed to reach the minimum proficiency. The mean scale score in P5 English studies was 493.

P5 English studies results by school location

Learners from urban schools outperformed their rural counterparts by 4 points in mean scale scores (494 vs. 490 respectively) in P5 English studies. The proportion of learners who attained the minimum proficiency was 45 per cent in urban schools and 42 per cent in rural schools.

P5 English studies results by school type

There was a substantial difference in learners' performance between private schools and public schools in favour of private schools. Over half of learners in private schools (55 per cent) attained the minimum proficiency (levels 3 and 4), which is 12 percentage points higher than their public school counterparts (43 per cent). In addition, 11 per cent of private school learners exceeded the minimum proficiency (level 4). The mean scale score was 504 in private schools and 492 in public schools.

P5 English studies results by gender

Females showed a slight advantage over their male counterparts, with 494 points for females and 492 points for males in the mean scale scores. Similarly, 46 per cent of female learners achieved the minimum proficiency (levels 3 and 4) compared to 43 per cent of male learners.

P5 English studies results by gender and school location

The urban advantage appeared more strongly for females than males. The percentage of female learners achieving the minimum proficiency (levels 3 and 4) was 5 percentage points higher in urban schools (47 per cent) than rural schools (42 per cent). The urban-rural difference among male learners was just 1 percentage point in favour of urban schools.

Female advantage was observed only in urban schools, where females outperformed males by a small margin in mean scale scores (495 points vs. 492 points) and 47 per cent of females achieved the minimum proficiency compared to 43 per cent of their male counterparts. There was no difference in achievement in rural schools by gender.

P5 English studies results by gender and school type

The private advantage held for both female and male learners. Among female learners, the proportion attaining the minimum proficiency (levels 3 and 4) was 12 percentage points higher in private schools (57 per cent) than public schools (45 per cent). Similarly, the proportion of male learners at levels 3 and 4 was 10 percentage points higher in private schools (52 per cent) compared to public schools (42 per cent). Within each of the school types, females outperformed males. Female learners in private schools achieved the highest mean scale score, at 505 points.

P5 English studies results by content theme and cognitive level

Table 3.14 presents the mean percent-correct scores of learners by content domain and cognitive level. Learners in P5 English studies scored higher on reading comprehension (56 per cent correct) compared to grammatical accuracy (49 per cent correct). In terms of cognitive levels, mean percent-correct scores ranged from 53 to 55 per cent correct in the three cognitive areas, with the highest score in application, followed by knowledge and reasoning.

Table 3.14. National performance in P5 English studies: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores		
Content themes	Reading comprehension	Grammatical accuracy	
Pct-correct score mean	56	49	
N	64,536	64,536	
Std. deviation	23	23	
Cognitive levels	Know	Reason	Apply
Pct-correct score mean	54	53	55
N	64,536	64,536	64,536
Std. deviation	23	26	28

P5 English studies results by state

Table 3.15 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

The results showed large variations between states in P5 learners' performance in English studies. The top five performing states in P5 English studies were Imo, Katsina, Kaduna, Kebbi and Kogi. These are the same top five states as in P3 English. These states had over 60 per cent of P5 learners attaining the minimum proficiency (levels 3 and 4). In Imo, 20 per cent of P5 learners exceeded the minimum proficiency (level 4). The mean scale score of these five states was 510, which is 17 points above the national average of 493.

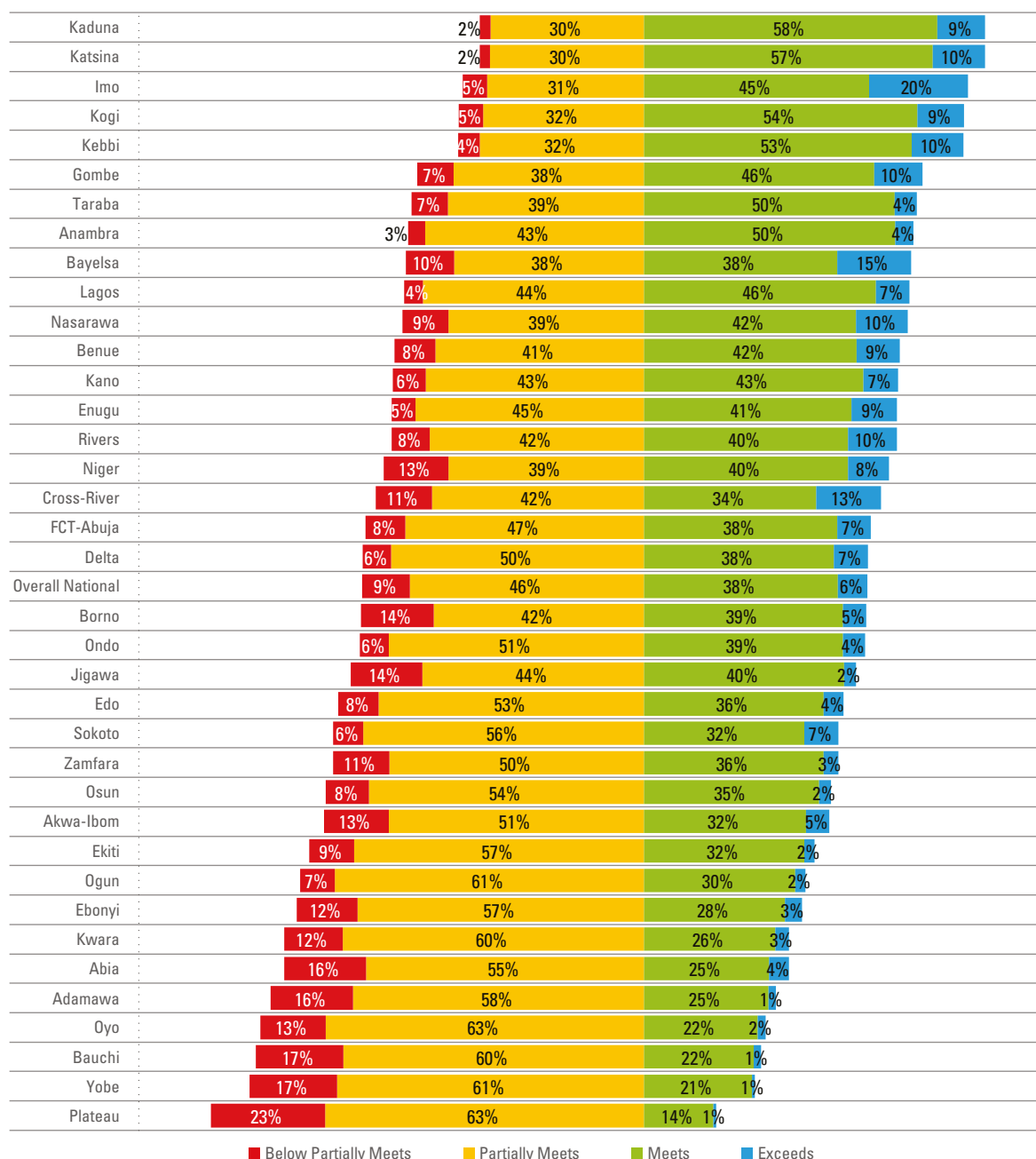
The bottom five performing states were Plateau, Yobe, Bauchi, Adamawa and Oyo. Three of these states were also in the bottom five performing states in P3 English. On average, only 22 per cent of P5 learners in these states achieved the minimum proficiency (levels 3 and 4). The mean scale score in these states was as low as 475, which is 18 points lower than the national average and 35 points lower than the top five performing states.

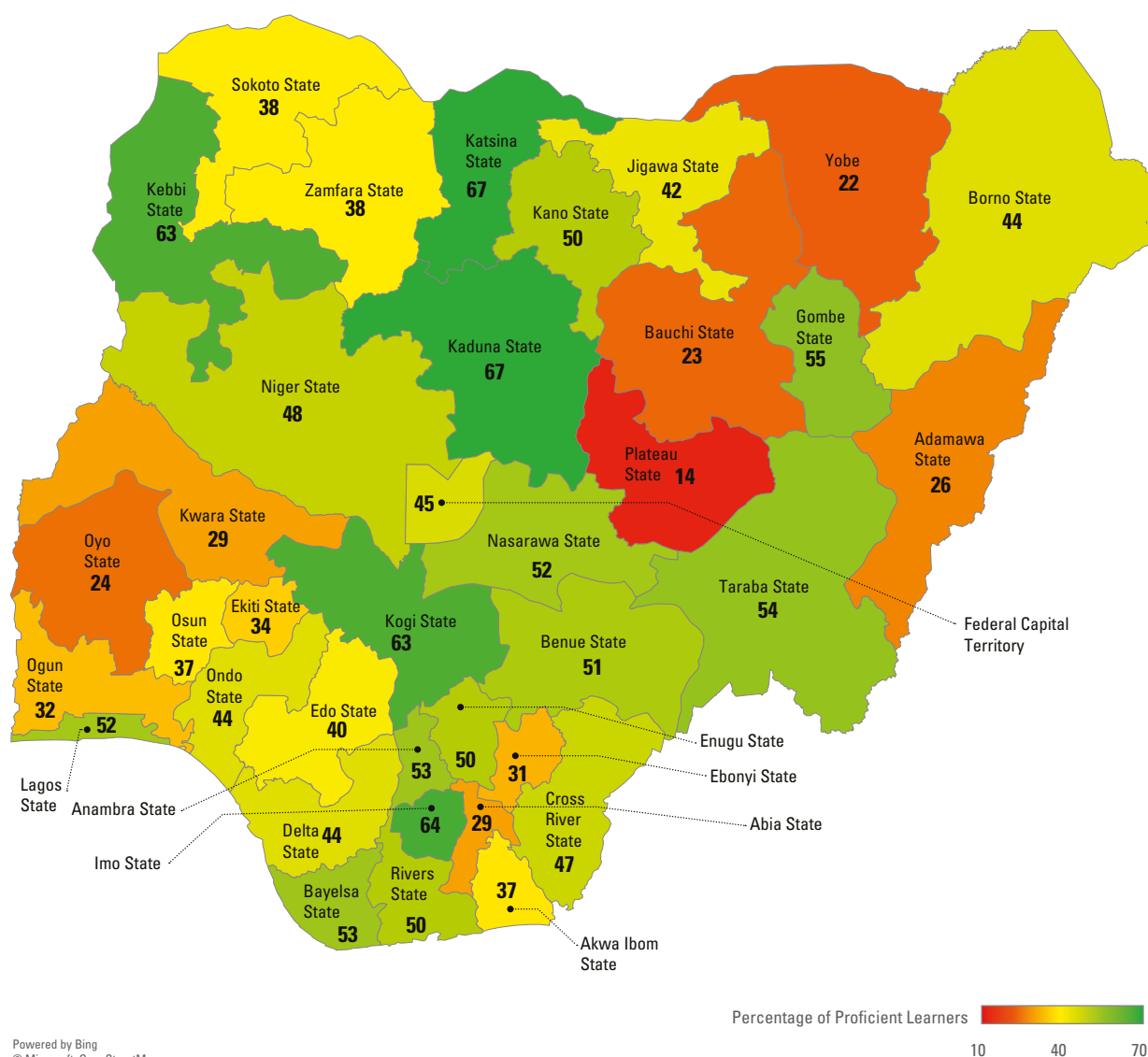
Table 3.15. P5 English studies: Mean scale scores and percentages of learners at proficiency levels by state

State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Imo	1,837	514	39	5%	31%	45%	20%	64%
Katsina	3,345	512	33	2%	30%	57%	10%	67%
Kaduna	3,435	510	29	2%	30%	58%	9%	67%
Kebbi	3,138	508	33	4%	32%	53%	10%	63%
Kogi	305	505	33	5%	32%	54%	9%	63%
Bayelsa	157	502	43	10%	38%	38%	15%	53%
Gombe	2,321	502	36	7%	38%	46%	10%	55%
Lagos	2,367	500	30	4%	44%	46%	7%	52%
Anambra	561	499	28	3%	43%	50%	4%	53%
Enugu	147	499	34	5%	45%	41%	9%	50%
Nasarawa	915	499	37	9%	39%	42%	10%	52%
Kano	4,036	498	33	6%	43%	43%	7%	50%
Rivers	486	498	36	8%	42%	40%	10%	50%
Taraba	1,484	498	30	7%	39%	50%	4%	54%
Benue	867	497	36	8%	41%	42%	9%	51%
Cross River	384	497	41	11%	42%	34%	13%	47%
Delta	1,114	496	33	6%	50%	38%	7%	44%
Ondo	1,392	495	31	6%	51%	39%	4%	44%
FCT-Abuja	1,319	494	34	8%	47%	38%	7%	45%
Niger	2,280	494	39	13%	39%	40%	8%	48%
Sokoto	2,667	493	31	6%	56%	32%	7%	38%
National mean	64,536	493	34	9%	46%	38%	6%	44%
Edo	1,693	490	31	8%	53%	36%	4%	40%
Zamfara	2,118	488	31	11%	50%	36%	3%	38%
Borno	3,545	488	34	14%	42%	39%	5%	44%
Osun	414	488	29	8%	54%	35%	2%	37%
Jigawa	2,829	487	33	14%	44%	40%	2%	42%
Ekiti	148	487	29	9%	57%	32%	2%	34%
Ogun	1,551	486	28	7%	61%	30%	2%	32%
Akwa Ibom	3,966	486	34	13%	51%	32%	5%	37%
Ebonyi	207	483	32	12%	57%	28%	3%	31%
Kwara	363	482	31	12%	60%	26%	3%	29%
Abia	651	481	35	16%	55%	25%	4%	29%
Oyo	3,614	478	28	13%	63%	22%	2%	24%
Adamawa	2,244	477	30	16%	58%	25%	1%	26%
Bauchi	3,127	476	30	17%	60%	22%	1%	23%
Yobe	2,526	475	29	17%	61%	21%	1%	22%
Plateau	981	468	27	23%	63%	14%	1%	14%

Figure 3.11 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.11. Percentages of learners at proficiency levels in P5 English studies by state



Map 3.5. Percentage of learners meeting or exceeding proficiency in P5 English studies by state

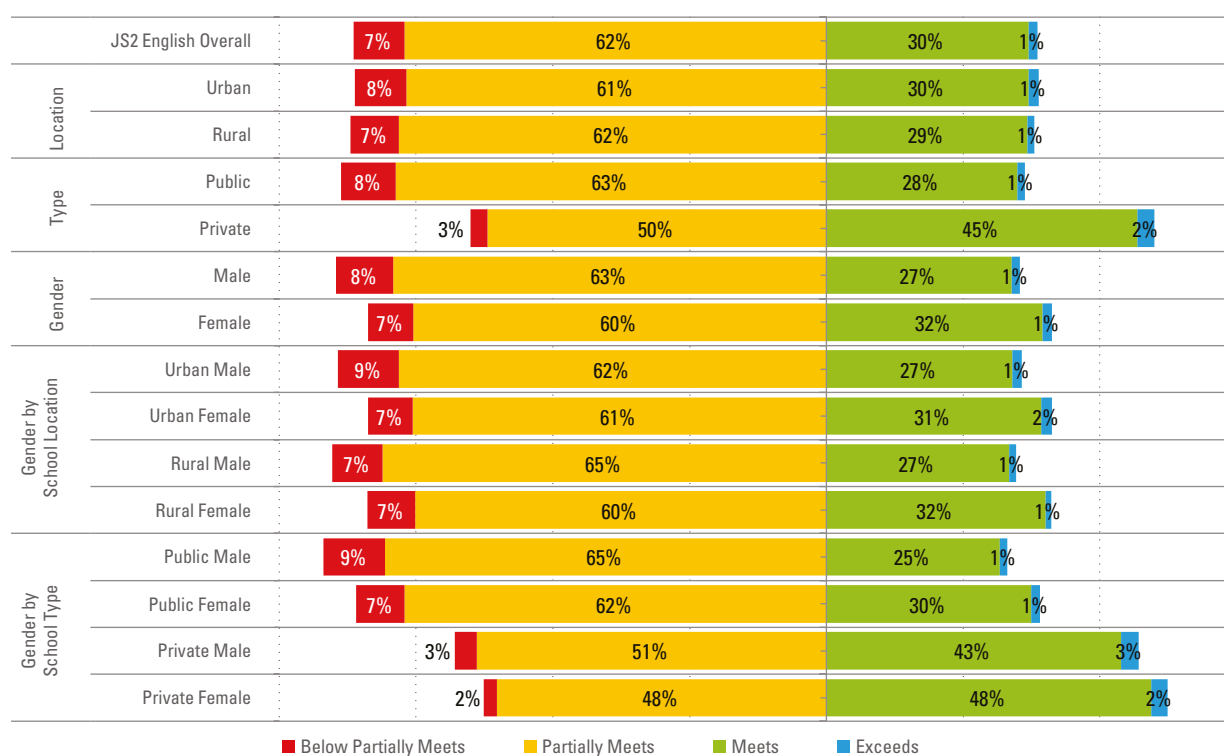
Note: Numbers indicate the percentage of proficient learners for each state.

3.3.3 National performance in JS2 English studies

The domains of English studies tested in JS2 were reading comprehension, grammatical accuracy and literary appreciation through the knowledge, reasoning and application cognitive categories. Table 3.16 and Figure 3.12 present the mean scale scores and the percentages of learners performing at different proficiency levels on the JS2 English studies assessment.

Table 3.16. National performance in JS2 English studies: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		21,772	485	26	7%	62%	30%	1%	31%
School location	Urban	14,995	485	27	8%	61%	30%	1%	31%
	Rural	6,777	484	25	7%	62%	29%	1%	30%
School type	Public	19,742	484	26	8%	63%	28%	1%	29%
	Private	2,030	496	25	3%	50%	45%	2%	48%
Gender	Male	9,877	483	26	8%	63%	27%	1%	28%
	Female	11,895	486	26	7%	60%	32%	1%	33%
Gender by school location	Urban male	6,573	483	27	9%	63%	27%	1%	29%
	Urban female	8,422	486	26	7%	61%	31%	2%	33%
	Rural male	3,304	483	25	7%	65%	27%	1%	28%
	Rural female	3,473	485	26	7%	60%	32%	1%	33%
Gender by school type	Public male	8,948	482	26	9%	65%	25%	1%	27%
	Public female	10,795	485	26	7%	62%	30%	1%	31%
	Private male	929	494	26	3%	51%	43%	3%	46%
	Private female	1,100	497	25	2%	48%	48%	2%	50%

Figure 3.12. National performance in JS2 English studies: Percentages of learners at proficiency levels

JS2 English studies national results

At the national level, 31 per cent of JS2 learners attained the minimum proficiency (levels 3 and 4) in English studies. This is a significant drop of 13 percentage points from 44 per cent in P5. Meanwhile, 69 per cent of learners did not reach the minimum proficiency. The majority of JS2 learners (62 per cent) placed in proficiency level 2. The mean scale score for JS2 English studies was 485.

JS2 English studies results by school location

There was a marginal difference between urban and rural school performance in favour of urban schools. The mean scale scores were 485 in urban schools and 484 in rural schools, with the proportion of learners achieving the minimum proficiency totalling 31 per cent and 30 per cent respectively.

JS2 English studies results by school type

As with P3 and P5 English studies, JS2 learners from private schools outperformed their public school peers in English studies. The share of JS2 learners who achieved the minimum proficiency (levels 3 and 4) was 48 per cent in private schools and 29 per cent in public schools, a stark difference of 19 percentage points. The mean scale score was 496 points in private schools and 484 points in public schools.

JS2 English studies results by gender

Females learners outperformed male learners in JS2 English studies, with 33 per cent of female learners attaining the minimum proficiency (levels 3 and 4) compared to 28 per cent of male learners. The mean scale score for females (486 points) was also 3 points higher than the score for males (483 points).

JS2 English studies results by gender and school location

Female advantage in JS2 English studies was observed in both urban and rural schools. The percentage of JS2 learners who attained the minimum proficiency (levels 3 and 4) was 4 percentage points higher for females than males in urban schools (33 per cent vs. 29 per cent) and 5 percentage points higher in rural schools (33 per cent vs. 28 per cent).

JS2 English studies results by gender and school type

The private school advantage in JS2 English studies held for both females and males. The proportion of learners achieving the minimum proficiency (levels 3 and 4) was 19 percentage points higher in private schools than public schools for both male learners and female learners. In addition, female learners outperformed male learners in both private and public schools with a 4-percentage-point difference. Female learners in private schools demonstrated the highest achievement, with 50 per cent achieving the minimum proficiency and a mean scale score of 497. On the other hand, the lowest performance was found for male learners in public schools, with only 27 per cent achieving the minimum proficiency and a mean scale score of 482.

JS2 English studies results by content theme and cognitive level

Table 3.17 presents the mean percent-correct scores of learners by content domain and cognitive level. Learners in JS2 English studies answered 50 per cent correct in both reading comprehension and grammatical accuracy. Their score on literary appreciation was significantly lower, at 37 per cent correct. In terms of cognitive levels, JS2 learners were most successful on application items (56 per cent correct), followed by knowledge (50 per cent correct) and reasoning (48 per cent correct).

Table 3.17. National performance in JS2 English studies: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores		
Content themes	Reading comprehension	Grammatical accuracy	Literary appreciation
Pct-correct score mean	50	50	37
N	21,772	21,772	21,772
Std. deviation	21	21	30
Cognitive levels	Know	Reason	Apply
Pct-correct score mean	50	48	56
N	21,772	21,772	21,772
Std. deviation	19	23	39

JS2 English studies results by state

Table 3.18 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

The results showed large variations between states in JS2 learners' performance in English studies. The top five performing states in JS2 English studies were Imo, Rivers, Lagos, Sokoto and FCT-Abuja. The state of Imo also appears in the top five states for both P3 and P5 English studies. On average, 56 per cent of JS2 learners in these states attained the minimum proficiency (levels 3 and 4), with 69 per cent in Imo state performing at that level. The mean scale score of these five states was 501, which is 16 points higher than the national average of 485.

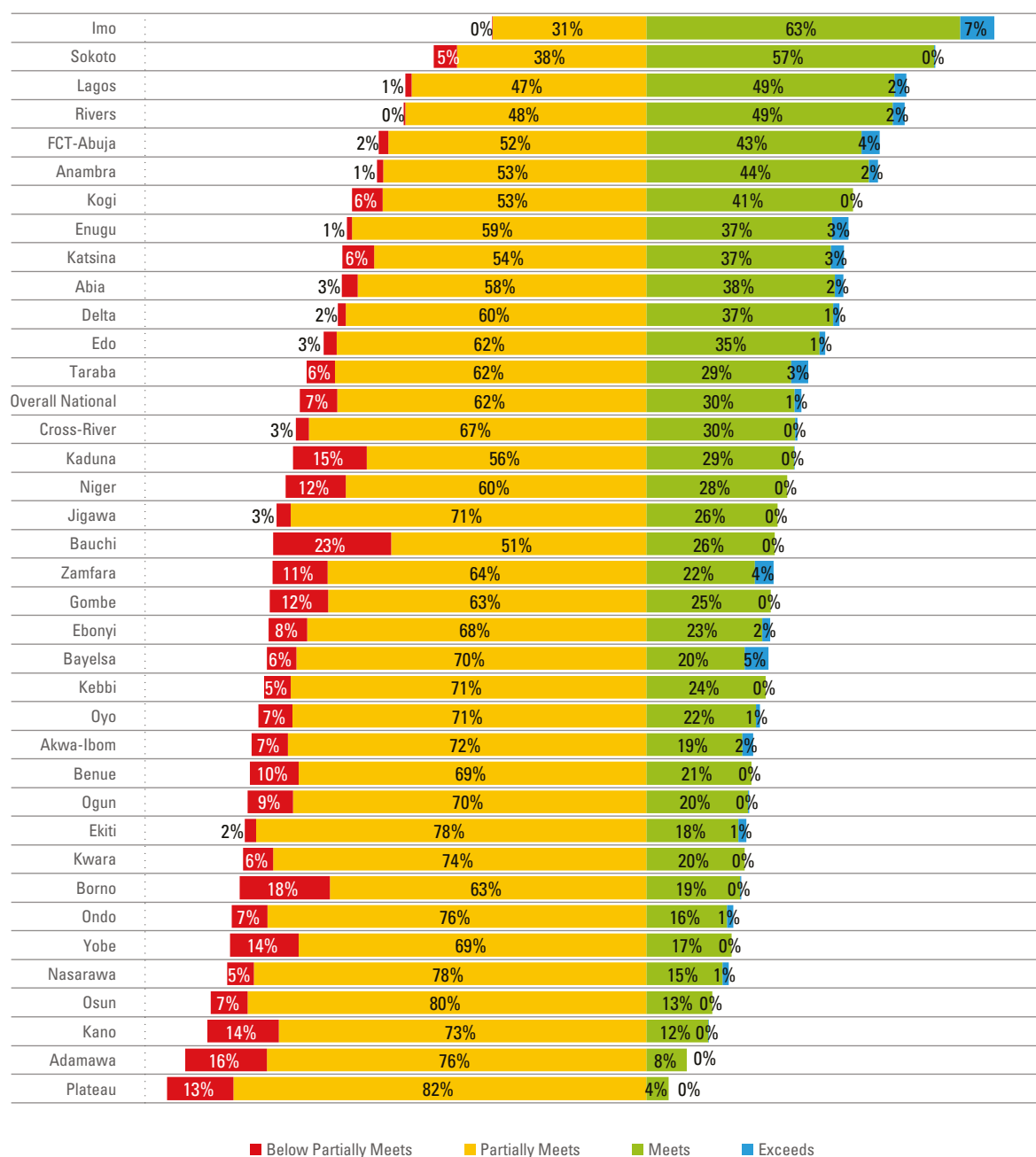
The bottom five performing states were Plateau, Adamawa, Kano, Bauchi and Borno. Three of these states were also in the bottom five performing states in P5 English studies. Only 14 per cent of JS2 learners in these states reached the minimum proficiency (levels 3 and 4), with less than 1 per cent of learners exceeding the minimum proficiency (level 4). Their mean scale score was 470, which is 15 points lower than the national average and 31 points lower than the top five performing states.

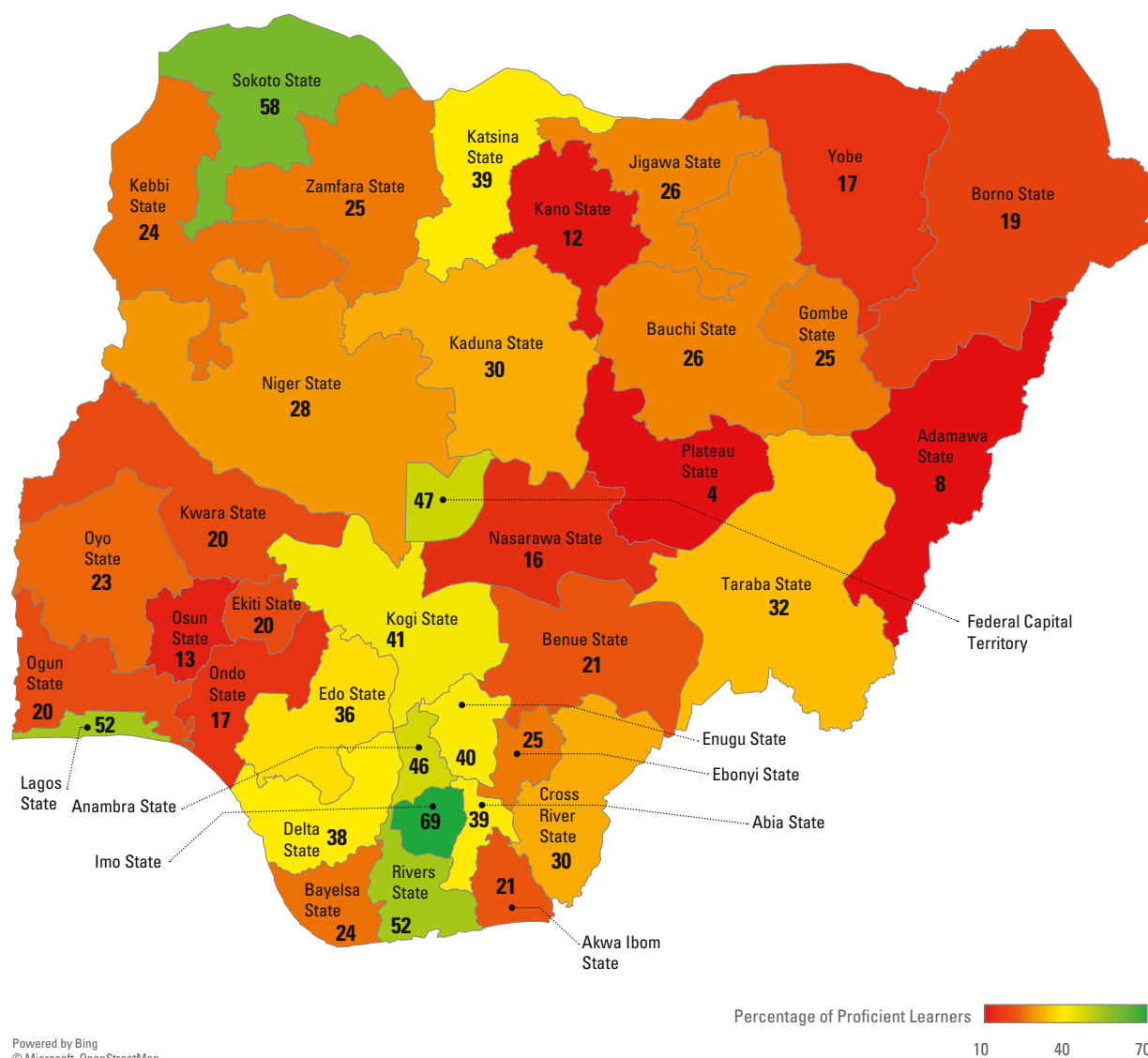
Table 3.18. State performance in JS2 English studies: Mean scale scores and percentages of learners at proficiency levels

State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Imo	650	509	24	0%	31%	63%	7%	69%
Rivers	1,162	500	21	0%	48%	49%	2%	52%
Lagos	1,451	500	24	1%	47%	49%	2%	52%
Sokoto	457	498	26	5%	38%	57%	0%	58%
FCT-Abuja	965	497	25	2%	52%	43%	4%	47%
Anambra	487	496	22	1%	53%	44%	2%	46%
Enugu	92	493	25	1%	59%	37%	3%	40%
Katsina	685	492	29	6%	54%	37%	3%	39%
Delta	881	491	22	2%	60%	37%	1%	38%
Edo	739	491	22	3%	62%	35%	1%	36%
Abia	125	490	25	3%	58%	38%	2%	39%
Cross River	237	488	21	3%	67%	30%	0%	30%
Kogi	114	487	26	6%	53%	41%	0%	41%
Kebbi	778	487	22	5%	71%	24%	0%	24%
Taraba	266	486	28	6%	62%	29%	3%	32%
National mean	21,772	485	26	7%	62%	30%	1%	31%
Bayelsa	169	484	29	6%	70%	20%	5%	24%
Ebonyi	64	483	26	8%	68%	23%	2%	25%
Jigawa	834	483	20	3%	71%	26%	0%	26%
Ekiti	267	482	22	2%	78%	18%	1%	20%
Kaduna	1,049	481	29	15%	56%	29%	0%	30%
Kwara	336	480	20	6%	74%	20%	0%	20%
Oyo	1,100	480	24	7%	71%	22%	1%	23%
Zamfara	398	480	28	11%	64%	22%	4%	25%
Niger	595	479	25	12%	60%	28%	0%	28%
Akwa Ibom	982	479	26	7%	72%	19%	2%	21%
Ogun	1,070	478	23	9%	70%	20%	0%	20%
Gombe	504	478	25	12%	63%	25%	0%	25%
Nasarawa	172	477	22	5%	78%	15%	1%	16%
Benue	226	477	22	10%	69%	21%	0%	21%
Ondo	577	477	23	7%	76%	16%	1%	17%
Osun	259	475	20	7%	80%	13%	0%	13%
Yobe	691	475	25	14%	69%	17%	0%	17%
Borno	940	472	25	18%	63%	19%	0%	19%
Bauchi	611	471	27	23%	51%	26%	0%	26%
Kano	1,157	470	22	14%	73%	12%	0%	12%
Adamawa	549	469	22	16%	76%	8%	0%	8%
Plateau	136	468	18	13%	82%	4%	0%	4%

Figure 3.13 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.13. State performance in JS2 English studies: Percentages of learners at proficiency levels



Map 3.6. Percentage of learners meeting or exceeding proficiency in JS2 English studies by state

Note: Numbers indicate the percentage of proficient learners for each state.

3.4 Performance in basic science and technology

Basic science and technology is one of the core subjects in the Basic Education Curriculum, therefore every learner is required to study it in primary and junior secondary schools. NALABE 2022 targeted two classes – P5 and JS2 – for assessment in basic science and technology. The subject contents are organized into four themes in both classes: basic science, basic technology, physical and health education, and information technology.

Key findings in basic science and technology

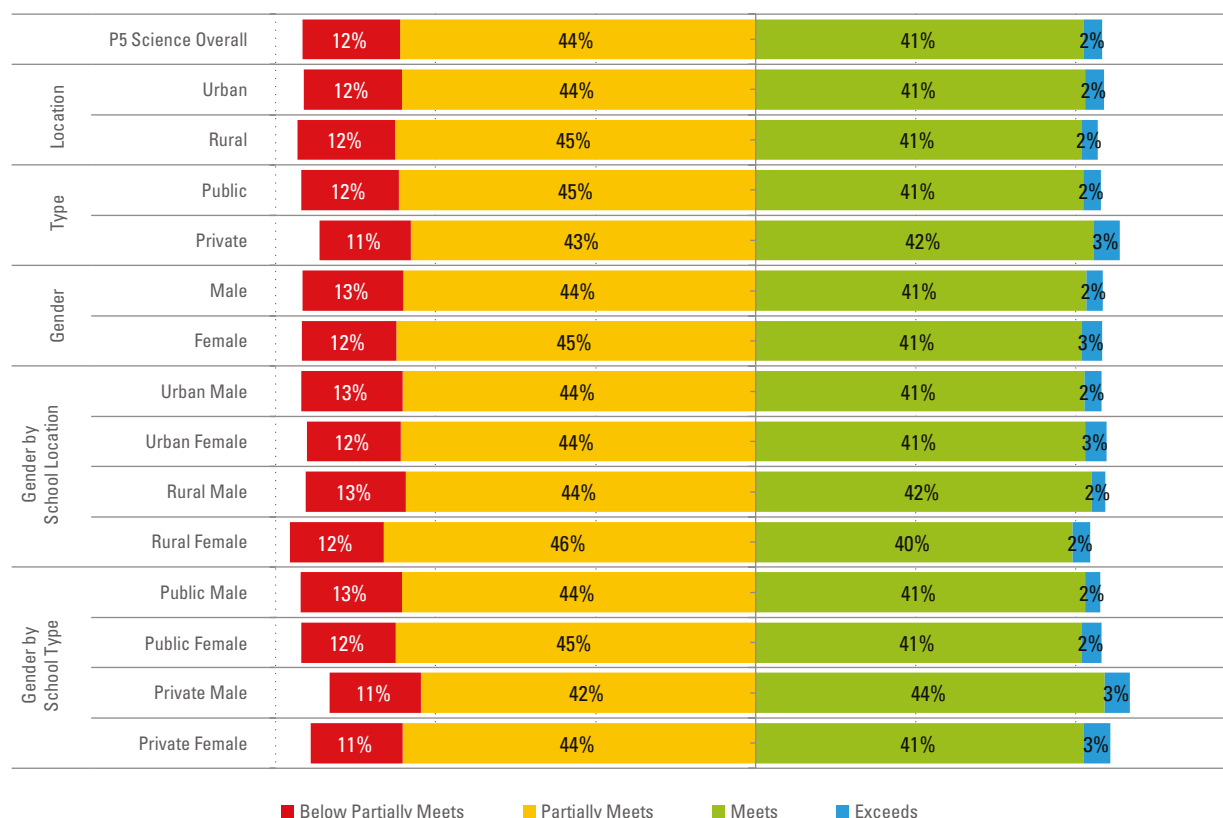
- ▶ The percentage of learners who achieved the minimum proficiency in basic science and technology (levels 3 and 4) was 43 per cent in P5 and 50 per cent in JS2, with 2 per cent and 5 per cent exceeding the minimum proficiency (level 4) in each class respectively. This still leaves 56 per cent of learners in P5 and 50 per cent in JS2 failing to reach the minimum proficiency. The mean scale scores improved from 487 points in P5 to 492 points in JS2.
- ▶ There was no tangible difference in performance in basic science and technology by gender in either class. The proportion of learners who attained the minimum proficiency (levels 3 and 4) was, however, slightly higher for male learners in rural schools and private schools in P5. On the contrary, the percentage was slightly higher for females in rural schools in JS2.
- ▶ No significant difference was identified between urban and rural schools in P5, although JS2 learners in rural schools achieved slightly better results than their urban counterparts. The rural advantage in JS2 basic science and technology was more evident for female learners than male learners.
- ▶ Private school learners, as in mathematics and English studies, were higher performers than their public school counterparts in both P5 and JS2. The private school advantage in basic science and technology was more evident for male learners in P5, while it held for both male and female learners in JS2.
- ▶ Learners in P5 were more successful in basic science but relatively weak in basic technology and information technology. This pattern was reversed in JS2 where learners achieved better results in basic technology and information technology and were less successful in basic science and physical and health education. In terms of cognitive levels, both learners in P5 and JS2 achieved the highest performance in knowledge items, followed by reasoning and application items.
- ▶ At the state level, Katsina, Kaduna and Kebbi emerged as top states in P5, and Imo, Rivers and Katsina were top-performing states in JS2.

3.4.1 National performance in P5 basic science and technology

The P5 basic science and technology test items were organized around content and cognitive domains. The content domain had four components: basic science, basic technology, physical and health education, and information technology. Table 3.19 and Figure 3.14 present the mean scale scores and the percentages of learners performing at different proficiency levels on the P5 basic science and technology assessment.

Table 3.19. National performance in P5 basic science and technology: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		63,045	487	33	12%	44%	41%	2%	43%
School location	Urban	45,986	488	33	12%	44%	41%	2%	44%
	Rural	17,059	487	32	12%	45%	41%	2%	43%
School type	Public	58,577	487	33	12%	45%	41%	2%	43%
	Private	4,469	490	33	11%	43%	42%	3%	45%
Gender	Male	31,438	487	33	13%	44%	41%	2%	43%
	Female	31,603	488	33	12%	45%	41%	3%	43%
Gender by school location	Urban male	22,763	487	33	13%	44%	41%	2%	43%
	Urban female	23,220	488	33	12%	44%	41%	3%	44%
	Rural male	8,675	487	32	13%	44%	42%	2%	44%
	Rural female	8,383	487	33	12%	46%	40%	2%	42%
Gender by school type	Public male	29,339	487	33	13%	44%	41%	2%	43%
	Public female	29,234	488	33	12%	45%	41%	2%	43%
	Private male	2,099	490	33	11%	42%	44%	3%	47%
	Private female	2,370	489	34	11%	44%	41%	3%	44%

Figure 3.14. National performance in P5 basic science and technology: Percentages of learners at proficiency levels

P5 basic science and technology national results

In P5 basic science and technology, 43 per cent of learners attained the minimum proficiency (levels 3 and 4), with 2 per cent exceeding the minimum proficiency (level 4). This means that 57 per cent of P5 learners did not reach the minimum proficiency. The mean scale score was 487.

P5 basic science and technology results by school location

There is no significant difference in performance between urban and rural schools, with 43 and 44 per cent of P5 learners attaining the minimum proficiency (levels 3 and 4) in urban and rural settings respectively. The mean scale scores were 488 in urban schools and 487 in rural schools.

P5 basic science and technology results by school type

Private school learners performed slightly better than public school learners. On average, 45 per cent of private school learners attained the minimum proficiency (levels 3 and 4), while 43 per cent achieved the minimum proficiency in public schools. The mean scale scores were 490 and 487 in private and public schools respectively.

P5 basic science and technology results by gender

There was no perceptible difference in performance by gender, with both females and males mirroring the national average achievement. About 43 per cent of female and male learners attained the minimum proficiency (levels 3 and 4).

P5 basic science and technology results by gender and school location

In urban schools, female learners had a marginally higher proportion attaining the minimum proficiency (44 per cent) than their male counterparts (43 per cent). Contrarily, in rural schools, the percentage achieving the minimum proficiency was slightly higher for male learners (44 per cent) compared to female learners (42 per cent).

P5 basic science and technology results by gender and school type

The small private school advantage in basic science and technology performance was mainly derived from male learners. The percentage of male learners achieving the minimum proficiency (levels 3 and 4) was 4 percentage points higher in private schools (47 per cent) than public schools (43 per cent), while there was only 1-percentage-point difference between female learners in private and public schools. Male learners in private schools demonstrated the highest scale score, with 490 points.

P5 basic science and technology results by content theme and cognitive level

Table 3.20 presents the mean percent-correct scores of learners by content domain and cognitive level. In both cases, these scores represent performance on sub-tests rather than whole tests. As such, the scores cannot be plotted on the proficiency scale since the scale was developed based on whole test performance data.

On average, learners in P5 were most successful in basic science (51 per cent correct). They were least successful in basic technology (42 per cent correct) and information technology (40 per cent correct). Results for physical and health education were in the middle (46 per cent correct).

In terms of cognitive levels, learners were most successful on knowledge items (50 per cent correct), followed by reasoning (42 per cent correct) and application (39 per cent correct). This conforms with expectations that learners would perform better on cognitively simpler items and less well on cognitively complex items.

Table 3.20. National performance in P5 basic science and technology: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores			
Content themes	Basic science	Basic technology	Physical & health education	Information technology
Pct-correct score mean	51	42	46	40
N	63,045	63,045	63,045	63,045
Std. deviation	23	19	19	31
Cognitive levels	Know	Reason	Apply	
Pct-correct score mean	50	42	39	
N	63,045	63,045	63,045	
Std. deviation	20	18	26	

P5 basic science and technology results by state

Table 3.21 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

The results showed large variations between states in P5 learners' performance in basic science and technology. The top five performing states were Katsina, Kaduna, Kebbi, Gombe and Taraba. On average, 67 per cent of P5 learners in these states attained the minimum proficiency (levels 3 and 4). In Katsina, learners at levels 3 and 4 accounted for 79 per cent of total learners in the state, with 8 per cent of learners exceeding the minimum proficiency (level 4). The mean scale score of these five states was 504, which is 17 points higher than the national average of 487.

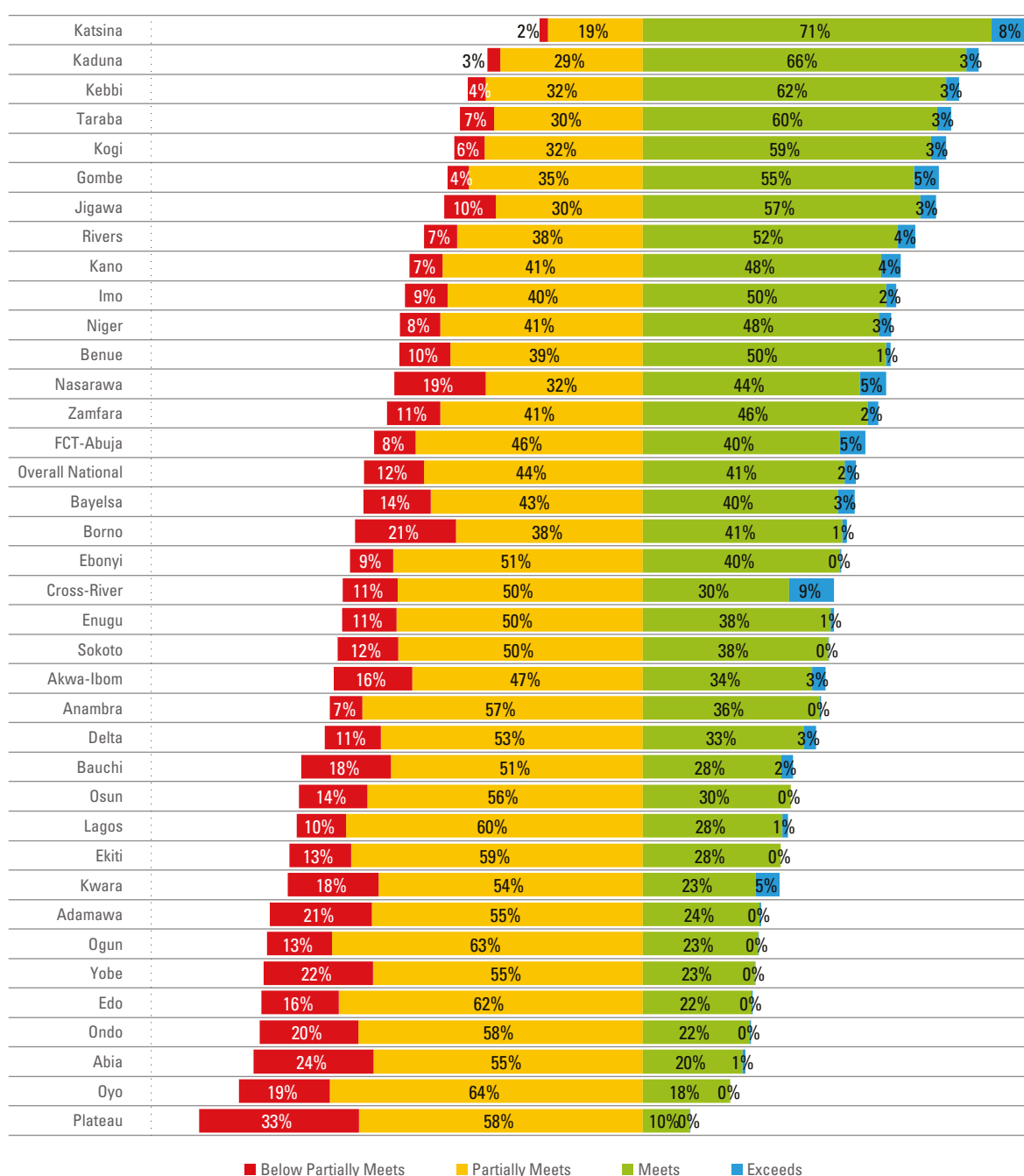
The bottom five performing states were Plateau, Abia, Oyo, Yobe and Ondo. On average, 19 per cent of P5 learners achieved the minimum proficiency (levels 3 and 4). In these states, a sizable proportion of learners (19–33 per cent) placed in the level 1 (below partially meets the minimum proficiency). Their mean scale score was 469, which is 18 points below the national average and 35 points lower than the top five performing states.

Table 3.21. State performance in P5 basic science and technology: Mean scale scores and percentages of learners at proficiency levels

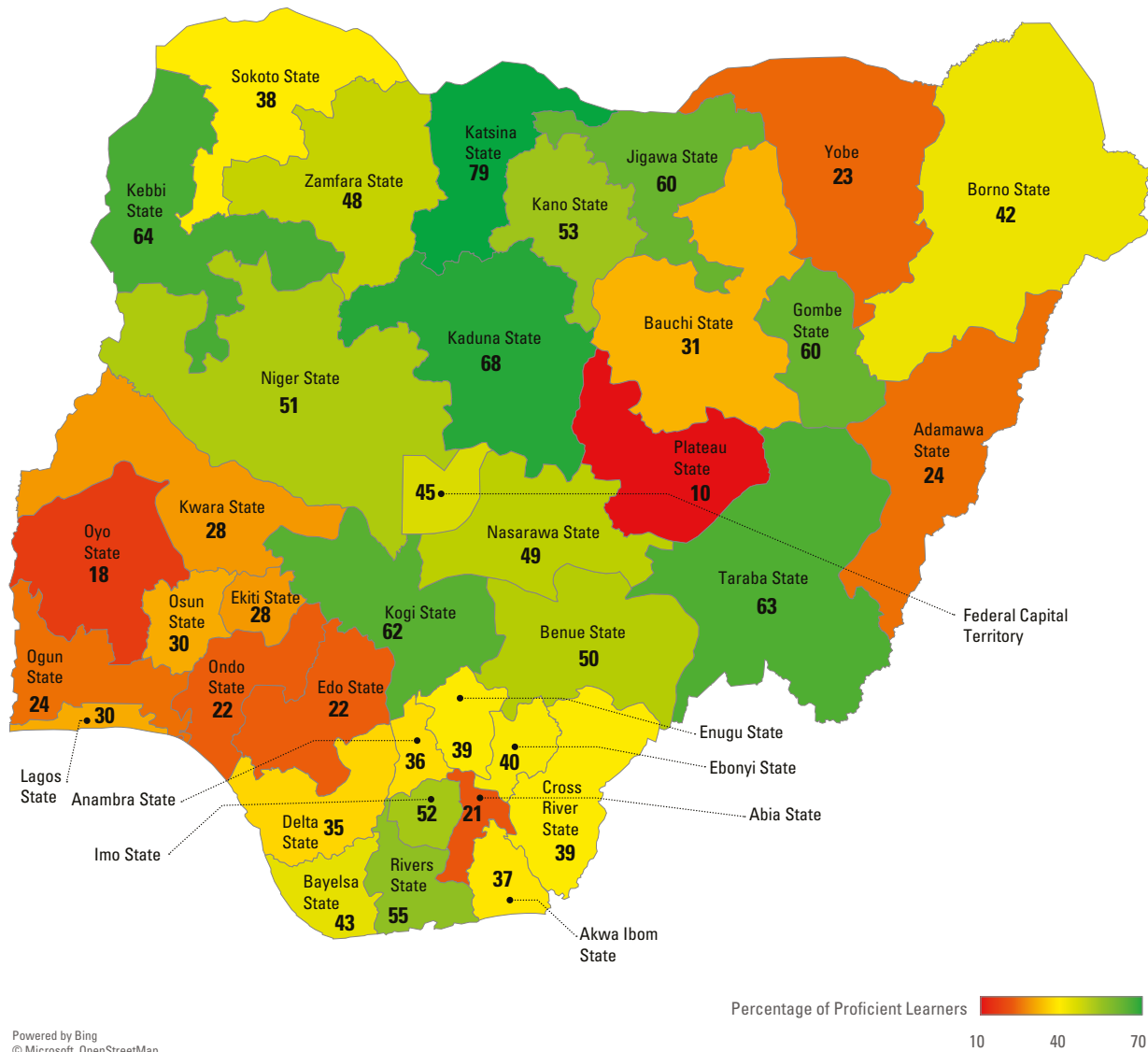
State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Katsina	3,006	513	27	2%	19%	71%	8%	79%
Kaduna	3,437	504	25	3%	29%	66%	3%	68%
Kebbi	2,767	502	27	4%	32%	62%	3%	64%
Gombe	2,113	502	30	4%	35%	55%	5%	60%
Taraba	1,393	500	30	7%	30%	60%	3%	63%
Kogi	294	500	30	6%	32%	59%	3%	62%
Kano	4,166	497	32	7%	41%	48%	4%	53%
Rivers	540	496	32	7%	38%	52%	4%	55%
Jigawa	2,529	496	34	10%	30%	57%	3%	60%
Niger	2,082	495	32	8%	41%	48%	3%	51%
Imo	2,408	493	31	9%	40%	50%	2%	52%
FCT-Abuja	1,296	492	34	8%	46%	40%	5%	45%
Benue	1,036	492	33	10%	39%	50%	1%	50%
Zamfara	2,063	490	33	11%	41%	46%	2%	48%
Cross River	383	489	36	11%	50%	30%	9%	39%
Nasarawa	983	488	40	19%	32%	44%	5%	49%
National mean	63,045	487	33	12%	44%	41%	2%	43%
Ebonyi	485	487	28	9%	51%	40%	0%	40%
Anambra	967	486	25	7%	57%	36%	0%	36%
Bayelsa	146	486	34	14%	43%	40%	3%	43%
Sokoto	2,402	485	30	12%	50%	38%	0%	38%
Enugu	437	484	29	11%	50%	38%	1%	39%
Delta	1,079	483	31	11%	53%	33%	3%	35%
Akwa Ibom	3,526	483	35	16%	47%	34%	3%	37%
Lagos	2,073	481	27	10%	60%	28%	1%	30%
Borno	3,392	479	35	21%	38%	41%	1%	42%
Bauchi	2,718	478	33	18%	51%	28%	2%	31%
Osun	360	478	27	14%	56%	30%	0%	30%
Ekiti	129	478	29	13%	59%	28%	0%	28%
Kwara	309	477	35	18%	54%	23%	5%	28%
Ogun	1,376	476	27	13%	63%	23%	0%	24%
Edo	1,628	473	27	16%	62%	22%	0%	22%
Adamawa	2,078	472	30	21%	55%	24%	0%	24%
Ondo	1,324	472	30	20%	58%	22%	0%	22%
Yobe	2,484	472	31	22%	55%	23%	0%	23%
Oyo	3,816	471	27	19%	64%	18%	0%	18%
Abia	759	470	30	24%	55%	20%	1%	21%
Plateau	1,060	460	28	33%	58%	10%	0%	10%

Figure 3.15 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.15. State performance in P5 basic science and technology: Percentages of learners at proficiency levels



Map 3.7. Percentage of learners meeting or exceeding proficiency in P5 basic science and technology by state



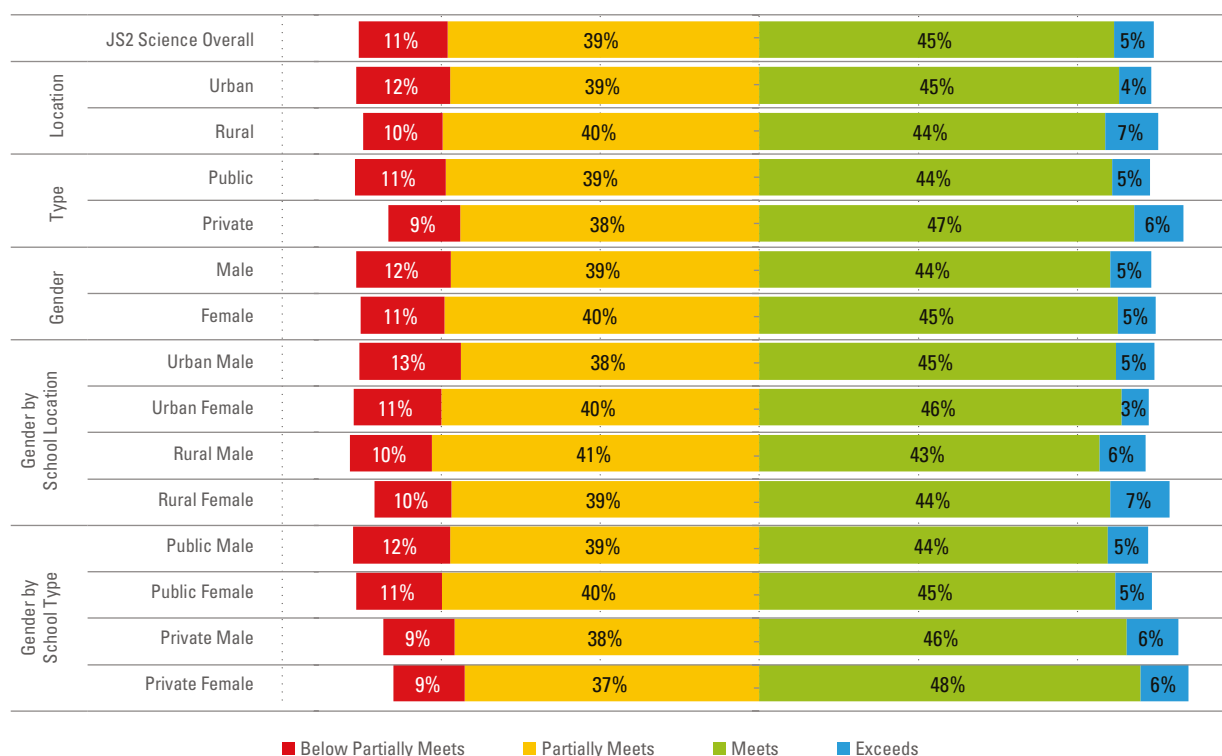
Note: Numbers indicate the percentage of proficient learners for each state.

3.4.2 National performance in JS2 basic science and technology

As with class P5, the content covered in JS2 included basic science, basic technology, physical and health education, and information technology. Table 3.22 and Figure 3.16 present the mean scale scores and the percentages of learners performing at different proficiency levels on the JS2 basic science and technology assessment.

Table 3.22. National performance in JS2 basic science and technology: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below Part. Meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		21,343	492	36	11%	39%	45%	5%	50%
School location	Urban	14,016	491	35	12%	39%	45%	4%	49%
	Rural	7,327	495	37	10%	40%	44%	7%	50%
School type	Public	19,021	492	35	11%	39%	44%	5%	49%
	Private	2,322	496	36	9%	38%	47%	6%	53%
Gender	Male	9,639	492	36	12%	39%	44%	5%	49%
	Female	11,705	492	35	11%	40%	45%	5%	50%
Gender by school location	Urban male	6,222	491	36	13%	38%	45%	5%	50%
	Urban female	7,794	491	33	11%	40%	46%	3%	49%
	Rural male	3,417	493	35	10%	41%	43%	6%	49%
	Rural female	3,910	496	38	10%	39%	44%	7%	52%
Gender by school type	Public male	8,575	491	36	12%	39%	44%	5%	49%
	Public female	10,446	492	35	11%	40%	45%	5%	49%
	Private male	1,064	496	36	9%	38%	46%	6%	53%
	Private female	1,259	496	35	9%	37%	48%	6%	54%

Figure 3.16. National performance in JS2 basic science and technology: Percentages of learners at proficiency levels

JS2 basic science and technology national results

Half of JS2 learners (50 per cent) attained the minimum proficiency (levels 3 and 4) in basic science and technology, including 5 per cent exceeding the minimum proficiency. The other half (50 per cent) failed to meet expectations. The share of learners with the minimum proficiency in basic science and technology increased from 43 per cent in P5 to 50 per cent in JS2. The mean scale score was 492.

JS2 basic science and technology results by school location

Rural school learners had a small advantage over urban school learners in JS2 basic science and technology. The mean scale score was higher for learners in rural schools than their urban school counterparts by 4 points. The difference in the percentage of learners achieving minimum proficiency was just 1 percentage point, with 50 per cent in rural schools and 49 per cent in urban schools.

JS2 basic science and technology results by school type

Private school learners outperformed their public school peers in JS2 basic science and technology. The percentage of learners who attained the minimum proficiency (levels 3 and 4) was 53 per cent in private schools compared to 49 per cent in public schools. The mean scale score was also higher for private school learners (496 points) than public school learners (492 points) by 4 points.

JS2 basic science and technology results by gender

There was no perceptible difference in performance by gender, with the same scale scores (492 points) for female and male learners and just a 1-percentage-point difference in the proportion of learners achieving the minimum proficiency in favour of females (50 per cent for females and 49 per cent for males).

JS2 basic science and technology results by gender and school location

The rural advantage in JS2 basic science and technology performance was observed mainly for female learners. With regards to the scale scores, female learners in rural schools (496 points) outperformed females in urban schools (491 points) by 5 points, while the rural-urban difference among male learners was 2 points in favour of rural schools. The share of learners achieving the minimum proficiency (levels 3 and 4) was 3 percentage points higher for females in rural schools (52 per cent) compared to females in urban schools (49 per cent).

JS2 basic science and technology results by gender and school type

The private school advantage held for both female and male learners. The percentage of learners achieving the minimum proficiency (levels 3 and 4) was 5 percentage points higher for females in private schools and 4 percentage points higher for males in private schools compared to their public school counterparts. There was also a difference of 4–5 points in the mean scale scores in favour of private school learners over public school learners for both females and males.

JS2 basic science and technology results by content theme and cognitive level

Table 3.23 presents the mean percent-correct scores of learners by content domain and cognitive level. JS2 learners performed better in information technology (56 per cent correct) and basic technology (54 per cent correct), compared to basic science (50 per cent correct) and physical and health education (50 per cent correct). The results by cognitive level were as expected, with the highest performance in knowledge items (61 per cent correct) followed by reasoning (54 per cent correct) and application (36 per cent correct). This follows the same pattern observed in P5.

Table 3.23. National performance in JS2 basic science and technology: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores			
Content themes	Basic science	Basic technology	Physical & health education	Information technology
Pct-correct score mean	50	54	50	56
N	21,343	21,343	21,343	21,343
Std. deviation	21	20	20	22
Cognitive levels	Know	Reason	Apply	
Pct-correct score mean	61	54	36	
N	21,343	21,343	21,343	
Std. deviation	20	21	18	

JS2 basic science and technology results by state

Table 3.24 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

The results showed large variations between states in JS2 learners' performance in basic science and technology. The top five performing states were Imo, Rivers, Katsina, Sokoto and Jigawa. On average, 71 per cent of learners attained the minimum proficiency (levels 3 and 4) in these five states, with 8–13 per cent exceeding the minimum proficiency. The mean scale score of these five states was 508 points, which is 16 points higher than the national average of 492.

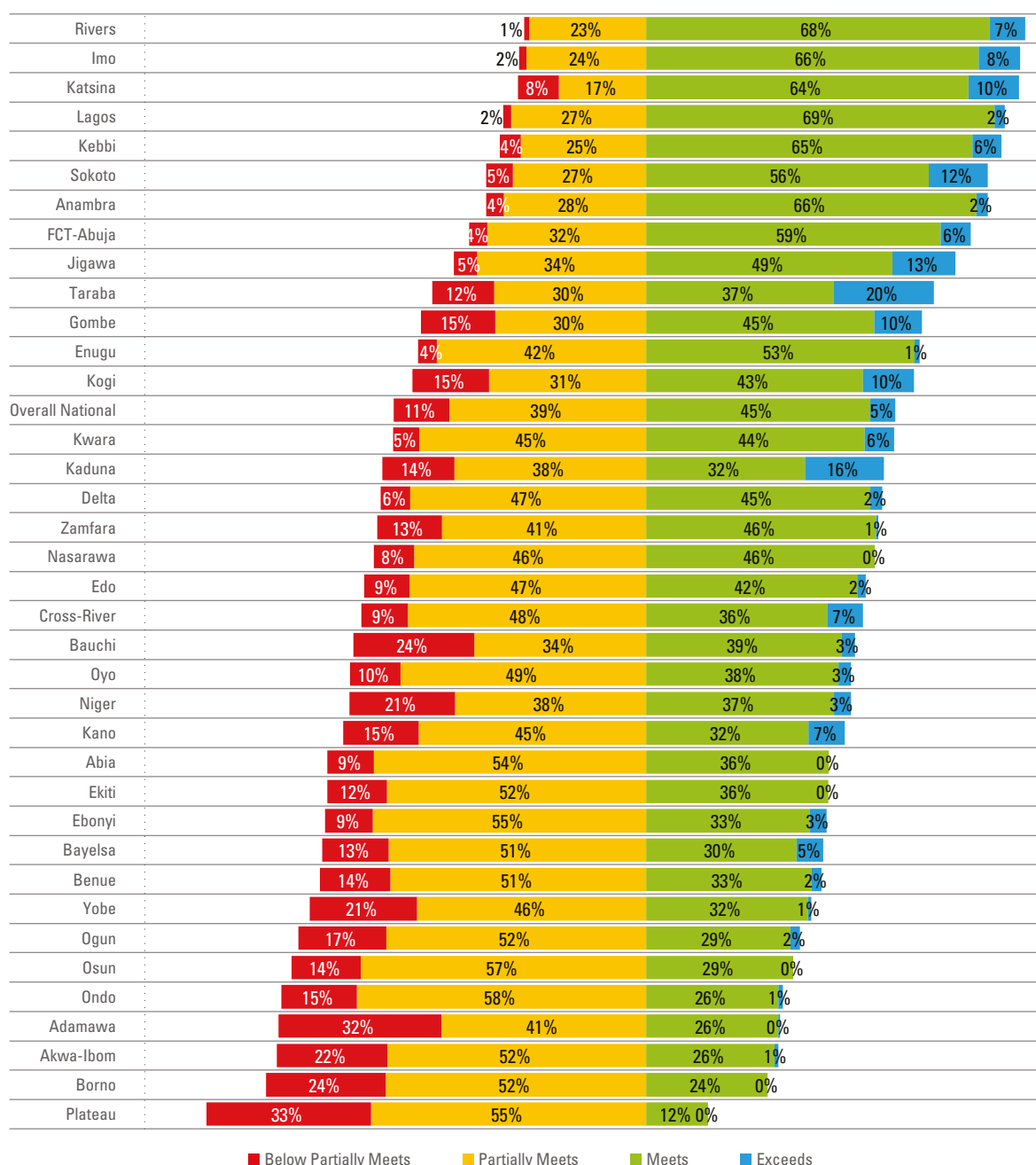
The bottom five performing states were Plateau, Adamawa, Borno, Akwa Ibom and Yobe. On average, only 24 per cent of learners achieved the minimum proficiency (levels 3 and 4) in these states, while the vast majority of learners failed to meet expectations. Their mean scale score was 470, which is 22 points lower than the national average and 38 points lower than the top five performing states.

Table 3.24. State performance in JS2 basic science and technology: Mean scale scores and percentages of learners at proficiency levels

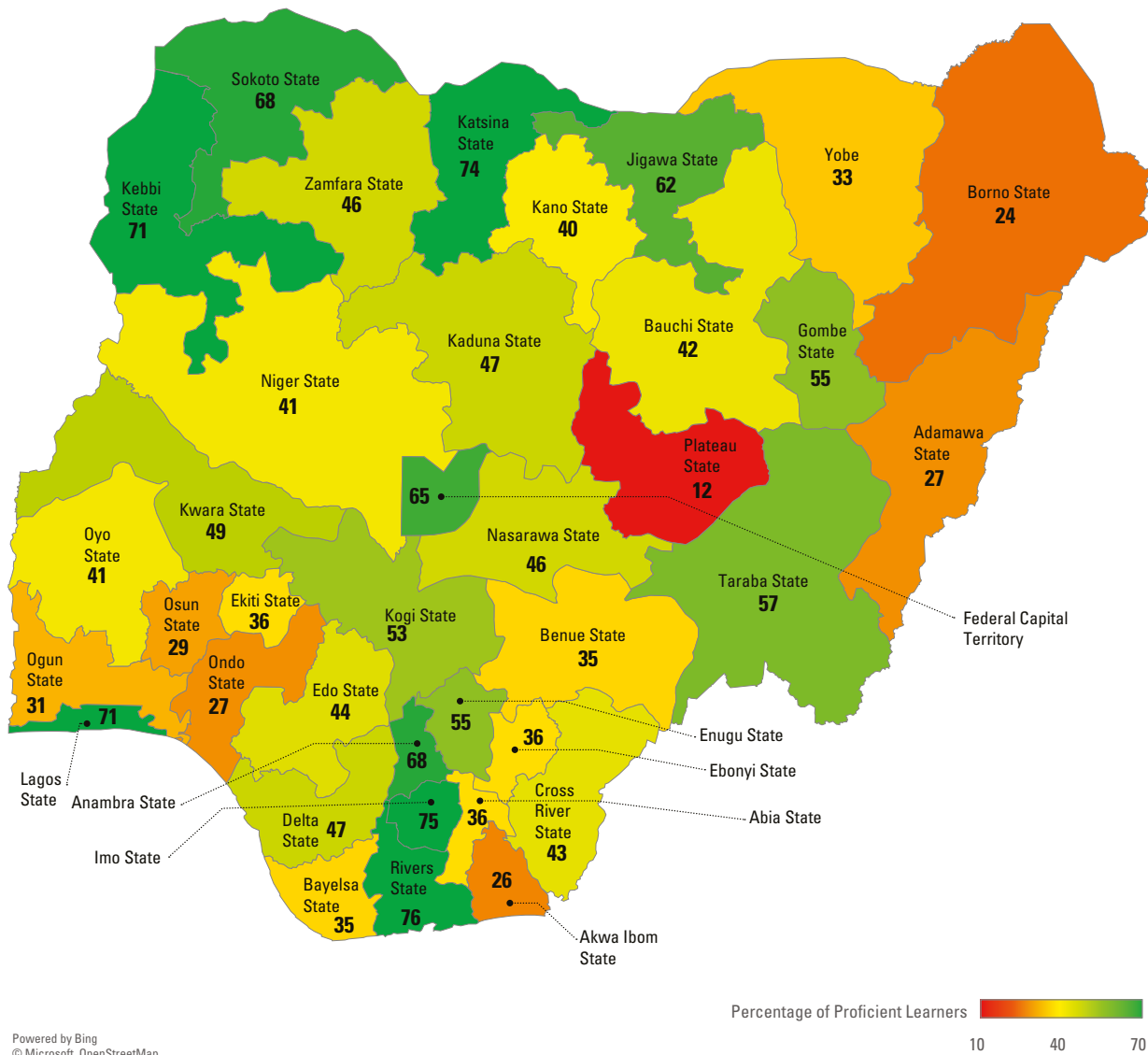
State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below Part. Meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Imo	1,189	510	28	2%	24%	66%	8%	75%
Rivers	1,107	510	25	1%	23%	68%	7%	76%
Katsina	672	508	34	8%	17%	64%	10%	74%
Sokoto	414	507	34	5%	27%	56%	12%	68%
Jigawa	878	506	35	5%	34%	49%	13%	62%
Lagos	1,372	505	23	2%	27%	69%	2%	71%
Kebbi	709	505	31	4%	25%	65%	6%	71%
Anambra	451	503	25	4%	28%	66%	2%	68%
FCT-Abuja	905	503	29	4%	32%	59%	6%	65%
Taraba	244	501	46	12%	30%	37%	20%	57%
Kwara	289	497	35	5%	45%	44%	6%	49%
Enugu	186	496	27	4%	42%	53%	1%	55%
Gombe	209	496	42	15%	30%	45%	10%	55%
Kaduna	1,068	495	47	14%	38%	32%	16%	47%
Kogi	118	495	42	15%	31%	43%	10%	53%
Cross River	227	493	36	9%	48%	36%	7%	43%
Delta	833	492	28	6%	47%	45%	2%	47%
National mean	21,343	492	36	11%	39%	45%	5%	50%
Edo	717	489	30	9%	47%	42%	2%	44%
Kano	1,162	488	40	15%	45%	32%	7%	40%
Nasarawa	150	488	28	8%	46%	46%	0%	46%
Zamfara	381	488	30	13%	41%	46%	1%	46%
Oyo	1,096	487	30	10%	49%	38%	3%	41%
Ebonyi	328	486	33	9%	55%	33%	3%	36%
Ekiti	210	485	27	12%	52%	36%	0%	36%
Abia	173	485	27	9%	54%	36%	0%	36%
Bayelsa	150	484	35	13%	51%	30%	5%	35%
Niger	441	483	39	21%	38%	37%	3%	41%
Benue	243	482	32	14%	51%	33%	2%	35%
Bauchi	507	482	44	24%	34%	39%	3%	42%
Ogun	1,019	479	32	17%	52%	29%	2%	31%
Osun	233	479	28	14%	57%	29%	0%	29%
Ondo	532	477	29	15%	58%	26%	1%	27%
Yobe	590	477	35	21%	46%	32%	1%	33%
Akwa Ibom	1,042	473	33	22%	52%	26%	1%	26%
Borno	880	470	33	24%	52%	24%	0%	24%
Adamawa	494	467	36	32%	41%	26%	0%	27%
Plateau	122	461	29	33%	55%	12%	0%	12%

Figure 3.17 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.17. State performance in JS2 basic science and technology: Percentages of learners at proficiency levels



Map 3.8. Percentage of Learners Meeting or Exceeding Proficiency in Junior Secondary Two Basic Science and Technology by State



Note: Numbers indicate the percentage of proficient learners for each state.

3.5 Performance in social studies

The primary purpose of social studies is to help children and young people make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world. Through social studies, learners develop historical thinking and literacy as a way of navigating our world. Its contents are organized into seven themes: fundamentals of social studies, family, unity in cultural diversity, social and health issues, culture and social values, science and technology development, and national economy.

Key findings

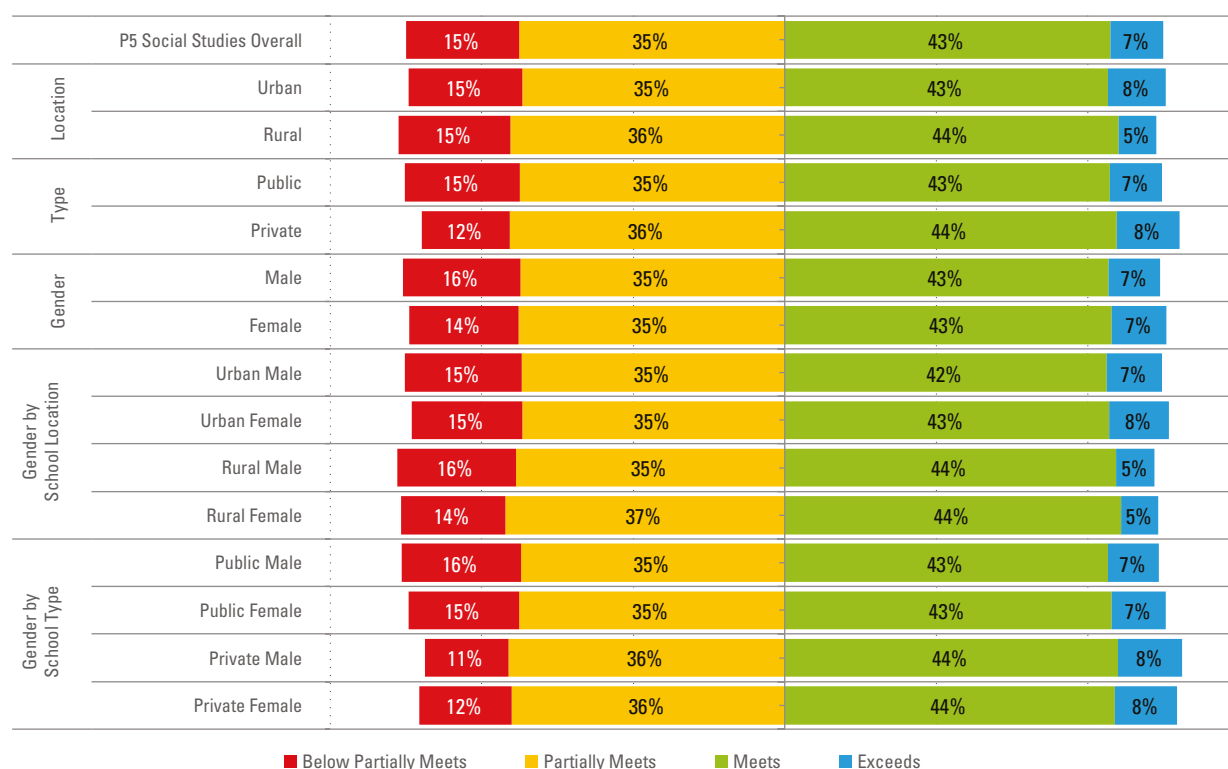
- ▶ The percentage of learners who achieved the minimum proficiency in social studies (levels 3 and 4) was 50 per cent in P5 and 48 per cent in JS2, with 7 per cent and 3 per cent exceeding the minimum proficiency (level 4) in each class respectively. Over half of JS2 learners did not meet the minimum proficiency. The mean scale scores also decreased slightly from 495 in P5 to 492 in JS2. This is hardly surprising given the increasing complexity of the content.
- ▶ There were no notable gender differences in performance in P5, but females outperformed their male counterparts in JS2. The female advantage in JS2 was observed in rural schools, urban schools and public schools, but was not evident in private schools.
- ▶ No significant differences were identified in learning achievement between urban and rural schools in P5, while JS2 learners from rural schools had a slight advantage over their urban counterparts. The rural advantage in JS2 held for both female and male learners.
- ▶ Private school learners, as in mathematics English studies and basic science and technology, performed better than their public school counterparts in both classes, particularly in JS2 where 62 per cent of private school learners attained the minimum proficiency (levels 3 and 4) compared to 46 per cent of public school learners. The private school advantage was observed for both female and male learners.
- ▶ In terms of content themes, learners in P5 were most successful in family and least successful in social and health issues, while those in JS2 achieved best results in social and health issues and did not perform well on national economy. Learners in P5 and JS2 both performed better on cognitively less complex items (i.e., knowledge) than cognitively more complex items (i.e., reasoning and application).
- ▶ At the state level, Imo state emerged as the top state in both P5 and JS2 social studies, with Kaduna the second top-performing state in P5 and Gombe in JS2.

3.5.1 National performance in P5 social studies

The P5 social studies assessment was organized around four content domains: fundamentals of social studies, family, unity in cultural diversity, and social and health issues. Table 3.25 and Figure 3.18 present the mean scale scores and the percentages of learners performing at different proficiency levels on the P5 social studies assessment.

Table 3.25. National performance in P5 social studies: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		64,566	495	39	15%	35%	43%	7%	50%
School location	Urban	49,056	495	40	15%	35%	43%	8%	50%
	Rural	15,510	494	38	15%	36%	44%	5%	49%
School type	Public	60,163	494	40	15%	35%	43%	7%	50%
	Private	4,403	498	38	12%	36%	44%	8%	52%
Gender	Male	32,111	494	39	16%	35%	43%	7%	50%
	Female	32,434	495	39	14%	35%	43%	7%	50%
Gender by school location	Urban male	24,159	494	40	15%	35%	42%	7%	50%
	Urban female	24,885	496	40	15%	35%	43%	8%	51%
	Rural male	7,951	493	39	16%	35%	44%	5%	49%
	Rural female	7,549	494	38	14%	37%	44%	5%	49%
Gender by school type	Public male	30,040	494	40	16%	35%	43%	7%	49%
	Public female	30,104	495	39	15%	35%	43%	7%	50%
	Private male	2,071	498	38	11%	36%	44%	8%	52%
	Private female	2,330	497	39	12%	36%	44%	8%	52%

Figure 3.18. National performance in P5 social studies: Percentages of learners at proficiency levels

P5 social studies national results

The results on the P5 social studies assessment found that half of P5 learners attained the minimum proficiency (levels 3 and 4) and the other half failed to meet expectations. There were 7 per cent of P5 learners who exceeded the minimum proficiency (level 4), whereas 15 per cent fell below partially meeting the minimum proficiency (level 1). Support strategies need to be implemented to raise the performance of P5 learners who were left behind. The mean scale score overall was 495 points.

P5 social studies results by school location

There was no significant difference between performance by P5 learners in urban schools and rural schools. Urban school learners achieved marginally better results, scoring 1 point higher in mean scale score and 1 percentage point higher in the percentage of learners attaining the minimum proficiency (levels 3 and 4).

P5 social studies results by school type

Private school learners outperformed their public school counterparts by 4 points on the mean scale scores, with 498 points in private schools and 494 points in public schools. The percentage of learners who attained the minimum proficiency (levels 3 and 4) was also higher in private schools (52 per cent) than public schools (50 per cent).

P5 social studies results by gender

There was no perceptible gender difference in P5 learners' performance in social studies, which mirrored the average achievement nationally with 50 per cent of boys and girls achieving the minimum proficiency.

P5 social studies results by gender and school location

The marginal urban advantage in P5 social studies was slightly more evident for female learners. Female learners in urban schools had a 2-percentage-point advantage in attaining the minimum proficiency (51 per cent in urban schools vs. 49 per cent in rural schools) and a 2-point difference in mean scale scores. On the other hand, urban advantage among male learners represented just a 1-percentage-point difference in the proportion of learners achieving the minimum proficiency (50 per cent in urban schools vs. 49 per cent in rural schools) and a 1-point difference in scale scores.

P5 social studies results by gender and school type

The private school advantage in P5 social studies performance held for both female and male learners. The proportion of female learners attaining the minimum proficiency (levels 3 and 4) was 2 percentage points higher in private schools (52 per cent) than public schools (50 per cent). Among male learners, the proportion attaining the minimum proficiency in private schools (52 per cent) was higher than public schools (49 per cent) by 3 percentage points. Male learners in private schools had the highest mean scale score, at 498 points.

P5 social studies results by content theme and cognitive level

Table 3.26 presents the mean percent-correct scores of learners by content domain and cognitive level. In both cases, these scores represent performance on sub-tests rather than whole tests. As such, the scores cannot be plotted on the proficiency scale since the scale was developed based on whole test performance data.

P5 social studies learners scored highest in family (57 per cent correct). They were least successful on social and health issues (50 per cent correct). On the remaining two domains, learners scored 53 per cent correct in fundamentals of social studies and 52 per cent correct on unity in cultural diversity.

As expected, P5 learners performed more successfully on knowledge items (54 per cent correct), which are cognitively less complex, and less successfully on cognitively more complex items involving reasoning (51 per cent correct) and application (51 per cent correct).

Table 3.26. National performance in P5 social studies: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores			
Content themes	Fundamentals of social studies	Family	Unity in cultural diversity	Social & health issues
Pct-correct score mean	53	57	52	50
N	64,566	64,566	64,566	64,566
Std. deviation	25	32	25	31
Cognitive levels	Know	Reason	Apply	
Pct-correct score mean	54	51	51	
N	64,566	64,566	64,566	
Std. deviation	25	26	24	

P5 social studies results by state

Table 3.27 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

The results showed large variations in P5 learners' performance in social studies. The top five performing states were Imo, Kaduna, Kebbi, Kogi and Zamfara. On average, 72 per cent of P5 learners in these top five performing states attained the minimum proficiency (levels 3 and 4). In Imo state, 23 per cent of P5 learners exceeded the minimum proficiency (level 4). The mean scale score of these five states was 515, which is 20 points higher than the national average of 495 points.

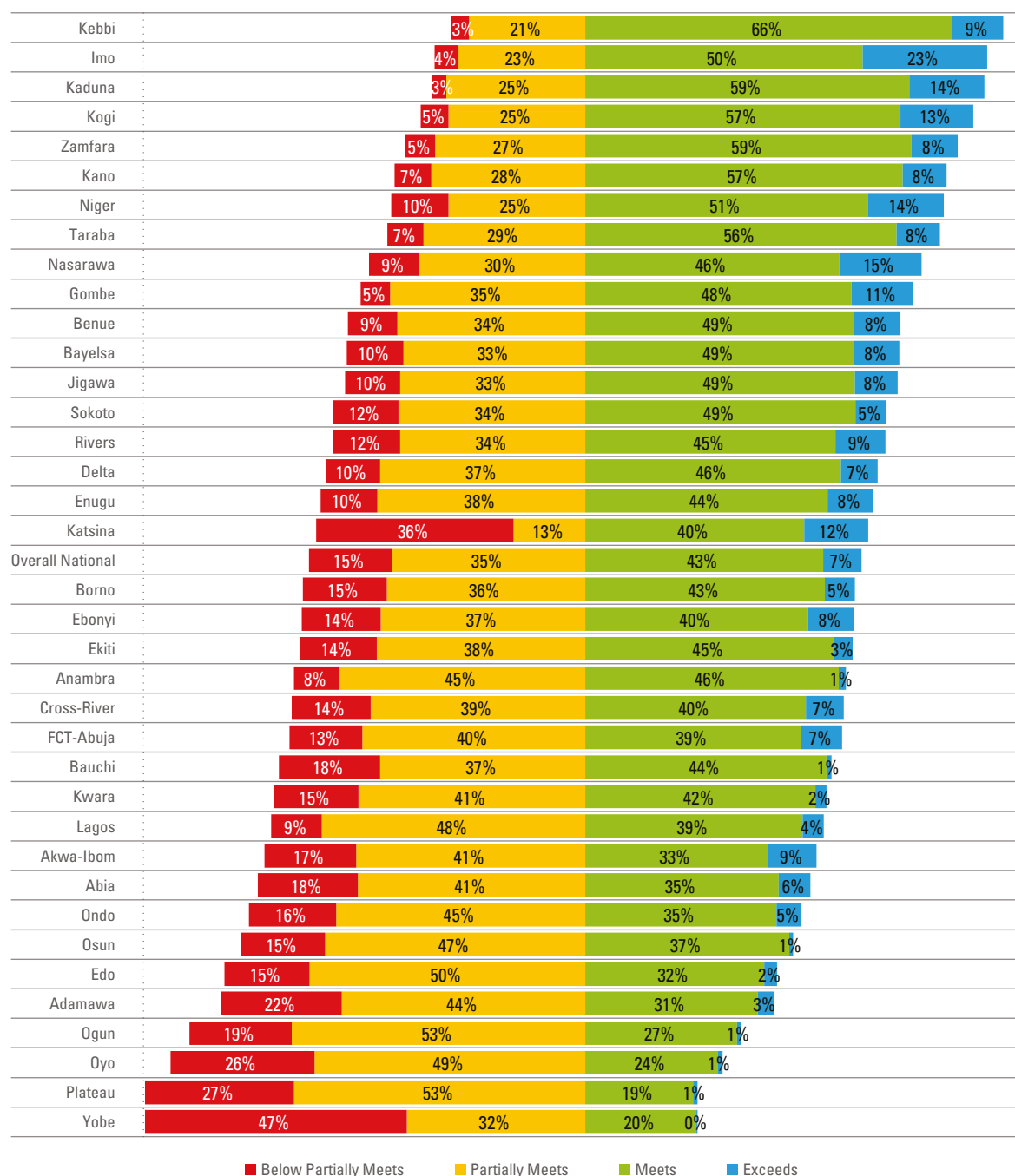
The bottom five performing states were Yobe, Plateau, Oyo, Ogun and Adamawa. On average, only 25 per cent of P5 learners attained the minimum proficiency (levels 3 and 4). Their average scale score was 472, which is 23 points lower than the national average and 43 points lower than the top five performing states.

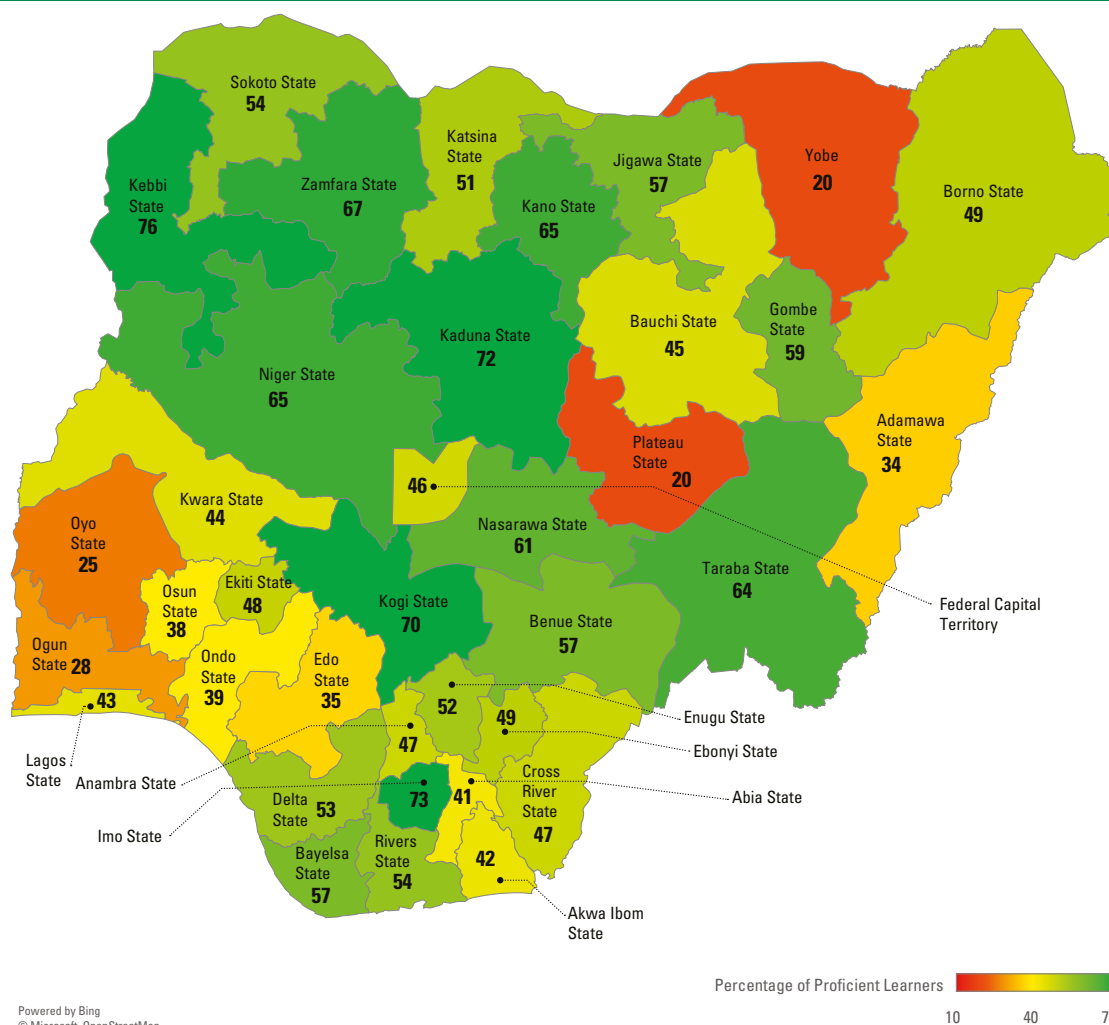
Table 3.27. State performance in P5 social studies: Mean scale scores and percentages of learners at proficiency levels

State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Imo	1,882	521	39	4%	23%	50%	23%	73%
Kaduna	3,355	516	33	3%	25%	59%	14%	72%
Kebbi	3,009	514	30	3%	21%	66%	9%	76%
Kogi	276	513	34	5%	25%	57%	13%	70%
Zamfara	1,344	510	33	5%	27%	59%	8%	67%
Niger	2,310	509	41	10%	25%	51%	14%	65%
Gombe	2,358	508	35	5%	35%	48%	11%	59%
Nasarawa	952	507	41	9%	30%	46%	15%	61%
Kano	3,993	506	34	7%	28%	57%	8%	65%
Taraba	1,439	505	34	7%	29%	56%	8%	64%
Benue	893	502	35	9%	34%	49%	8%	57%
Jigawa	2,793	502	37	10%	33%	49%	8%	57%
Bayelsa	146	502	39	10%	33%	49%	8%	57%
Rivers	544	500	40	12%	34%	45%	9%	54%
Enugu	146	498	37	10%	38%	44%	8%	52%
Delta	1,134	498	37	10%	37%	46%	7%	53%
Sokoto	2,626	497	37	12%	34%	49%	5%	54%
National mean	64,566	495	39	15%	35%	43%	7%	50%
Ebonyi	182	494	40	14%	37%	40%	8%	49%
Borno	3,625	493	39	15%	36%	43%	5%	49%
FCT-Abuja	1,212	493	38	13%	40%	39%	7%	46%
Cross River	378	492	37	14%	39%	40%	7%	47%
Anambra	577	492	29	8%	45%	46%	1%	47%
Lagos	2,408	492	33	9%	48%	39%	4%	43%
Akwa Ibom	3,843	491	42	17%	41%	33%	9%	42%
Ekiti	152	490	35	14%	38%	45%	3%	48%
Katsina	3,333	489	49	36%	13%	40%	12%	51%
Ondo	1,434	488	36	16%	45%	35%	5%	39%
Kwara	359	488	34	15%	41%	42%	2%	44%
Abia	752	488	40	18%	41%	35%	6%	41%
Bauchi	3,097	485	34	18%	37%	44%	1%	45%
Osun	425	485	32	15%	47%	37%	1%	38%
Edo	1,721	484	33	15%	50%	32%	2%	35%
Adamawa	2,246	480	37	22%	44%	31%	3%	34%
Ogun	2,155	479	30	19%	53%	27%	1%	28%
Oyo	3,912	473	32	26%	49%	24%	1%	25%
Plateau	990	469	31	27%	53%	19%	1%	20%
Yobe	2,565	458	39	47%	32%	20%	0%	20%

Figure 3.19 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.19. State performance in P5 social studies: Percentages of learners at proficiency levels



Map 3.9. Percentage of learners meeting or exceeding proficiency in P5 social studies by state

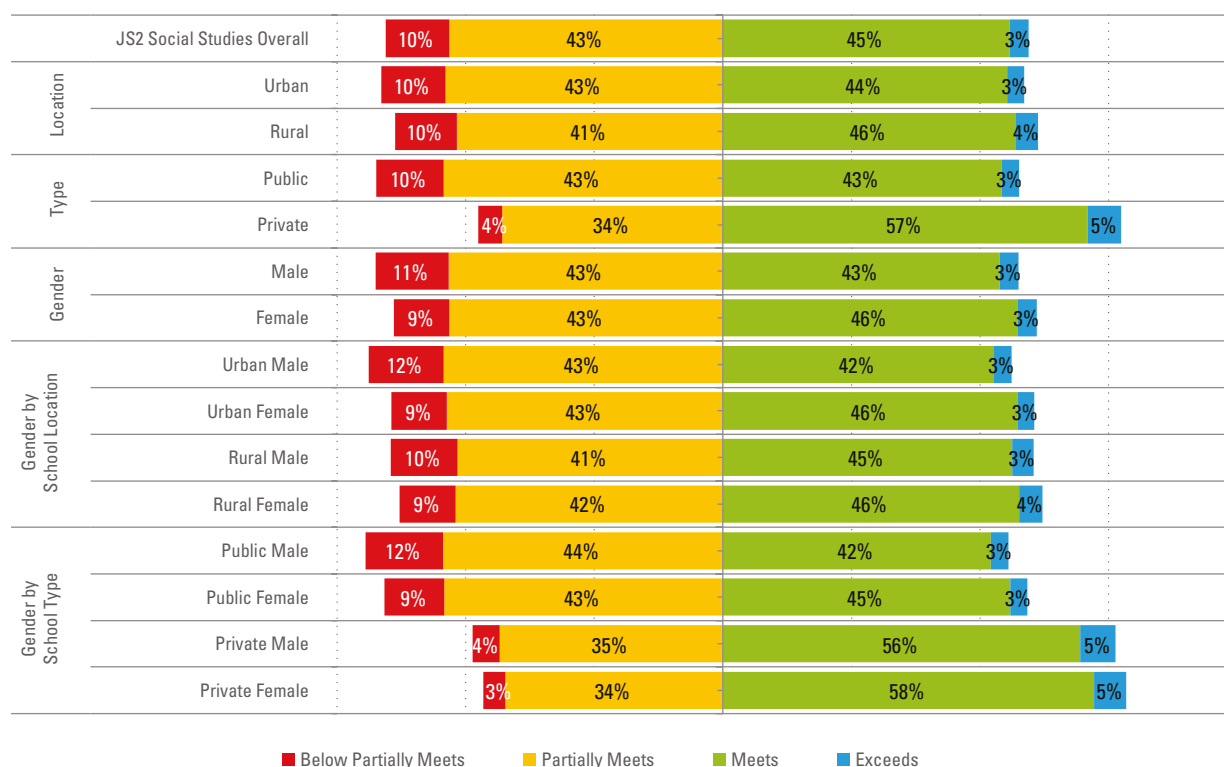
Note: Numbers indicate the percentage of proficient learners for each state.

3.5.2 National performance in JS2 social studies

The JS2 social studies test items were organized around four content domains: culture and social values, social and health issues, science and technology development, and national economy. Note that the content domains in JS2 social studies were not a continuation of the curriculum content covered in P5. Table 3.28 and Figure 3.20 present the mean scale scores and the percentages of learners performing at different proficiency levels on the JS2 social studies assessment.

Table 3.28. National performance in JS2 social studies: Mean scale scores and percentages of learners at proficiency levels

Category		No. of learners	Scale scores		Percentages of learners at proficiency levels				
			Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
					400–449	450–499	500–549	550–600	500–600
Overall national results		21,794	492	32	10%	43%	45%	3%	48%
School location	Urban	15,069	492	32	10%	43%	44%	3%	47%
	Rural	6,726	494	32	10%	41%	46%	4%	49%
School type	Public	19,773	491	32	10%	43%	43%	3%	46%
	Private	2,021	504	29	4%	34%	57%	5%	62%
Gender	Male	9,915	491	33	11%	43%	43%	3%	46%
	Female	11,879	494	31	9%	43%	46%	3%	49%
Gender by school location	Urban male	6,660	490	33	12%	43%	42%	3%	45%
	Urban female	8,409	493	31	9%	43%	46%	3%	48%
	Rural male	3,255	493	33	10%	41%	45%	3%	48%
	Rural female	3,470	495	32	9%	42%	46%	4%	50%
Gender by school type	Public male	8,984	490	33	12%	44%	42%	3%	44%
	Public female	10,789	493	31	9%	43%	45%	3%	47%
	Private male	931	504	30	4%	35%	56%	5%	61%
	Private female	1,091	504	28	3%	34%	58%	5%	63%

Figure 3.20. National performance in JS2 social studies: Percentages of learners at proficiency levels

JS2 social studies national results

Overall, less than half of JS2 learners (48 per cent) attained the minimum proficiency in social studies (levels 3 and 4), with 3 per cent of learners exceeding the minimum proficiency (level 4). This means that over half of JS2 learners failed to achieve the minimum proficiency. There was a slight decline in the proportion of learners with the minimum proficiency from 50 per cent in P5 to 48 per cent in JS2. The mean scale score in JS2 social studies was 492.

JS2 social studies results by school location

There was a small difference in JS2 social studies performance between urban and rural schools in favour of rural school learners. The proportion of learners who attained the minimum proficiency (levels 3 and 4) was 49 per cent in rural schools compared to 47 per cent in urban schools. The mean scale score was also 2 points higher in rural schools (494 points) than in urban schools (492 points).

JS2 social studies results by school type

A large difference was observed in JS2 social studies performance between private school and public school learners. The percentage of learners with the minimum proficiency in private schools (62 per cent) was 16 percentage points higher than in public schools (46 per cent). Similarly, the mean scale score was 504 points in private schools and 491 in public schools, a 13-point difference.

JS2 social studies results by gender

Females outperformed their male counterparts in JS2 social studies, with a 3-point difference in the mean scale scores (494 points for females and 491 points for males). There was also a 3-percentage-point difference in the proportion of learners who attained the minimum proficiency (levels 3 and 4), with 49 per cent among females and 46 per cent among males.

JS2 social studies results by gender and school location

The rural advantage in performance in social studies held for both female and male learners. For instance, the percentage of learners who attained the minimum proficiency (levels 3 and 4) was higher in rural schools over urban schools by 2 percentage points for females (50 per cent in rural schools vs. 48 per cent in urban schools) and 3 percentage points for males (48 per cent in rural schools vs. 45 per cent in urban schools). The mean scale score was also higher in rural schools over urban schools by 2 points among females and 3 points among males. Female learners in rural schools demonstrated the highest mean scale score, with 495 points, while male learners in urban schools had the lowest score, at 490 points.

Similarly, female advantage was observed in both rural and urban schools. In rural schools, females outperformed males in both scale scores (495 vs. 493) and the proportion of learners with the minimum proficiency (50 per cent vs. 48 per cent). The same pattern was confirmed in urban schools, where females achieved better results than males with a scale score of 493 among females and 490 among males.

JS2 social studies results by gender and school type

The private school advantage in JS2 social studies held for both female and male learners. The percentage of female learners with the minimum proficiency (levels 3 and 4) was 16 percentage points higher in private schools (63 per cent) than in public schools (47 per cent). Among males, the percentage was 17 percentage points higher in private schools (61 per cent) compared to public schools (44 per cent). Both female and male learners in private schools attained the highest mean scale score, with 504 points, while the lowest score belonged to male learners in public schools, at 490 points.

The female advantage in social studies was also confirmed in public schools with a difference in mean scale score of 3 points (493 points for females vs. 490 points for males). There was no gender difference in the mean scale scores in private schools, although the percentage of learners achieving the minimum proficiency (levels 3 and 4) was higher for female learners (63 per cent) than male learners (60 per cent).

JS2 social studies results by content theme and cognitive level

Table 3.29 presents the mean percent-correct scores of learners by content domain and cognitive level.

In JS2 social studies, the highest percent-correct scores were achieved in social and health issues (61 per cent correct) followed by culture and social values (59 per cent correct). The lowest achievement was identified in national economy (47 per cent correct) followed by science and technology development (48 per cent correct). In social studies, JS2 learners were most successful in knowledge items (58 per cent correct), followed by application (56 per cent correct) and reasoning items (53 per cent correct).

Table 3.29. National performance in JS2 social studies: Mean percent-correct scores by content theme and cognitive level

Category	Mean percent-correct scores			
Content themes	Culture & social values	Social & health issues	Science & technology development	National economy
Pct-correct score mean	59	61	48	47
N	21,794	21,794	21,794	21,794
Std. deviation	31	24	26	20
Cognitive levels	Know	Reason	Apply	
Pct-correct score mean	58	53	56	
N	21,794	21,794	21,794	
Std. deviation	23	21	27	

JS2 social studies results by state

Table 3.30 provides the mean scale scores and the percentages of learners at proficiency levels by state. The states are ranked by the mean scale score. The highlighted states are in the proximity of the national average in scale scores, within the effect size range ± 0.20 (per Cohen's *d*). This helps readers distinguish states performing above and below the national average. The 'No. of learners' column is based on the weighted analysis and thus is not equal to the actual number of learners assessed.

The results showed large variations between states in JS2 learners' performance in social studies. The top five performing states in JS2 social studies were Imo, Gombe, Sokoto, Rivers and Lagos. On average, 70 per cent of JS2 learners in these top five performing states attained the minimum proficiency (levels 3 and 4). The mean scale score of these five states was 509, which is 17 points higher than the national average score of 492.

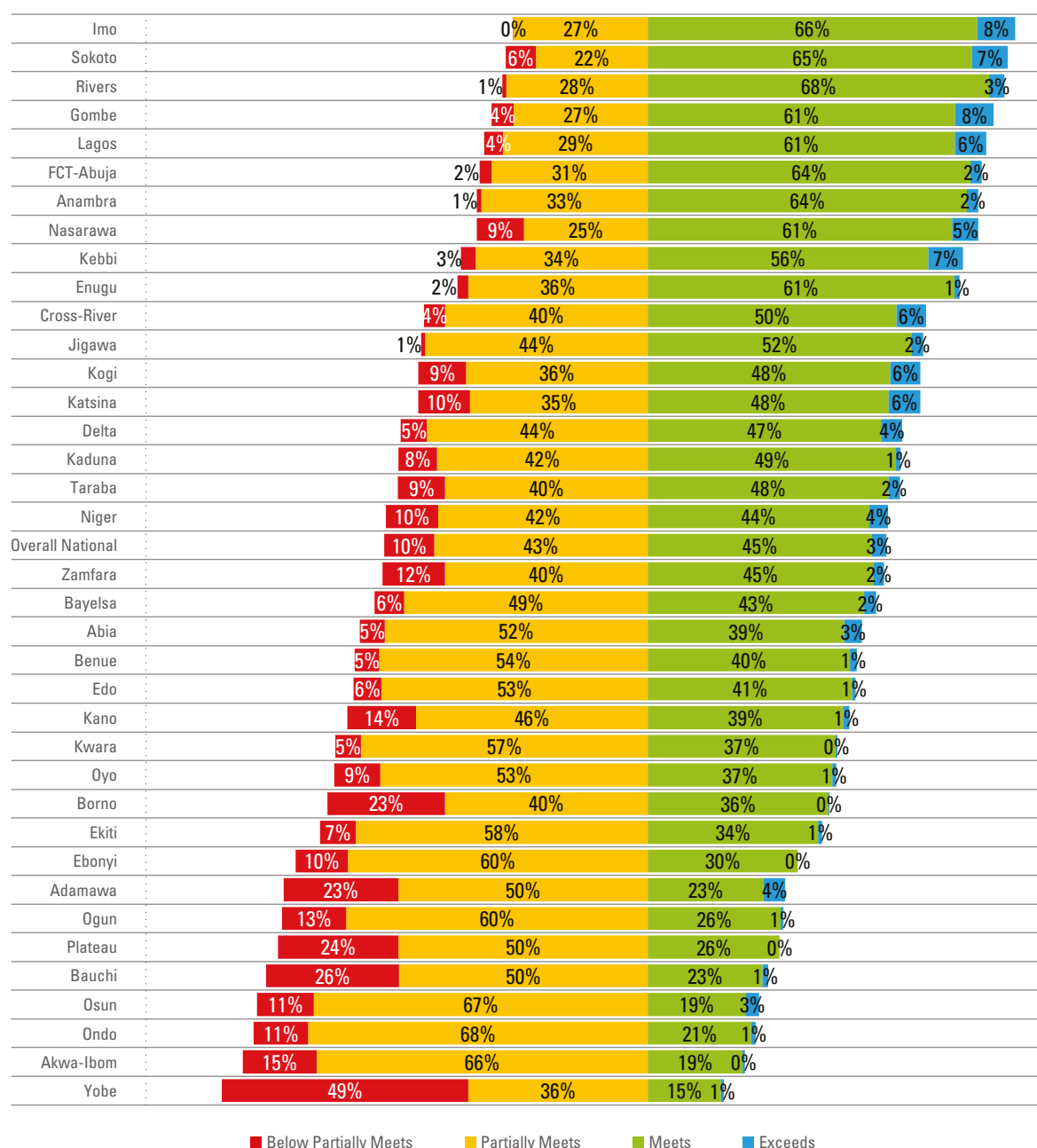
The bottom five performing states were Yobe, Plateau, Bauchi, Adamawa and Akwa Ibom. Only 22 per cent of JS2 learners achieved the minimum proficiency (levels 3 and 4), leaving the vast majority of JS2 learners (78 per cent) behind in the subject. The mean scale score in these five states was 471, which is 21 points lower than the national average and 38 points lower than the top five performing states.

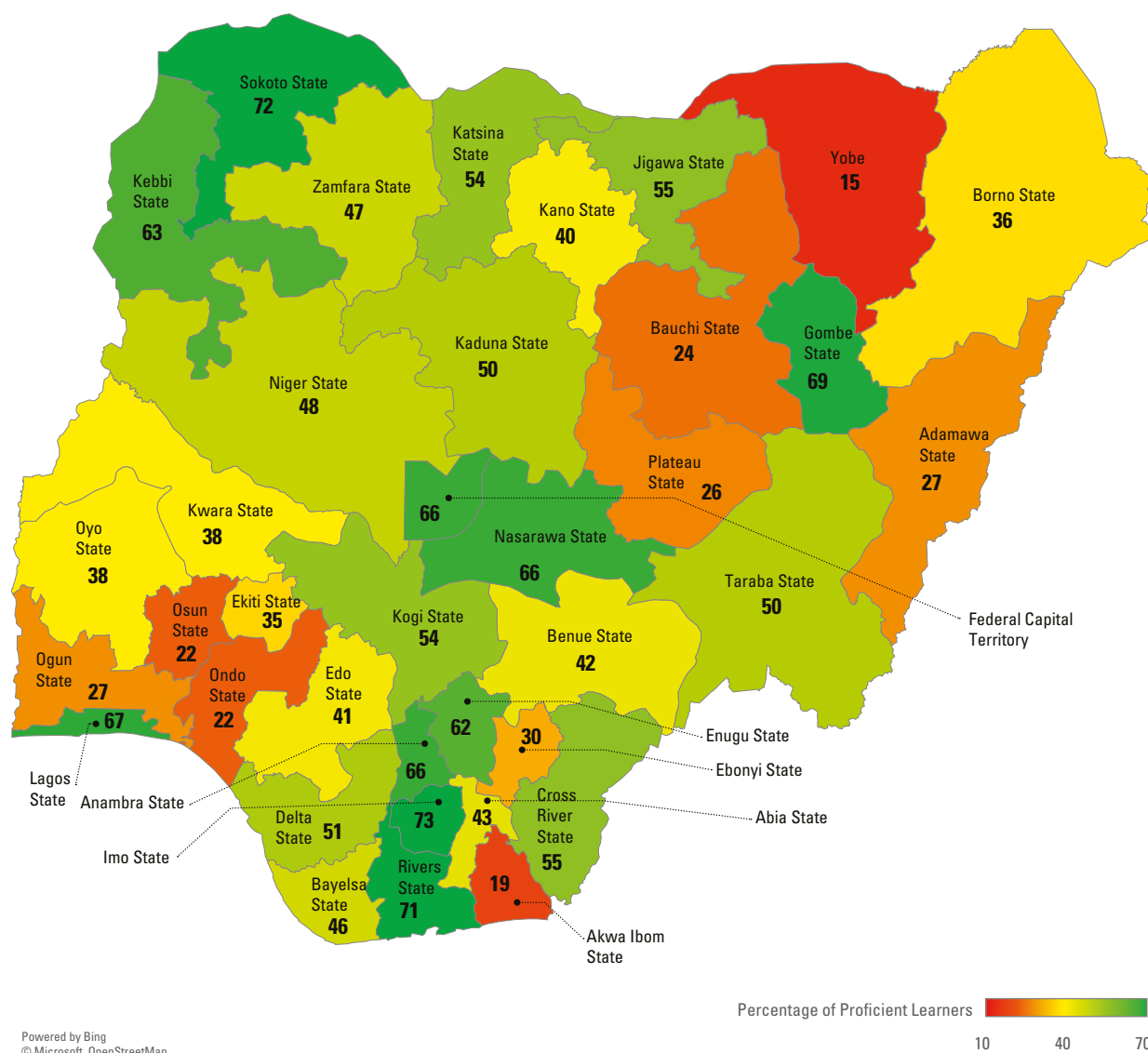
Table 3.30. State performance in JS2 social studies: Mean scale scores and percentages of learners at proficiency levels

State	No. of learners	Scale scores		Percentages of learners at proficiency levels				
		Mean score	Standard deviation	Below part. meets	Partially meets	Meets	Exceeds	Total proficient
				400–449	450–499	500–549	550–600	500–600
Imo	1,153	513	27	0%	27%	66%	8%	73%
Gombe	495	511	31	4%	27%	61%	8%	69%
Sokoto	466	509	34	6%	22%	65%	7%	72%
Rivers	1,190	508	23	1%	28%	68%	3%	71%
Lagos	1,395	506	28	4%	29%	61%	6%	67%
Anambra	213	506	23	1%	33%	64%	2%	66%
FCT-Abuja	1,005	505	24	2%	31%	64%	2%	66%
Nasarawa	170	503	34	9%	25%	61%	5%	66%
Kebbi	766	503	30	3%	34%	56%	7%	63%
Jigawa	822	502	21	1%	44%	52%	2%	55%
Enugu	95	502	23	2%	36%	61%	1%	62%
Cross River	240	500	30	4%	40%	50%	6%	55%
Katsina	667	498	36	10%	35%	48%	6%	54%
Kogi	116	497	36	9%	36%	48%	6%	54%
Taraba	264	497	33	9%	40%	48%	2%	50%
Delta	830	496	30	5%	44%	47%	4%	51%
Bayelsa	166	495	31	6%	49%	43%	2%	46%
Kaduna	977	494	30	8%	42%	49%	1%	50%
Benue	226	494	27	5%	54%	40%	1%	42%
National mean	21,794	492	32	10%	43%	45%	3%	48%
Abia	143	492	30	5%	52%	39%	3%	43%
Niger	593	492	33	10%	42%	44%	4%	48%
Kwara	333	491	25	5%	57%	37%	0%	38%
Edo	743	491	26	6%	53%	41%	1%	41%
Zamfara	451	489	35	12%	40%	45%	2%	47%
Ekiti	268	487	26	7%	58%	34%	1%	35%
Kano	1,118	486	30	14%	46%	39%	1%	40%
Oyo	1,064	486	28	9%	53%	37%	1%	38%
Ebonyi	67	483	28	10%	60%	30%	0%	30%
Ogun	1,035	479	28	13%	60%	26%	1%	27%
Ondo	572	479	26	11%	68%	21%	1%	22%
Osun	257	479	28	11%	67%	19%	3%	22%
Borno	918	478	34	23%	40%	36%	0%	36%
Akwa Ibom	981	476	26	15%	66%	19%	0%	19%
Adamawa	547	474	34	23%	50%	23%	4%	27%
Bauchi	605	473	34	26%	50%	23%	1%	24%
Plateau	137	472	31	24%	50%	26%	0%	26%
Yobe	708	458	32	49%	36%	15%	1%	15%

Figure 3.21 presents the percentage of learners in each proficiency level by state, ranked by the proportion of learners who met or exceeded the proficiency expectations.

Figure 3.21. State performance in JS2 social studies: Percentages of learners at proficiency levels



Map 3.10. Percentage of learners meeting or exceeding proficiency in JS2 social studies by state

Note: Numbers indicate the percentage of proficient learners for each state.

Chapter 4: Context of learning

4





The learners' accomplishments are intricately shaped by numerous factors encompassing their home, school and community environments. Understanding the learners' achievements necessitates a comprehensive grasp of their emotional and psychological traits, along with the contextual backdrop against which education occurs within the education sector in Nigeria.

Accordingly, the NALABE 2022 survey collected data on: 1) learners' characteristics, perceptions, behaviours and experiences; 2) parents' perspectives on education and child development; 3) teachers' insights into instructional practices and learner engagement; and 4) school leaders' observations of learning environments and school management. This chapter presents findings from the non-cognitive survey, offering deeper insights into the broader environmental influences affecting learner growth and academic success.

Key findings

Learners

- ▶ **Living conditions:** Approximately 90 per cent of P3, P5 and JS2 learners resided with their parents, while 8–9 per cent lived with a non-parent guardian.
- ▶ **Subject preference:** English studies was the most-liked subject (85–87 per cent), followed by social studies (77–80 per cent), basic science and technology (74–77 per cent) and mathematics (70 per cent). There was no significant difference between classes.
- ▶ **ICT use:** 42 per cent of P3 and P5 learners and 54 per cent of JS2 learners used computers regularly or sometimes. Cell phones were the most commonly used device, with 46 per cent of P3 and P5 learners and 60 per cent of JS2 learners using them.
- ▶ **Problems encountered:** Over 30 per cent of learners encountered bullying and physical fights in school.

Parents

- ▶ **Support for safety:** Distance from home to school was more than 2 kilometres for 10 per cent of P3 and P5 learners and 23 per cent of JS2 learners on average. A majority of parents took measures to ensure safety (e.g., took child to school). Over 90 per cent of parents talked with their child about school and community safety.
- ▶ **Perception of school:** Parents had positive perceptions of their child's school: 95 per cent of parents believed that schools instilled good discipline, 90 per cent stated that schools do not allow bullying and over 90 per cent reported that schools meet their child's learning needs.
- ▶ **Learning support:** 74 per cent of parents with P3 and P5 learners and 80 per cent with JS2 learners reported that they provide a dedicated space for learning at home. Over 95 per cent of parents provided books and writing materials to support their child's education.
- ▶ **Response to good achievement:** When a child showed good achievement, 36–41 per cent of parents gave their child gifts, and 27–28 per cent gave commendation.
- ▶ **Response to misbehaviour:** When a child misbehaved, over 62 per cent of parents gave advice to the child, while 32–35 per cent of parents beat the child.

Teachers

- ▶ **Education:** Primary school teachers were more likely to have a diploma (63 per cent) than a first degree or Higher National Diploma (HND) (34 per cent). The opposite trend was observed for junior secondary school teachers, with 34 per cent having a diploma and 59 per cent having a first degree or HND. Those with a master's degree accounted for 3 and 7 per cent of primary and junior secondary school teachers respectively.

- ▶ **Teaching qualifications and registration:** 91 per cent of primary school teachers and 87 per cent of junior secondary school teachers held a teaching qualification. 75 per cent and 71 per cent respectively were registered with the Teachers Registration Council of Nigeria (TRCN).
- ▶ **Teaching practice:** More than 50 per cent of primary and junior secondary school teachers always encouraged learners to reflect upon their own work, 75–77 per cent always asked questions to assess if learners understood the subject matter and reviewed the homework with learners, and 73 per cent gave tests periodically.
- ▶ **Professional development:** 69 per cent and 66 per cent of primary and junior secondary school teachers respectively received professional training in the last three years. This includes training on classroom management, instructional materials and subject teaching.
- ▶ **Working conditions:** 96 per cent of primary school teachers and 92 per cent of junior secondary school teachers worked full time; 10–12 per cent worked across multiple schools.
- ▶ **Challenges in teaching:** Overcrowded classrooms and lack of instructional materials were common challenges. Late payment and nonpayment of salary and allowances, as well as insecurity, were also reported as major challenges.
- ▶ **Job satisfaction:** 83–84 per cent of teachers were satisfied with their jobs as teachers, but 28–35 per cent of teachers were not satisfied with their pay and/or promotion opportunities.

Head teachers/principals

- ▶ **Education:** Among primary school head teachers, 41 per cent had a Nigeria Certificate in Education (NCE)/ diploma, 54 per cent had a first degree, and 4 per cent had a master's degree. Secondary school principals were more educated, with 71 per cent having a first degree and 21 per cent having a master's degree.
- ▶ **Teaching qualification:** 89 per cent of primary school head teachers and 76 per cent of junior secondary school principals had teaching qualification.
- ▶ **Perception of learners' achievement:** About 90 per cent of school leaders thought that learners in their school cope well with the curriculum and perform above the average, indicating that they were not aware of performance and the competency level of learners in their school and other schools.
- ▶ **Perception of community's attitude:** 75 per cent of head teachers in primary schools and 74 per cent of principals in junior secondary schools reported that their communities have a favourable attitude towards teaching and learning.
- ▶ **Perception of SBMC/PTA:** 90 per cent of head teachers and 86 per cent of principals considered their SBMC to be functional, while 91 per cent of primary school head teachers reported that they have a functional parent-teacher association (PTA).

School resources

- ▶ **Instructional materials:** 59–71 per cent of primary schools and 30–49 per cent of junior secondary schools had instructional materials (i.e., curriculum, curriculum module, syllabus and scheme of work). Schools where instructional materials were available often faced insufficiency in quantity, although these materials were mostly in good condition.

- **School facilities:** A considerable number of primary and junior secondary schools were deficient in essential facilities such as mathematics rooms, libraries, science laboratories, staff rooms, and learners' and teachers' furniture. For instance, only 13 per cent and 28 per cent of primary and junior secondary schools had science laboratories.
- **Safe school facilities and practice:** A gate and fence were available in 55 per cent of primary schools and 69 per cent of junior secondary schools. Early warning systems were in place in 45 per cent of junior secondary schools but in only 13 per cent of primary schools.
- **WASH facilities:** 39 per cent of primary schools and 44 per cent of junior secondary schools had boreholes. Only 31 per cent of primary schools and 38 per cent of junior secondary schools were equipped with toilets, posing significant hygiene concerns.
- **COVID-19 measures:** COVID-19 measures (e.g., tap water bucket, hand sanitizer, social distancing, awareness raising on vaccination) were implemented in a majority of schools (64–85 per cent of schools).

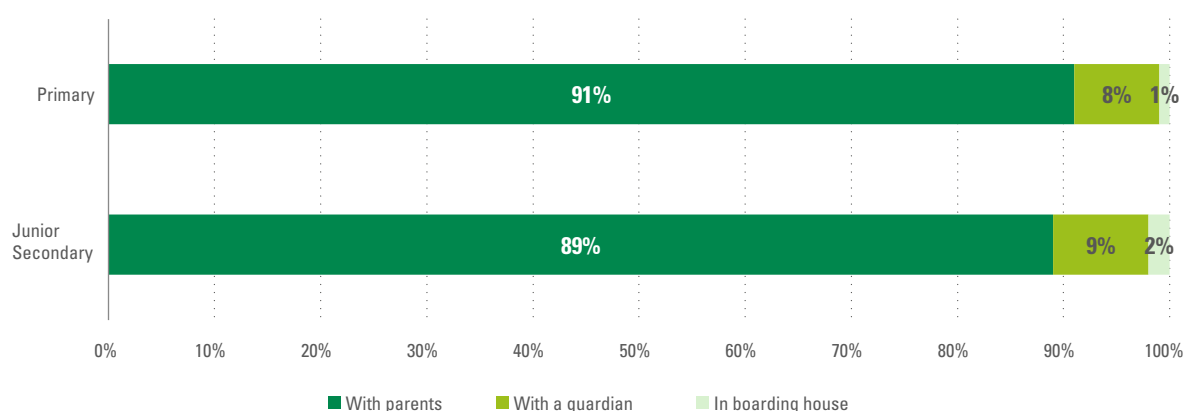
4.1 Learners' characteristics, perceptions and experiences

A deep understanding of learners is essential to effectively address their educational needs. This section explores their demographic characteristics, perceptions and experiences, providing valuable context for interpreting their learning achievements and shaping strategies to enhance their educational outcome.

4.1.1 Living conditions

Living conditions play a crucial role in shaping learners' personal, social and academic development. Regarding their living arrangements, approximately 90 per cent of primary and junior secondary school learners resided with their parents, while 8–9 per cent lived with a non-parent guardian. Only a small percentage of learners – 1 per cent of primary school learners and 2 per cent of junior secondary school learners – lived in boarding houses.

Figure 4.1. Learners' living arrangements

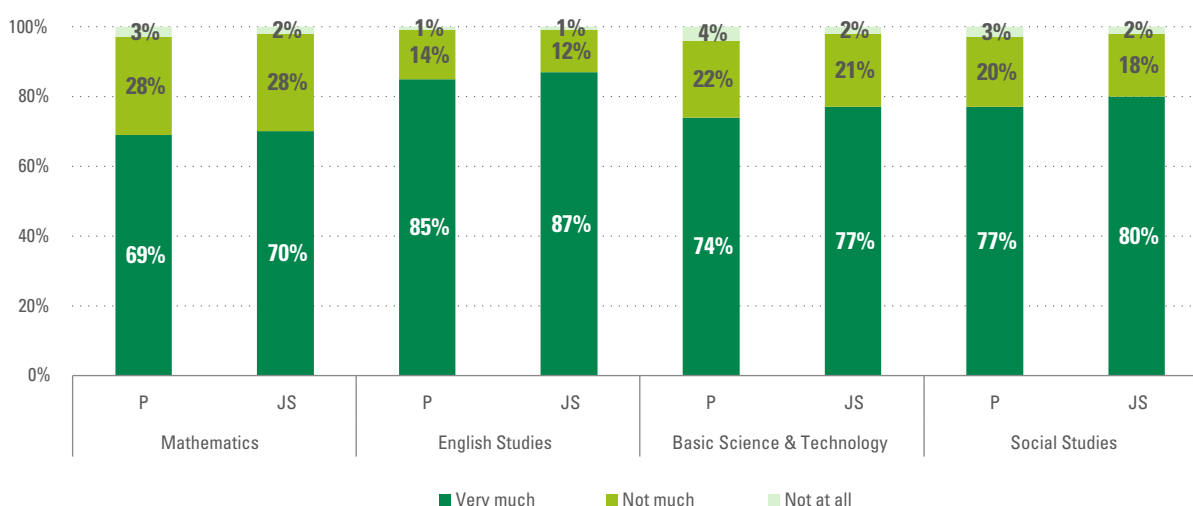


4.1.2 School subjects learners like

Subject preference is influenced by multiple factors, including learners' personal interests, cognitive abilities and environmental elements such as teachers' engaging instructional practices (Lavrijsen et al., 2021). According to the NALABE survey, English studies emerged as the most favoured subject among Nigerian learners, with 85–87 per cent of primary and junior secondary school learners reporting that they like the subject very much.

Social studies and basic science and technology were also highly preferred, with 77–80 per cent and 74–77 per cent of learners expressing strong interest, respectively. Mathematics ranked as the least favourite subject, though approximately 70 per cent of learners still indicated that they like the subject very much. There was no significant difference in subject preference between primary and junior secondary school learners. Across all subjects and education levels, only 1–4 per cent of learners reported that they do not like the subject in question at all.

Figure 4.2. Learners' preferences for school subjects



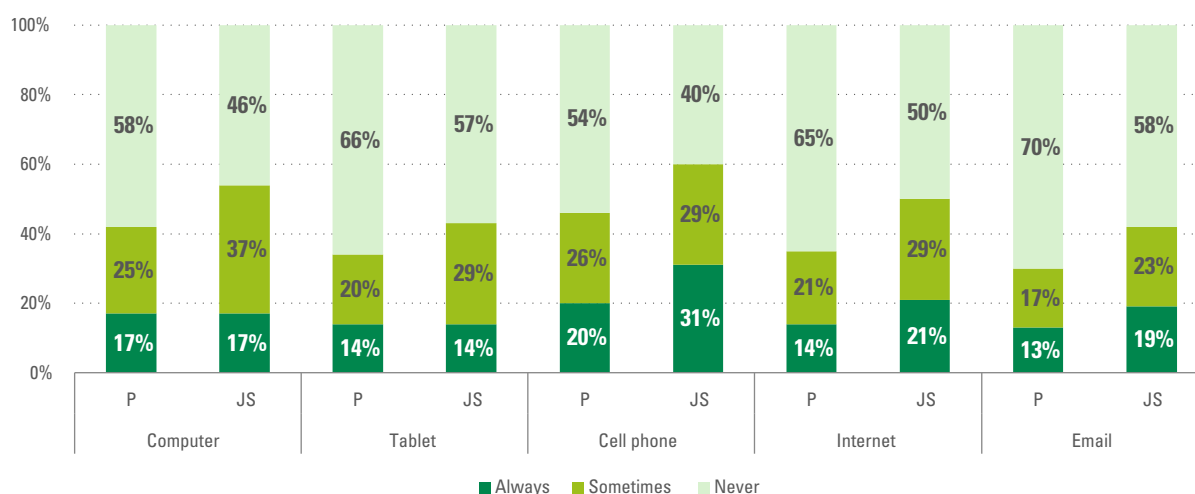
4.1.3 Learners' use of ICT

The Digital Learning Policy in Nigeria aims to strengthen the digital learning ecosystem within the education sector, ensuring that all stakeholders – including learners – benefit from technological advancements to enhance teaching, learning and skills development. Improving the availability and effective use of digital devices and software, however, remain key challenges. The NALABE 2022 survey examined the frequency of ICT gadget and software usage among Nigerian learners.

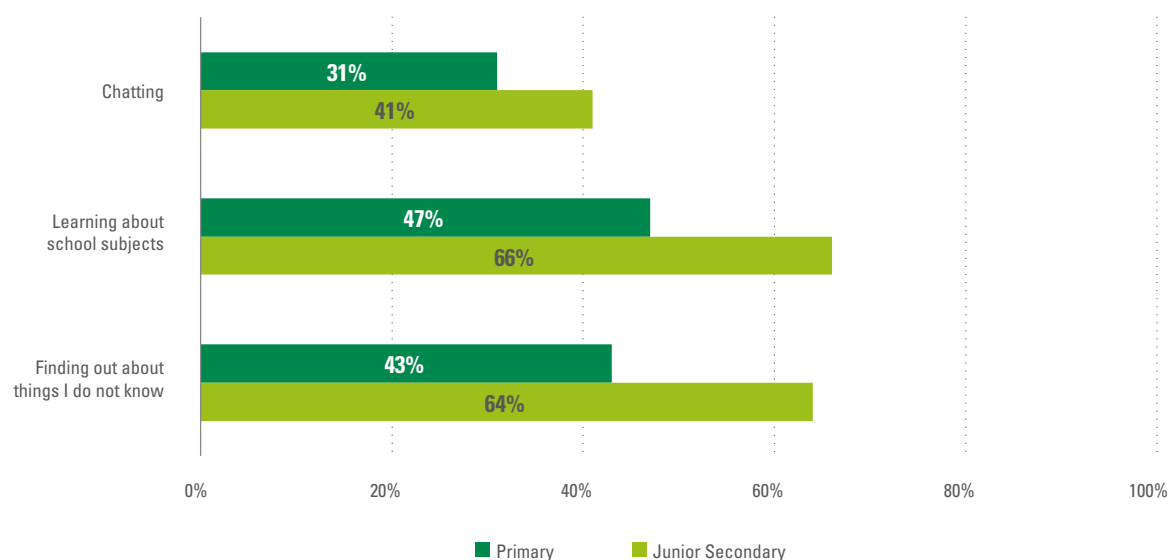
Device use: 42 per cent of primary school learners and 54 per cent of junior secondary school learners used computers. Use of tablet was less common, with 34 per cent and 43 per cent of primary and junior secondary school learners respectively using tablets. Cell phones were the most commonly used device, with 46 per cent of primary school learners and 60 per cent of junior secondary school learners using them.

Internet & email use: Internet access was relatively moderate, with 35 per cent of primary school learners and 50 per cent of junior secondary learners using it. Email was less common, with 30 per cent of primary learners and 42 per cent of junior secondary learners reporting use.

While digital learning tools are increasingly integrated into education, disparities in access and usage highlight the need for targeted policy interventions to enhance digital literacy, infrastructure and equitable access to technology across all education levels.

Figure 4.3. Percentage of learners using ICT devices and software

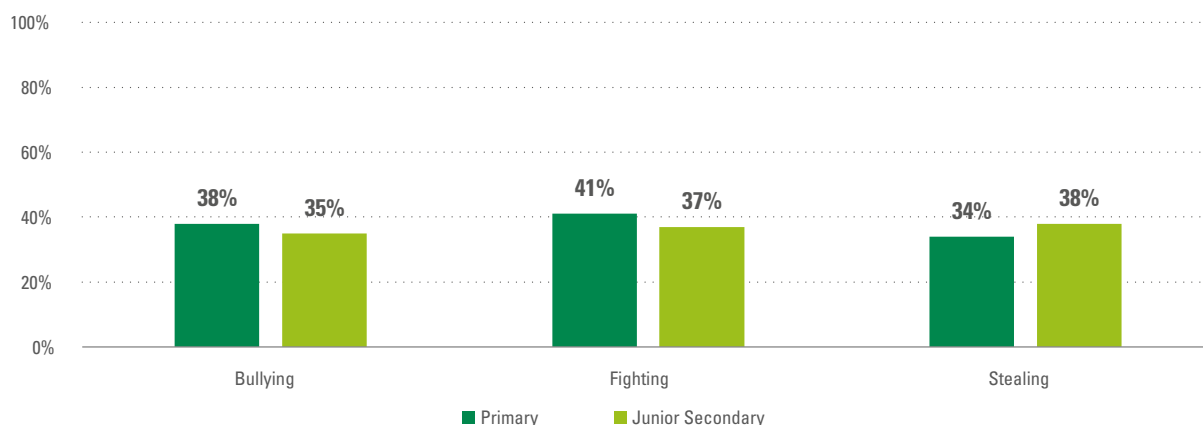
Internet enables learners to find information, develop new knowledge and connect with others, providing the potential to facilitate learning. The NALABE survey asked how learners in Nigeria use internet and the Global System for Mobile Communications (GSM). The results found that 31 per cent of primary school learners and 41 per cent of junior secondary school learners use internet and GSM to chat with others; 47 per cent of primary school learners and 66 per cent junior secondary school learners use internet and GSM to learn about school subjects; and 43 per cent of primary school learners and 64 per cent of junior secondary school learners use internet and GSM to find out about things that they do not know. The results indicate that technology – including devices and internet – is being used to support the learning of Nigerian learners.

Figure 4.4. Learners' reasons for using the internet and GSM

4.1.4 Problems encountered with other learners

Bullying and fighting remain significant challenges for learners in sub-Saharan Africa, affecting 48 per cent and 37 per cent of learners, respectively – rates that exceed the global average (UNESCO, 2019). Findings from the NALABE 2022 survey revealed that over 30 per cent of Nigerian learners have encountered such issues in school, with 38 per cent and 41 per cent of primary school learners experiencing bullying and fighting, respectively. Similarly, 35 per cent and 37 per cent of junior secondary school learners faced bullying and fighting. In addition, 34 per cent of primary school learners and 38 per cent of junior secondary school learners reported incidents of stealing. The prevalence of school-related violence underscores the need for creating safer learning environments for learners.

Figure 4.5. Percentage of learners affected by bullying, fighting and theft in school



4.2 Parents' characteristics, perceptions and practices

This section presents insights gathered from parents of learners, highlighting the conditions in which learners learn and the extent of parental support for their education and overall well-being. The findings provide a deeper understanding of the role of family involvement in shaping learners' academic experiences and personal development.

4.2.1 Parents' socio-economic status

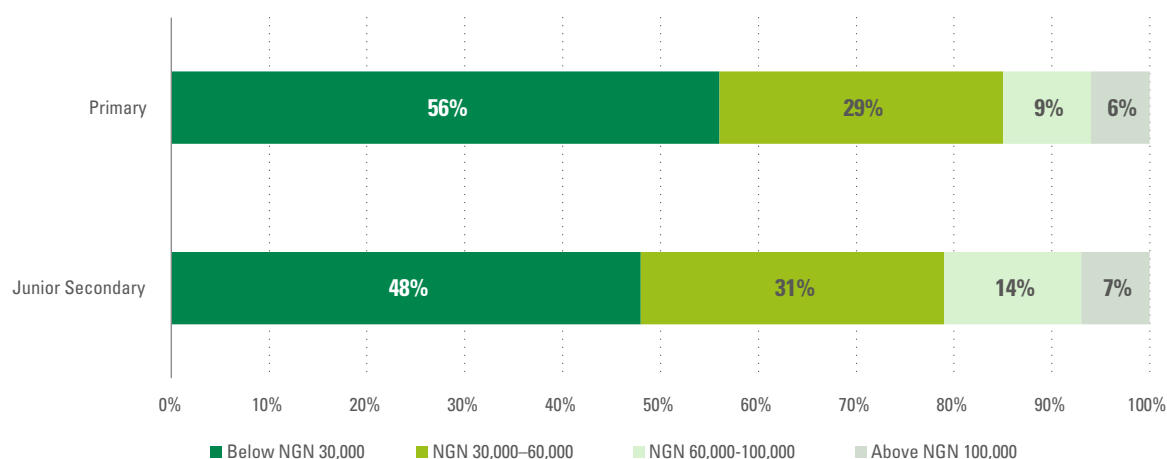
Learners' academic success is closely linked to their family's socio-economic status, which is often measured by household wealth, parents' highest level of education, and occupational status (OECD, 2019). Parents with higher education levels and specialized professions tend to have greater awareness of the value of education and the financial capacity to invest in their child's learning – whether by enrolling them in high-quality schools or providing educational support at home. The NALABE 2022 survey gathered insights from parents regarding their household income and education levels, helping to assess how these factors influence access to quality education and learning opportunities for their children.

Household monthly income

Findings from the NALABE 2022 survey revealed significant variations in household income among parents of primary and junior secondary school learners. Results showed that 56 per cent of primary school parents and

48 per cent of junior secondary school parents earn less than NGN 30,000 per month. Approximately 30 per cent of households fell within the NGN 30,000–NGN 60,000 range for both education levels. While 9 per cent of primary school parents and 14 per cent of junior secondary school parents reported a monthly income between NGN 60,000 and NGN 100,000. Fewer than 8 per cent of households earned above NGN 100,000 per month. Parents of junior secondary school learners tended to have higher incomes compared to those of primary school learners on average, potentially influencing educational opportunities and access to resources.

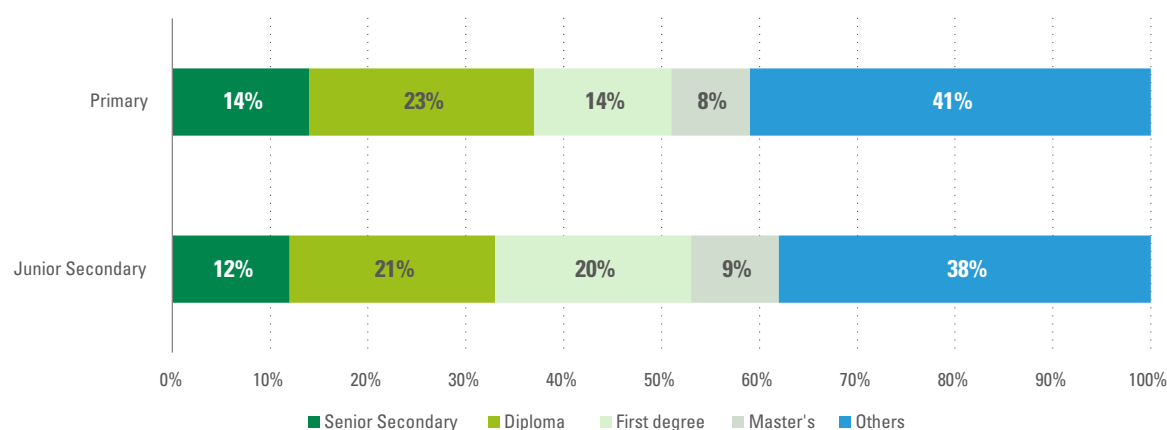
Figure 4.6. Distribution of household monthly income



Parents' highest education

Parents' education is known to have both direct and indirect effects on their child's learning achievement, including through high parental expectation and behaviour (Davis-Kean, 2005). In the NALABE 2022 survey, parents reported on their highest education attainment.⁵ The data showed that 12–14 per cent of parents have senior secondary education, 21–23 per cent have a diploma, 14–20 per cent have a first degree and 8–9 per cent have master's degree. Parents of a child attending junior secondary school were more likely to have a first degree by 6 percentage points. Those who selected 'others' – which accounted for about 40 per cent of parents – included those who have no completed primary education, those who completed primary education, those who completed junior secondary education and those who earned a doctoral degree.

Figure 4.7. Parents' highest education level

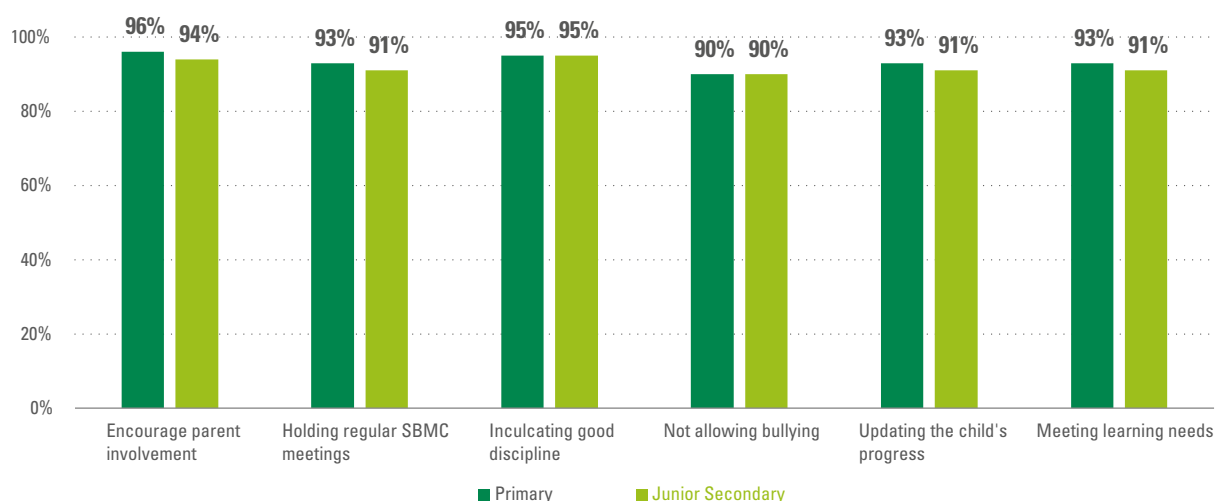


4.2.2 Parents' perception of school

Parents who are well-informed about school conditions can play a crucial role in enhancing the learning environment and advocating for improvements. Findings from the NALABE 2022 survey indicated that most parents in Nigeria trust their child's school to provide a safe, academically conducive environment that fosters learning and discipline. The results found that 90–95 per cent of parents of primary and junior secondary school learners reported that their child's school organizes SBMC meetings for school development, instils good discipline in their child, does not allow bullying, updates child's progress and meets their child's learning needs.

Despite these positive perceptions, the findings suggest the presence of information asymmetry, where parents may not have as much insight into school conditions as school personnel and learners do. For instance, although over 90 per cent of parents said school meets the learning needs of their child, NALABE assessment showed that 50–86 per cent of learners do not meet the minimum proficiency in the target subjects and classes. Similarly, while 90 per cent of parents believed that schools do not allow bullying, more than one third of learners reported experiencing bullying. This limited awareness can reduce parents' ability to act in support of their child's learning and well-being. Thus, there is a need to better inform parents of school situations so that they can play an active role to hold schools accountable for learning and child development.

Figure 4.8. Parents' perception of their child's school (percentage of strongly agree/agree)

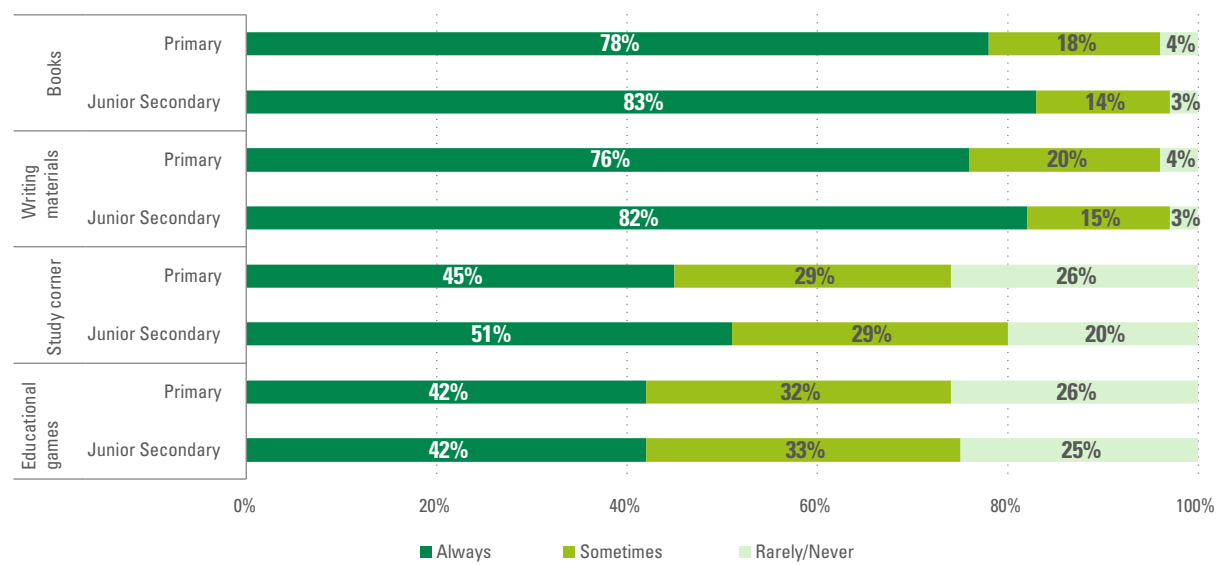


4.2.3 Parents' support for learning

Parents play a vital role in their child's education, offering support in various ways – from providing learning materials to hiring tutors and assisting with homework. Findings from the NALABE survey indicated that the majority of Nigerian parents, including those from low-income households, actively contribute to their child's learning by ensuring access to educational resources and a conducive study environment.

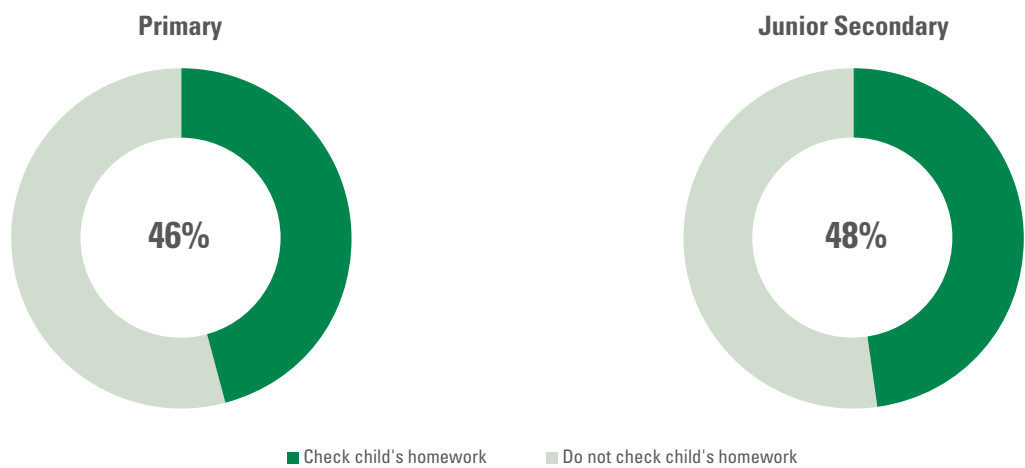
Over 96 per cent of parents consistently provided books and writing materials to support their child's education. Also, 74 per cent of primary school parents and 80 per cent of junior secondary school parents reported that they provide a dedicated space for learning at home, and 74 per cent of primary school parents and 75 per cent of junior secondary school parents stated that they provide educational games to enhance learning.

Figure 4.9. Percentage of parents providing material support for learning

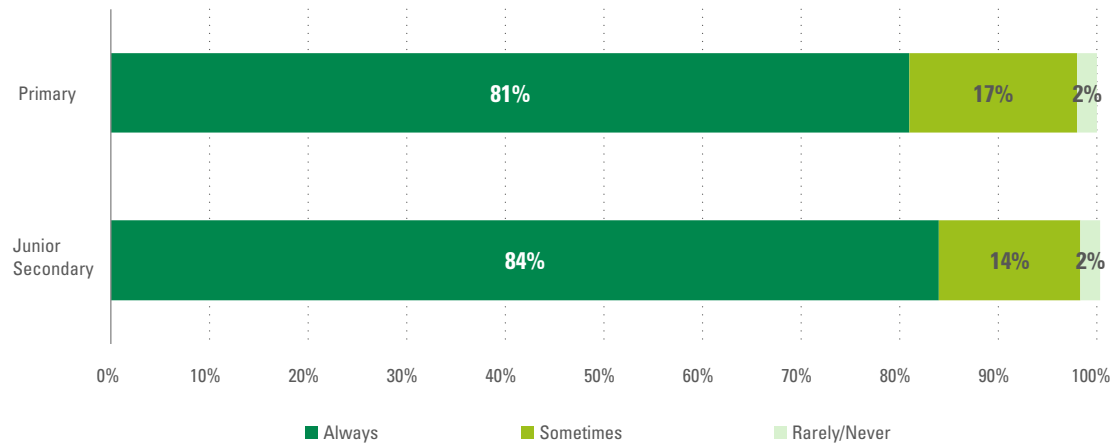


In addition to the material support, many parents engaged in child learning directly. Just less than half of parents of primary and junior secondary learners (46 per cent and 48 per cent respectively) reported that they check their child’s homework. The results highlighted the commitment of Nigerian parents to fostering a supportive home learning environment.

Figure 4.10. Percentage of parents who check child’s homework



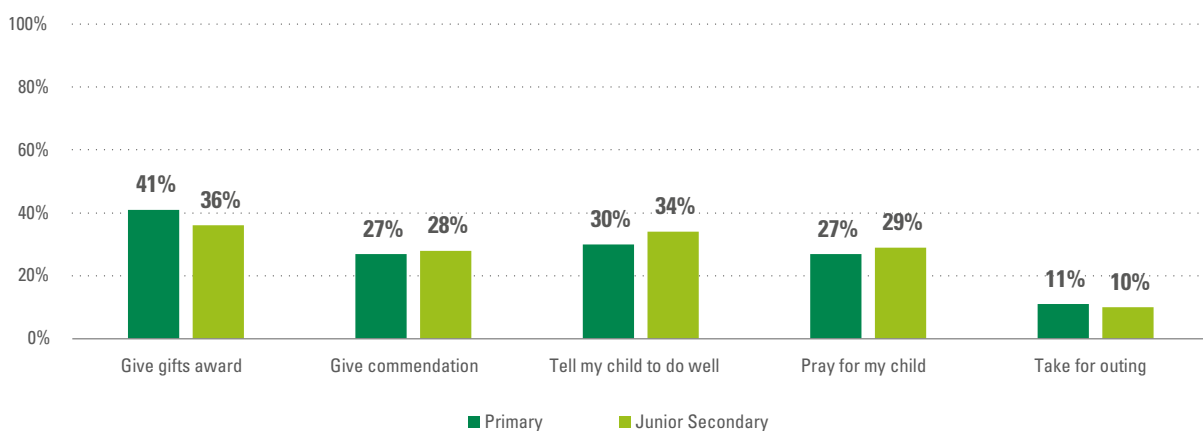
Research suggests that breakfast has a positive effect on both on-task behaviour and academic performance, particularly among undernourished children. Studies indicate a strong correlation between regular breakfast consumption and improved academic outcomes (Adolphus, Lawton and Dye, 2013). Findings from the NALABE 2022 survey revealed that over 80 per cent of Nigerian parents consistently provide breakfast for their child and 14–17 per cent of parents offer breakfast occasionally. The survey did not assess the quality of breakfast, leaving room for further exploration of its nutritional value. These results, however, highlight how parents indirectly contribute to their child’s learning by supporting their nutrition through regular breakfast consumption.

Figure 4.11. Percentage of parents who provide breakfast

4.2.4 Parents' actions when aware of child's achievement

Parents play a crucial role in motivating their child to excel academically, with various forms of engagement reflecting their investment in their child's learning journey. Findings from the NALABE survey revealed different approaches parents take to encourage educational success.

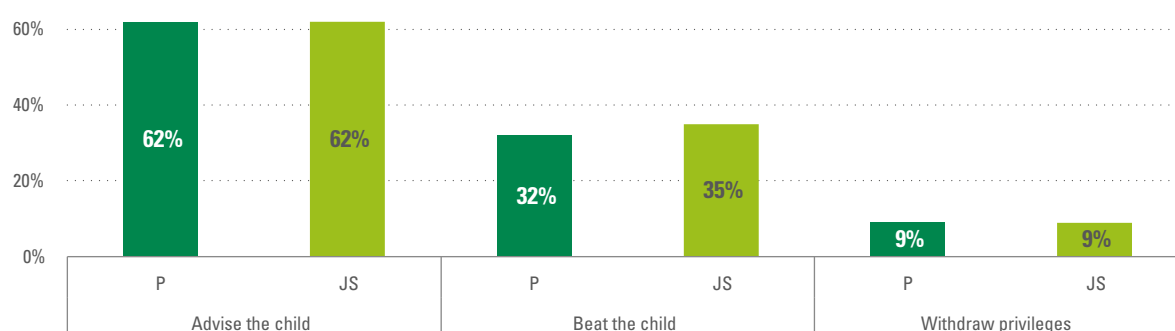
About 41 per cent of primary school parents and 36 per cent of junior secondary school parents gave gifts and about 27 per cent of learners' parents gave praise when their child performed well. In addition, 30 per cent of primary school parents and 34 per cent of junior secondary school parents encouraged their child to put in more effort when they became aware of their academic performance. Also, more than 27 per cent of parents offered prayers for their child's further success. Just over 10 per cent of parents took their child out for a treat as a form of motivation. These findings illustrate the diverse ways Nigerian parents reinforce their child's academic progress.

Figure 4.12. Parental responses to their child's academic achievement

4.2.5 Parents' actions when child misbehaves

The NALABE 2022 survey explored how parents respond when their child misbehaves. Findings indicated that 62 per cent of parents advise their child as a way to guide his/her behaviour. In addition, 32 per cent of primary school parents and 35 per cent of junior secondary school parents reported using physical punishment, highlighting the need to eliminate corporal punishment and promote alternative disciplinary approaches. Finally, 9 per cent of parents stated that they withdraw privileges as a form of discipline. These results underscore the importance of positive parenting strategies, encouraging more parents to adopt constructive and non-violent methods that support children's emotional well-being and behavioural development.

Figure 4.13. Parents' actions when child misbehaves

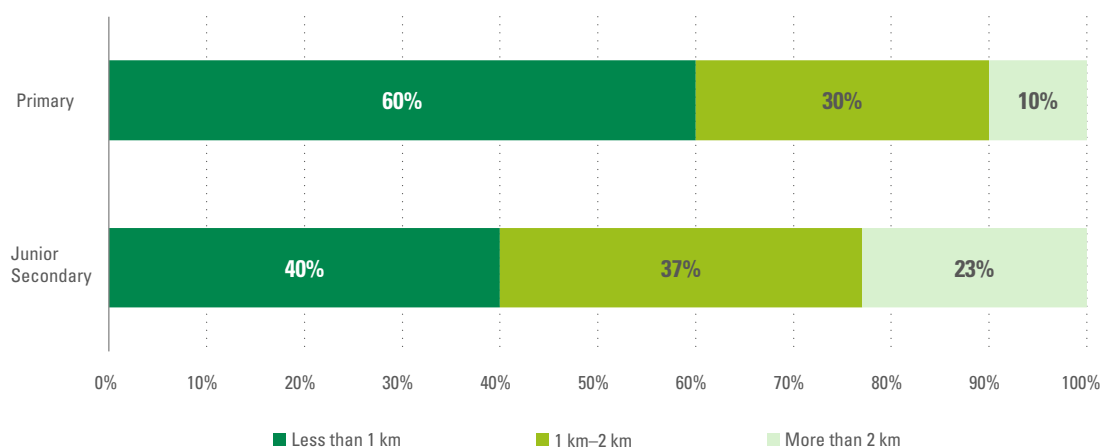


4.2.6 Parents' support for child's safety

Distance from school

The standard norm for school distance is within 3 kilometres from home (Gould, 1978), as longer travel distances pose increased safety risks for children. Findings from the NALABE survey revealed that 90 per cent of primary school learners and 87 per cent of junior secondary school learners travel up to 2 kilometres from their home to school, and 10 per cent of primary school learners and 23 per cent of junior secondary school learners commute beyond 2 kilometres.

Figure 4.14. Distance from home to school



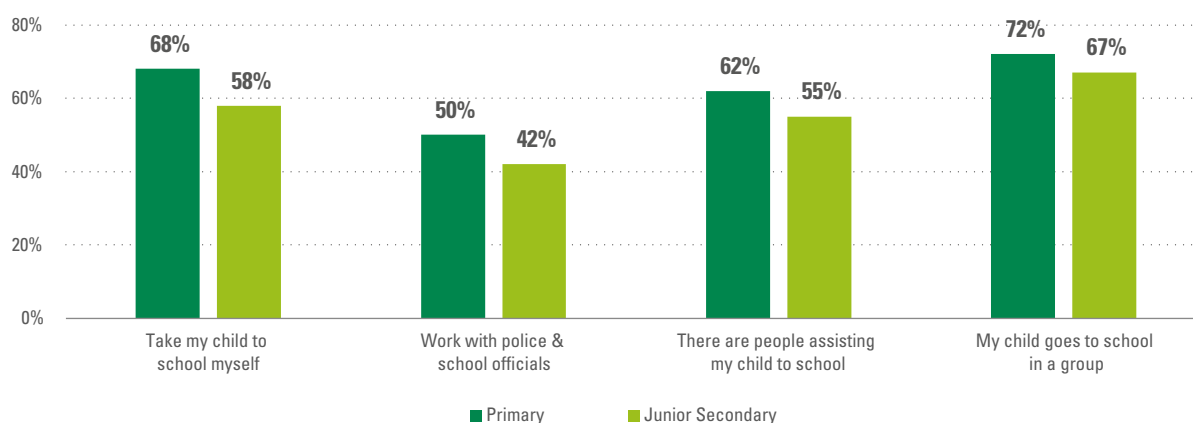
Distance from home to school is longer for junior school learners than primary school learners given that there are fewer junior secondary schools than primary schools. Distance to school can be reduced by establishing more, often smaller schools near communities, but this could also increase the unit cost of education. Balancing accessibility, infrastructure expansion and cost efficiency remains a key consideration in enhancing school proximity while ensuring a safe and inclusive learning environment for all learners.

Safety in going to and from school

Parents implement various strategies to safeguard their child's journey to school, with the most common approaches including group travel and accompanying their child to school. Findings from the NALABE survey indicated that parents of primary school learners are more likely to take action compared to parents of junior secondary school learners.

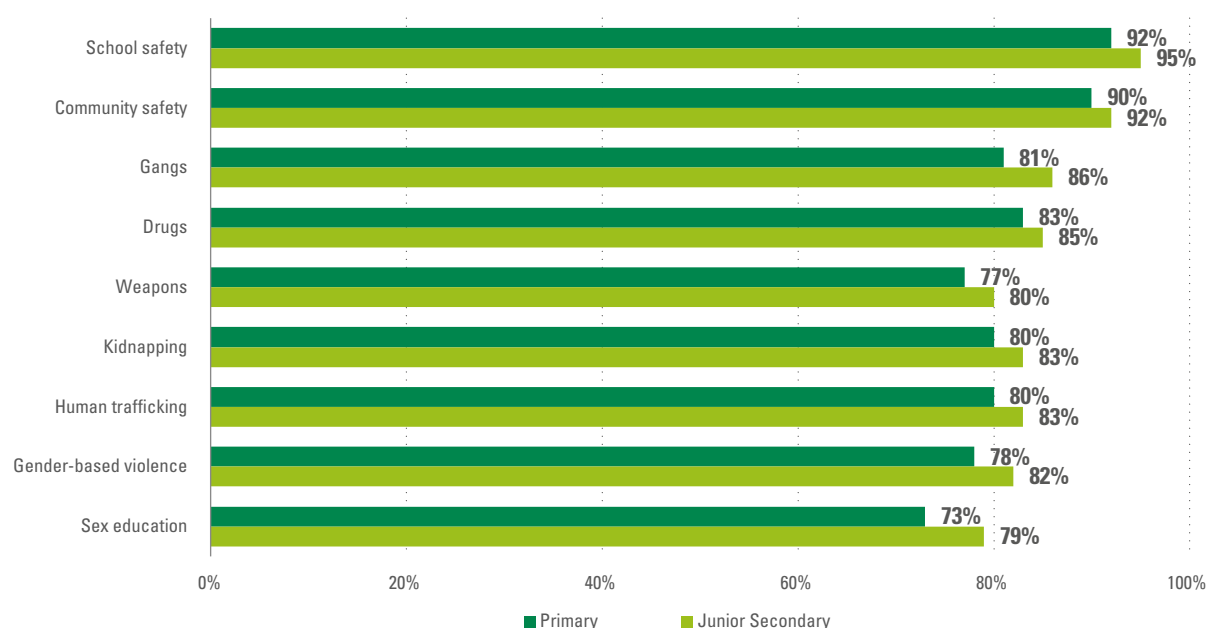
For instance, 68 per cent of primary school parents and 58 per cent of junior secondary school parents took their child to school. Alternatively, 42 to 62 per cent of parents got support from police, schools or communities to assist their children's commuting. Also, about 70 per cent of parents reported that their child goes to school in a group. Across the measures taken, parents of primary school learners were more likely to take action to secure their child's safety in going to school compared to parents of junior secondary school learners.

Figure 4.15. Parents' actions to ensure safety in going to school



Parental engagement in safety education

Talking to learners about safety tips goes a long way in instilling safety consciousness and education. The most common safety issue that parents talk about with their child is school safety and community safety. Over 90 per cent of parents reported having a conversation on these issues, implying that safety in school and community is their major concern. More than 75 per cent of parents across the country discussed gangs, drugs, kidnapping and gender-based violence with their children. This indicates the presence of relatively high safety risks in the country but also manifests the role and commitment of Nigerian parents to protecting their children from these safety risks. Additionally, 73 per cent of primary school parents and 79 per cent of junior secondary school parents talked with their children about sex education. Across the safety issues, parents with a junior secondary school learner talked about safety issues with their child more often than those of a primary school learner.

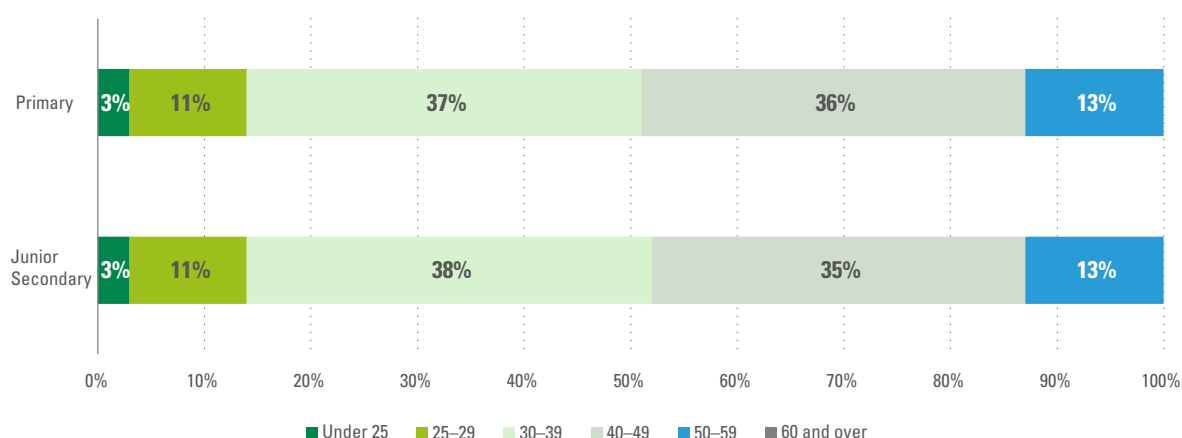
Figure 4.16. Parental engagement in child safety discussions

4.3 Teachers' characteristics, perceptions and practices

This section outlines the characteristics, perceptions and practices of primary and junior secondary school teachers in Nigeria.

4.3.1 Teachers' age

Understanding the age distribution of teachers is essential for addressing teacher attrition and planning effective recruitment strategies to meet the education needs of the increasing number of children in Nigeria. The results revealed that 3 per cent of primary and junior secondary school teachers were under the age of 25, and 11 per cent fell within the age bracket of 25–29 years. A majority of teachers (73 per cent) were between 30 and 49 years old in both primary and junior secondary education. Teachers aged 50–59 years constituted 13 per cent of all teachers. Those who were aged 60 and more accounted for less than 1 per cent of all teachers.

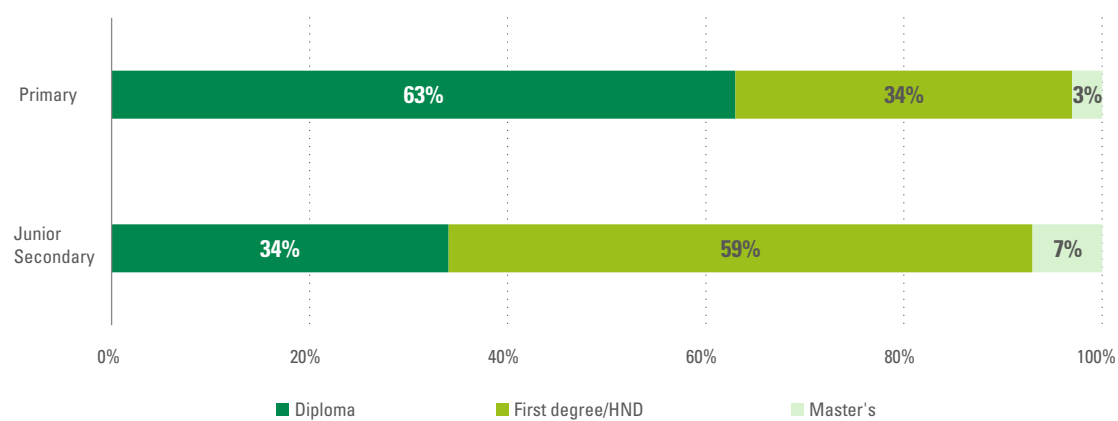
Figure 4.17. Teachers' age

4.3.2 Teachers’ education, qualification, registration, years of teaching and professional development

Educational attainment among primary and junior secondary school teachers

Educational attainment is often regarded as a key predictor of teacher effectiveness. Findings from the NALABE 2022 survey revealed distinct trends in the qualifications of primary and junior secondary school teachers. For example, results showed that primary school teachers are more likely to have a diploma (63 per cent) than a first degree or HND (34 per cent). The opposite trend was observed for junior secondary school teachers, with 34 per cent having a diploma and 59 per cent having a first degree/HND. Those who earned a master’s degree accounted for 3 per cent and 7 per cent of primary and junior secondary school teachers respectively.

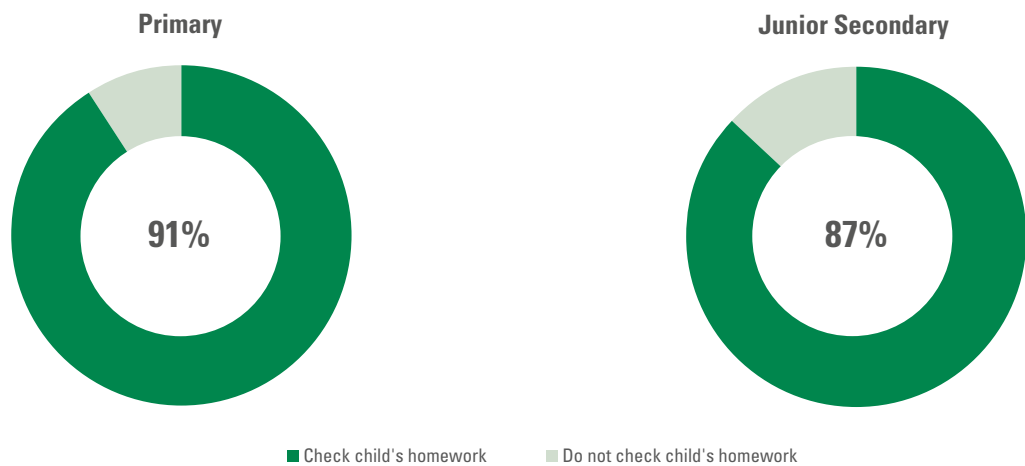
Figure 4.18. Teachers’ education attainment



Teaching qualification

It is critical that teachers possess a teaching qualification to engage in teaching jobs at school. According to the NALABE survey, 91 per cent of primary school teachers and 87 per cent of junior secondary school teachers had a teaching qualification. The results indicate a need to upgrade the unqualified teachers to ensure the quality of teaching in Nigerian schools.

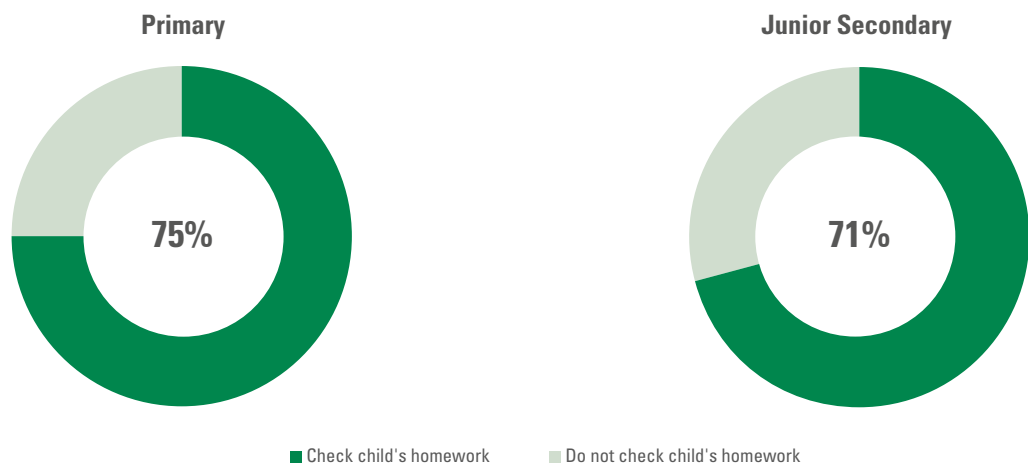
Figure 4.19. Percentage of teachers with professional teaching qualifications



Registration with Teachers Registration Council of Nigeria

In Nigeria, teachers are required to undergo registration with the TRCN to ensure professional standards in education. Findings from the NALABE survey revealed that 75 per cent of primary school teachers and 71 per cent of junior secondary school teachers were registered with the TRCN, meaning approximately one in four teachers in Nigeria remained unregistered. Strengthening teacher registration policies and promoting awareness of TRCN requirements could further enhance teaching quality and ensure professional accountability in Nigerian schools.

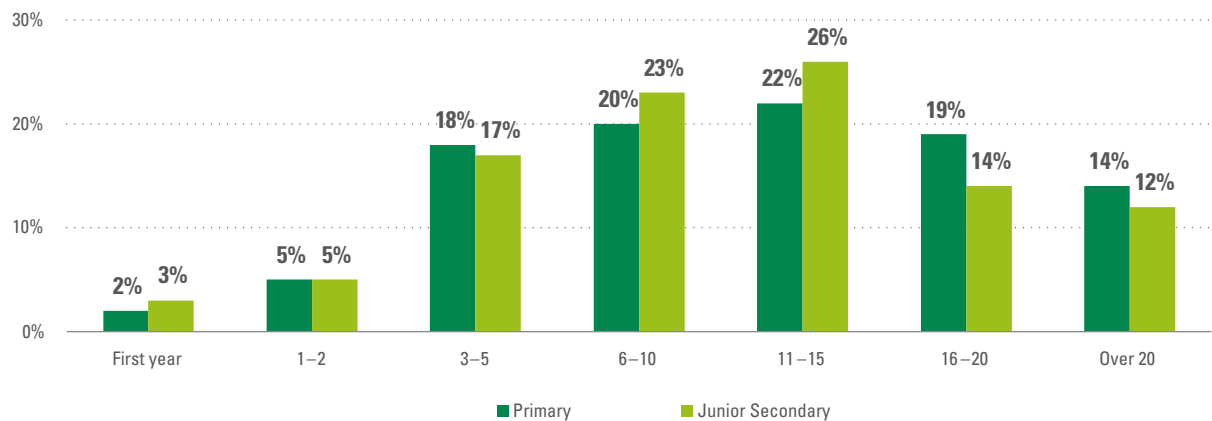
Figure 4.20. Percentage of teachers with TRCN registration



Teacher experience

The duration of service within a profession serves as a crucial metric for gauging experience, effectiveness and job satisfaction. The NALABE 2022 results found that 2–3 per cent of teachers were in their initial year of teaching, and 5 per cent had 1–2 years of teaching experience. Most teachers had teaching experience of 6–10 years (20–23 per cent of teachers) and 11–15 years (22–26 per cent of teachers). Teachers who had more than 20 years of teaching experiences accounted for 14 per cent of primary school teachers and 12 per cent of junior secondary school teachers.

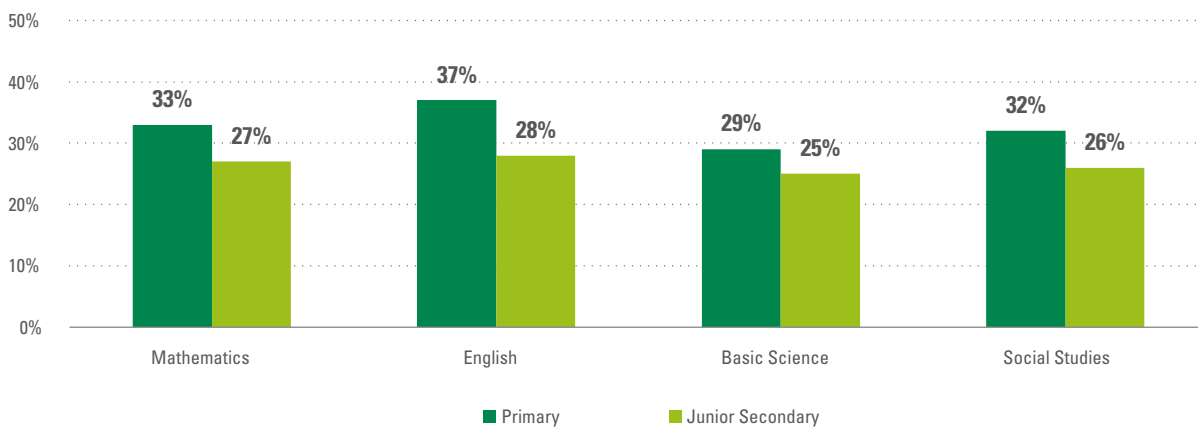
Figure 4.21. Teachers' years of teaching



Teachers' training across core subjects

In the NALABE 2022 survey, teachers gave information on the subjects they are trained to teach. The results showed a consistent pattern across the four core subjects. In the primary schools, 29–37 per cent of teachers were trained to teach mathematics, English studies, basic science and technology, and social studies. That percentage reduced in junior secondary schools, where 25–28 per cent of teachers were trained to teach these subjects.

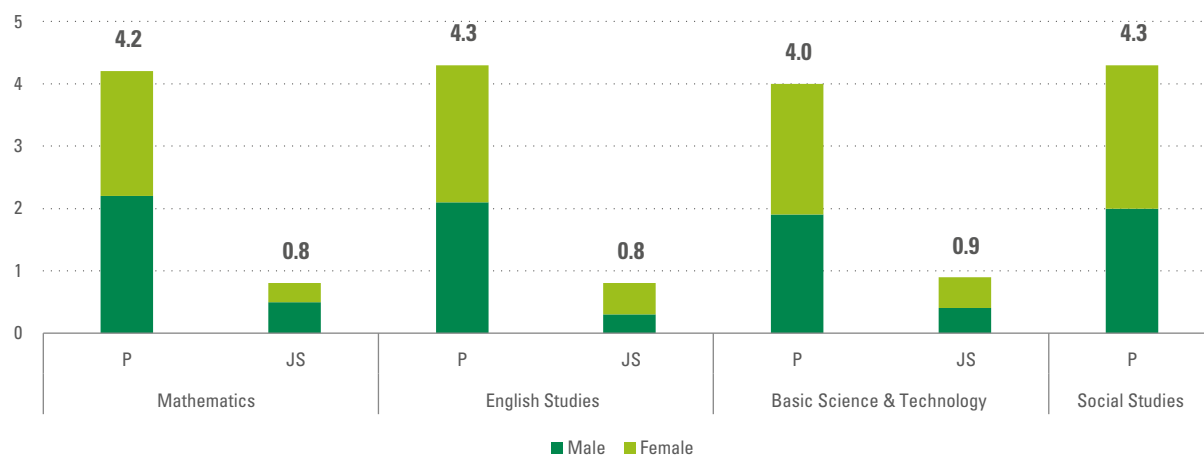
Figure 4.22. Percentage of teachers who serve as subject teachers



Specialist teachers

Teachers trained in the pre-service programme and who teach the subject in which they were trained are called 'specialist teachers'. For example, those who hold an NCE or Bachelor of Science in Education, studied mathematics in the pre-service programme and are currently teaching mathematics are regarded as specialist teachers in mathematics. Figure 4.23 presents the average number of specialist teachers in school by subject. In primary schools, there were on average 4.0–4.3 specialist teachers in each of the four subjects. In junior secondary schools, there were on average only 0.8–0.9 specialist teachers in mathematics, English studies and basic science and technology, and none in social studies.

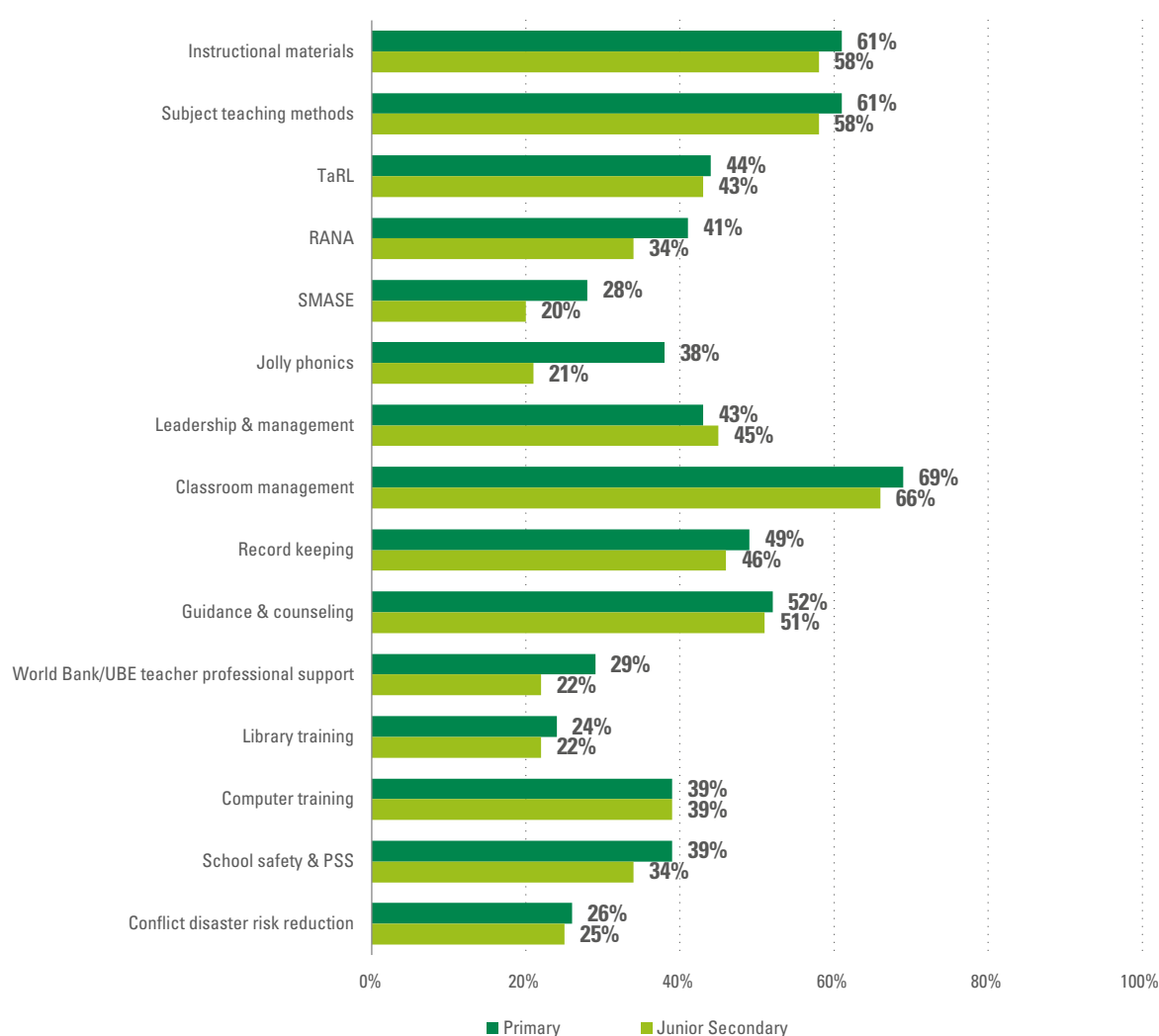
Figure 4.23. Number of specialist teachers by subject



Teacher professional development in Nigeria

Teachers in Nigeria are given opportunities to participate in professional training programmes aimed at enhancing their effectiveness in their roles. The extensive array of these training initiatives ranges from those focusing on instruction to those targeting other areas, such as classroom management and safety. In the NALABE survey, teachers reported types of training they had received in the last three years and the level of impact of each training.

Figure 4.24. Teachers' participation in professional development in last three years



About 60 per cent of primary and junior secondary school teachers received training on improvisation of instructional materials and subject teaching methods. The results also indicated that roughly 40 per cent of teachers benefited from training on Teaching at Right Level (TaRL) and Reading and Numeracy Activity (RANA). A majority of primary and junior secondary school teachers reported that training on teaching (i.e., training on instructional materials, subject teaching, TaRL, RANA and Jolly Phonics) had large or moderate impact.

Less than 70 per cent of teachers received training on classroom management and only around 45 per cent of teachers received leadership and record-keeping training in the last three years. Around 50 per cent of teachers benefited from training in guidance and counselling, reinforcing the emphasis on holistic learner support. Also,

25–39 per cent of teachers were trained in school safety and psychosocial support (PSS) and conflict disaster risk reduction.

4.3.3 Teachers' working conditions

Full-time and part-time jobs

The NALABE survey examined whether teachers work full time or part time. The results showed that 96 per cent of primary school teachers and 92 per cent of junior secondary school teachers worked full time.

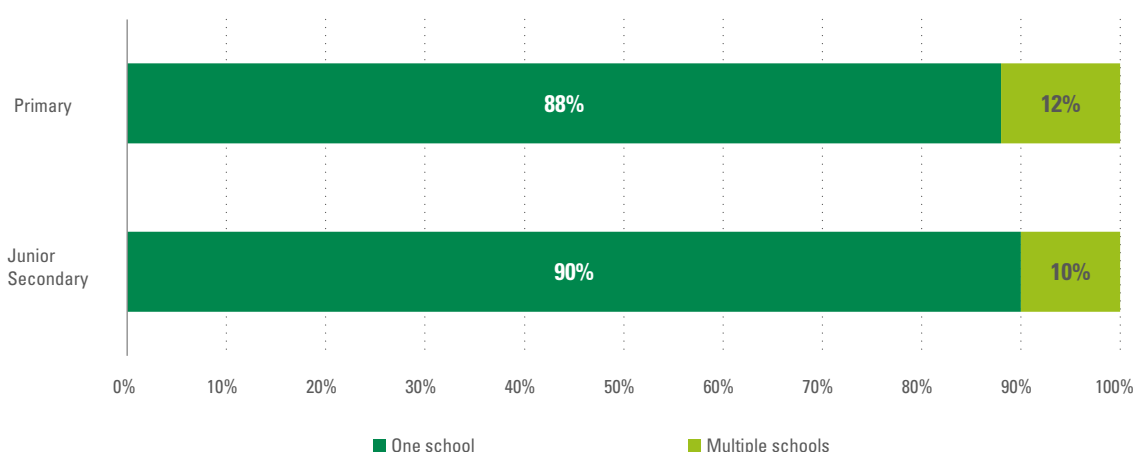
Figure 4.25. Teachers working full and part time



Multiple school engagements

For consistent engagement with learners and school communities, it is generally preferable for teachers to work within a single school. Findings from the NALABE survey, however, revealed that 12 per cent of primary school teachers and 10 per cent of junior secondary school teachers worked across multiple school settings. It remains unclear whether these teachers were affiliated with private schools or public schools. This trend raises important questions about teacher workload, school staffing policies and potential gaps in educational consistency.

Figure 4.26. Teachers working in multiple schools



4.3.4 Teachers' teaching practice

Teaching practices in Nigerian classrooms

The NALABE survey examined instructional methods used by teachers, highlighting key strategies that support effective learning, reflection and assessment. Around 77–78 per cent of teachers consistently informed learners of lesson objectives and reinforced step-by-step learning processes.

A majority of teachers always grouped learners for different purposes: to help learners be independent learners (68 per cent of primary teachers and 63 per cent of junior secondary teachers); to make learners come up with joint solutions (57 per cent and 51 per cent); to group learners by ability (50 per cent and 43 per cent); and to give different assignments according to learners' ability (48 per cent and 42 per cent). Primary school teachers were more likely to use grouping compared to junior secondary school teachers.

Approximately 75 per cent of teachers regularly: encouraged learners to reflect on their own work; asked questions to assess understanding of subject matter; conducted periodic tests to measure progress; and reviewed homework with learners to reinforce lessons. These findings indicate that most teachers in Nigeria integrate practices that promote reflection, assessment and feedback, strengthening learners' comprehension, collaboration and independent thinking. Expanding teacher training on active learning strategies could further enhance teaching effectiveness and learner engagement.

Table 4.1. Frequency of activities during lesson to enhance learning

Activities during lesson	Primary			Junior secondary		
	Always	Sometimes	Never	Always	Sometimes	Never
Tell learners the objective of my lesson	78%	17%	5%	77%	19%	4%
Encourage learners to suggest classroom activities	57%	31%	12%	53%	35%	12%
Encourage learners to remember every step in a procedure	77%	18%	4%	77%	19%	5%
Work with learners individually	56%	37%	7%	50%	42%	9%
Make learners work in small groups to come up with a joint solution to a problem or task	57%	37%	6%	51%	42%	7%
Facilitate learners to work in groups to become independent learners	68%	27%	4%	63%	31%	5%
Group learners based on their abilities	50%	33%	17%	43%	38%	2%
Give different work to learners based on their ability	48%	35%	17%	42%	37%	2%
Encourage learners to reflect upon their own work	76%	20%	3%	75%	22%	4%
Ask questions to assess if learners understood the subject matter	77%	15%	8%	75%	16%	8%
Give tests periodically to determine whether the learners are learning	73%	23%	4%	73%	23%	4%
Review with the learners the homework they have prepared	77%	20%	3%	75%	22%	3%

Homework, assignments and feedback in Nigerian schools

Homework is a crucial component of the learning process, reinforcing classroom instruction and helping learners develop independent study habits. Findings from the NALABE survey revealed that 99 per cent of primary and junior secondary school teachers regularly assign homework to learners. Teachers also mark the homework and provide feedback to support learning. These results highlight the strong commitment of teachers in Nigeria to ensuring that assignments serve as effective learning tools. Strengthening feedback mechanisms, including

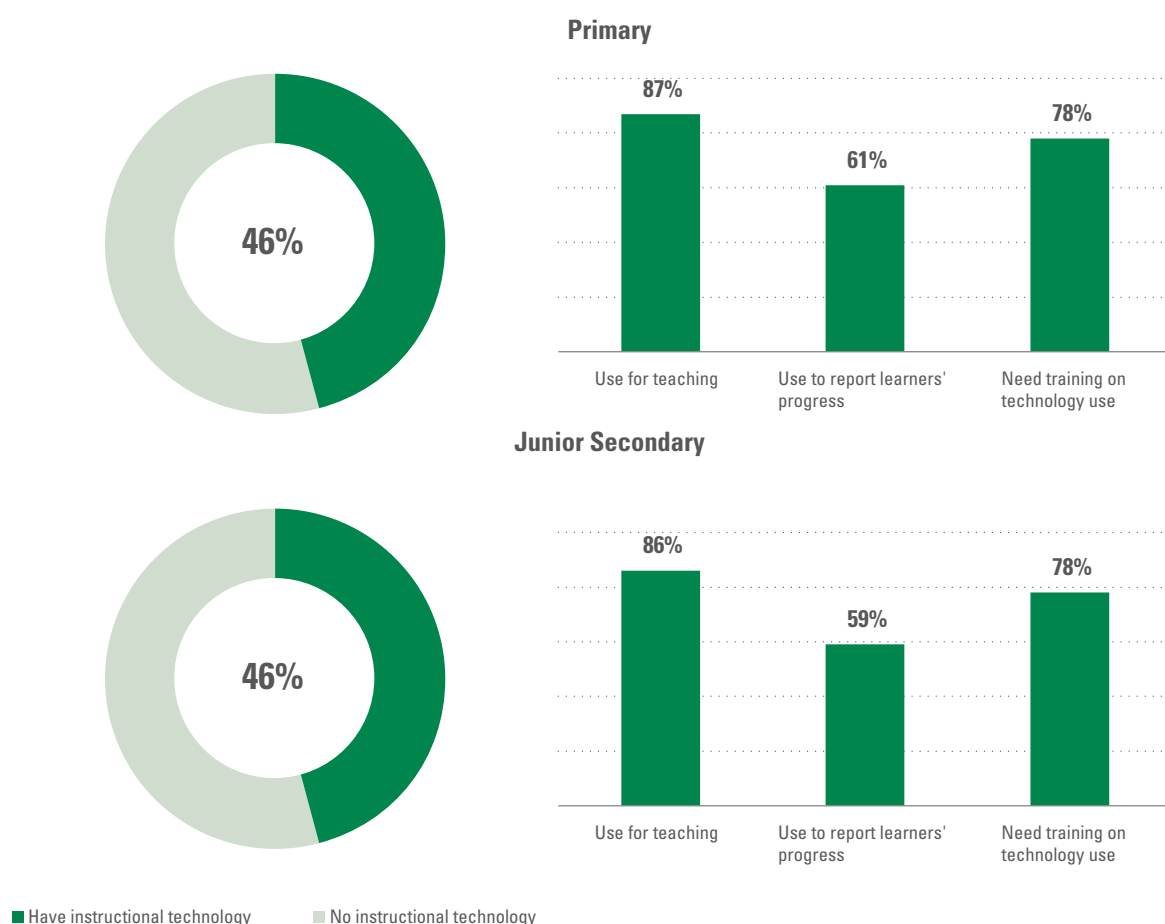
personalized guidance and structured review sessions, could further enhance learner comprehension and academic performance.

Technology use in teaching and learning

Integrating technology into education enhances learner understanding and streamlines teachers' work, yet accessibility and training remain key challenges. Findings from the NALABE survey revealed that 46 per cent of primary and junior secondary school teachers had access to instructional technology. Among those with access, 86–87 per cent used technology for teaching, and 59–61 per cent used it for reporting learners' progress. At the same time, however, 78 per cent of teachers expressed a need for training on how to effectively utilize it in their work.

Many teachers rely on technical staff for device operation due to limited proficiency in handling educational technology. Expanding access to technology and strengthening teacher training programmes can maximize the benefits of digital tools in Nigerian schools. Improved training initiatives could empower educators to utilize technology independently, fostering more efficient teaching and enhanced learner learning experiences

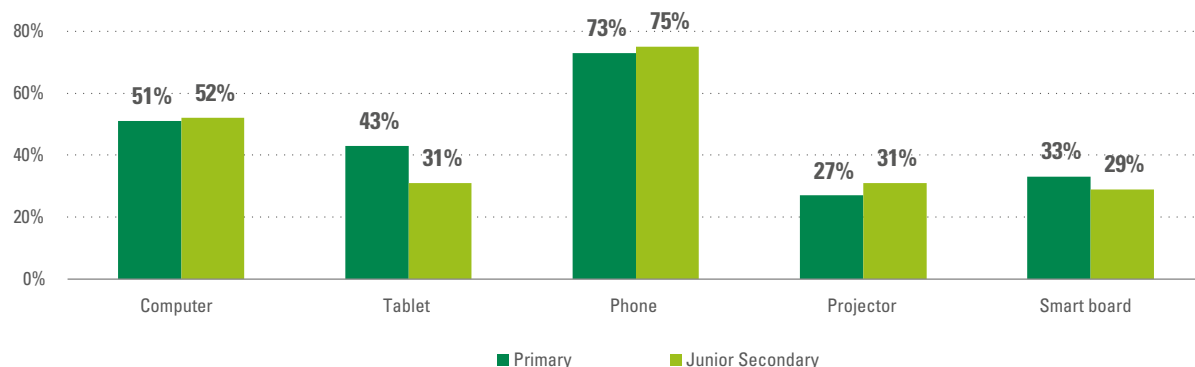
Figure 4.27. Teachers' use of instructional technology



Among teachers who had access to instructional technology, the most commonly used devices were phones, utilized by 73 of primary teacher and 75 per cent of junior secondary teachers. Computers were used by 51–52 per cent of teachers, while tablets were more common among primary school teachers (43 per cent) than junior secondary school teachers (31 per cent). Use of projectors and smart boards was less frequent, possibly because such devices were not personally owned by teachers. Strengthening technology availability and training

initiatives could help maximize the effectiveness of digital tools in enhancing teaching and learning experiences in Nigerian schools.

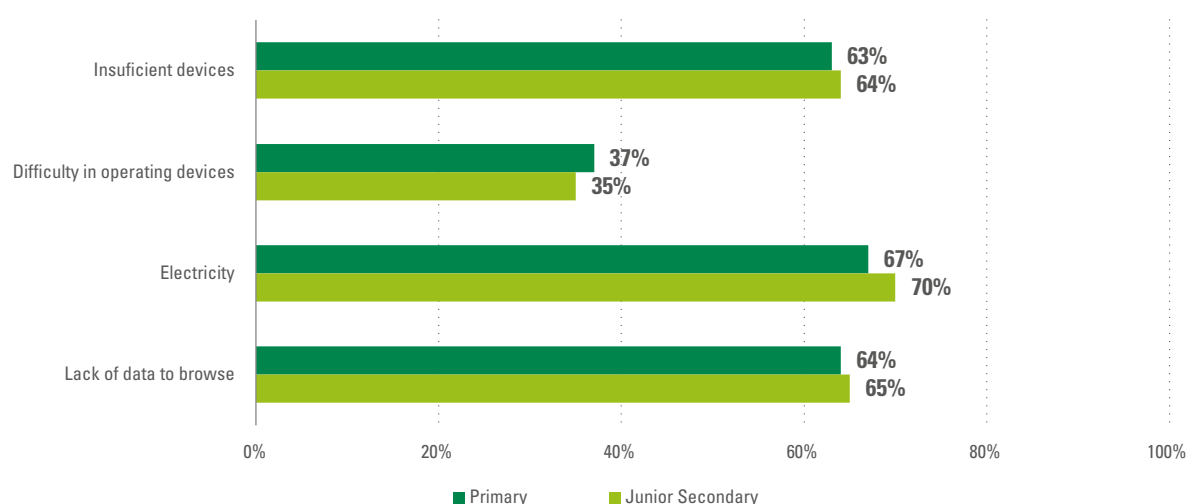
Figure 4.28. Technology tools utilized in teaching



Despite the potential of technology to enhance teaching effectiveness, Nigerian teachers faced significant barriers to its usage. For instance, more than 60 per cent of the teachers reported a lack of devices, electricity supply and data to browse as challenges in the use of digital technology. Another challenge, akin to the need for training, was the difficulty in operating devices, which was reported by 37 per cent and 35 per cent of the primary and junior secondary school teachers respectively.

Nigeria's National Digital Learning Policy is expected to foster a more enabling environment for the effective integration of technology into teaching and learning. Addressing these challenges through improved infrastructure, teacher training and equitable access to technology could help strengthen digital literacy and optimize technology's role in the enhancement of education quality.

Figure 4.29. Barriers to technology integration in teaching



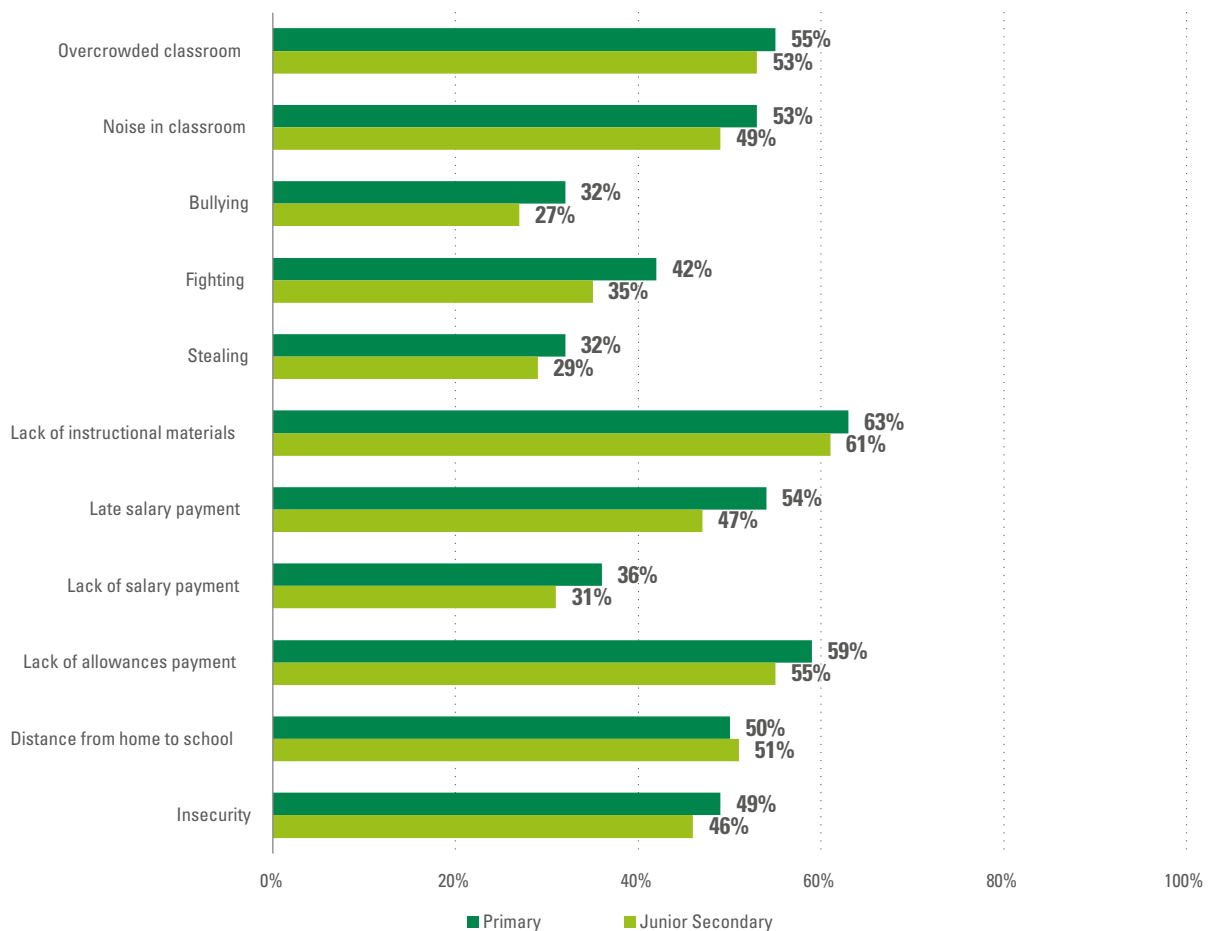
Challenges faced by teachers in Nigeria

Teachers in Nigeria navigate multiple obstacles that impact their ability to deliver quality education. Classroom environment play a significant role in effective lesson delivery, yet about 50 per cent of teachers faced overcrowding and excessive noise in both primary and junior secondary schools. Issues such as bullying, fighting and theft disrupted learning and consumed valuable teaching time, with 27–42 per cent of teachers reporting these behavioural issues hindering teaching activities. These challenges were slightly more prevalent in primary schools than in junior secondary schools.

A shortage of teaching resources was one of the most pressing concerns. In fact, 63 per cent of primary school teachers and 61 per cent of junior secondary school teachers struggled with insufficient instructional materials. Financial instability was also a major concern for educators, with 54 per cent and 47 per cent of primary and junior secondary school teachers reporting late salary payment as a challenge, while 36 per cent and 31 per cent respectively reported a lack of salary payment.

About half of teachers reported home-to-school distance as a challenge, while 49 per cent of primary teachers and 46 per cent of junior secondary teachers also cited insecurity as a critical bottleneck for their job. These challenges disrupt lesson delivery, learner engagement and teacher well-being, ultimately affecting academic achievement.

Figure 4.30. Challenges encountered in teaching



4.3.5 Professional support for teachers

Teachers – as members of their local school community – perform their roles and responsibilities with support provided by other stakeholders such as peer teachers, head teachers and quality assurance officers. This section examines the extent to which teachers received support for their work.

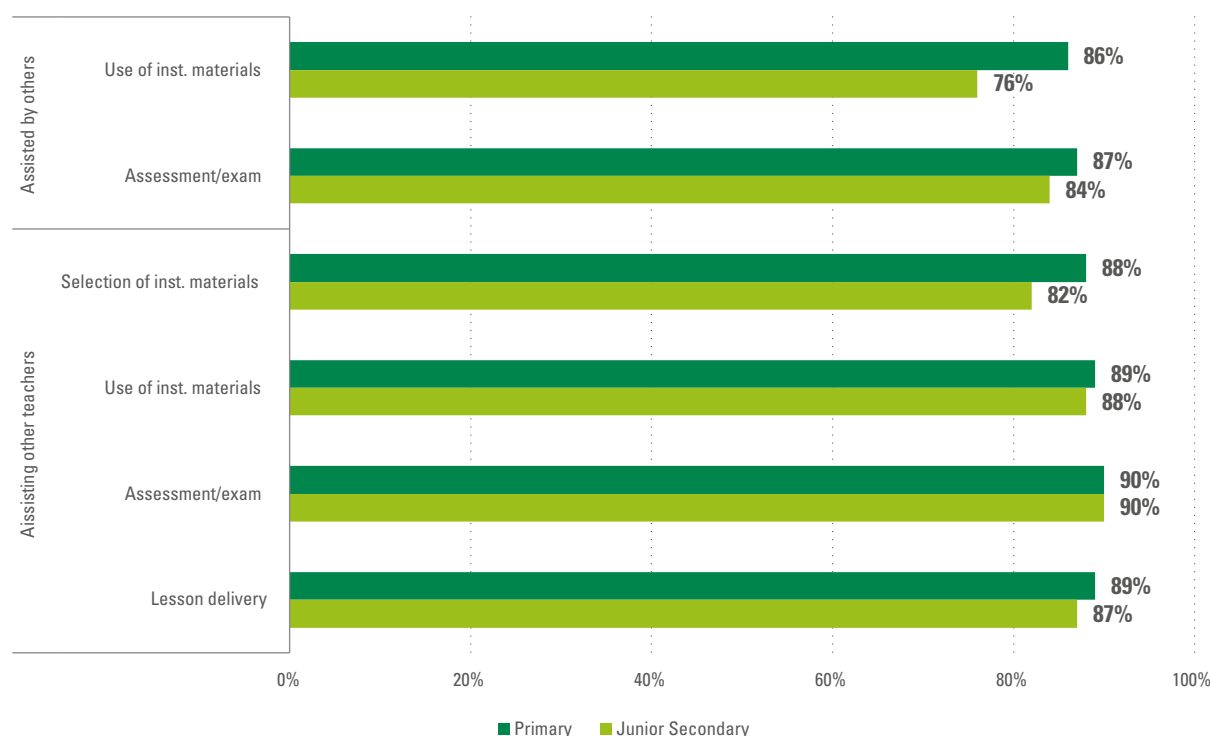
Teacher collaboration and support in Nigeria

Teachers in Nigeria foster a strong sense of collegiality, working together as a community of practice to enhance lesson preparation and delivery. Findings from the NALABE survey highlighted the high level of collaboration among educators, with teachers both receiving and offering support in key areas of teaching.

Fully 86 per cent of primary school teachers and 76 per cent of junior secondary school teachers received assistance from other teachers in using instructional materials. About 85 per cent of teachers also received help in preparing assessment and examinations. Close to 90 per cent of primary school and junior secondary school teachers also reported that they had supported their peer teachers in using instructional materials, preparing for assessment and examinations, and delivering lessons.

These findings underscore the strong culture of mentorship and peer learning among Nigerian teachers. Encouraging structured professional learning communities and institutionalized mentorship programmes could further strengthen collaborative teaching practices, ensuring continuous improvement in instructional quality and learning outcomes.

Figure 4.31. Percentage of other teachers who support or are being supported in teaching

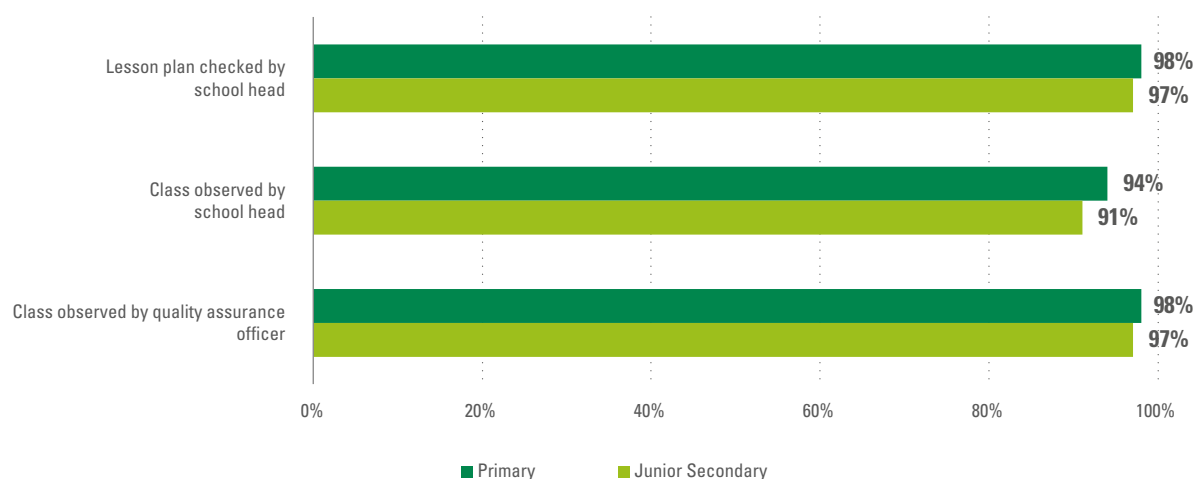


Role of head teachers, principals and quality assurance officers in monitoring teaching quality

Head teachers and principals as instructional leaders, and school support officers as mentors, are in charge of supporting teachers to help them deliver high-quality teaching and learning. Findings from the NALABE survey indicated a strong system of lesson monitoring and feedback across Nigerian schools.

The vast majority of teachers (98 per cent of primary teachers and 97 per cent of junior secondary teachers) reported that their lesson plans are checked by their head teacher or principal and their class is observed by the school leaders. Also, over 90 per cent of teachers confirmed that their class is also observed by school support officers from the Ministry of Education, UBEC and LGEA. These findings highlight that school managers and quality assurance officers actively contribute to maintaining effective instructional practices. Strengthening structured feedback mechanisms and professional development initiatives could further enhance teaching quality and learning outcomes in Nigerian schools.

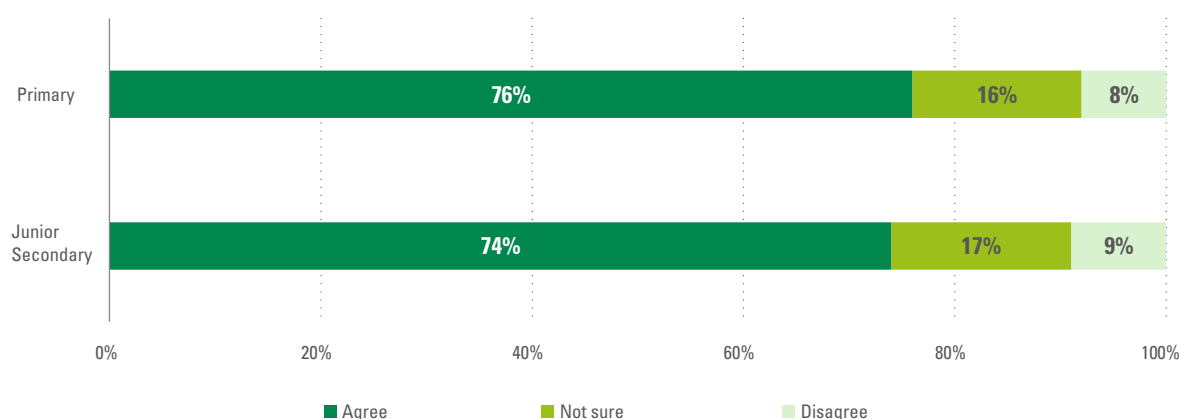
Figure 4.32. Quality assurance by school leaders and quality assurance officers



Effectiveness of professional support for teachers

Teachers' ability to leverage professional support to enhance their teaching depends on the quality and adequacy of guidance they receive from supervisory authorities. NALABE 2022 highlighted teachers' perceptions of the support provided by school supervisors and inspectors, with about 75 per cent of primary and junior secondary school teachers agreeing that they receive the necessary support. This indicates that the support the teachers receive is largely adequate and relevant to their needs.

Figure 4.33. Provision of professional support for teachers by supervisors and inspectors

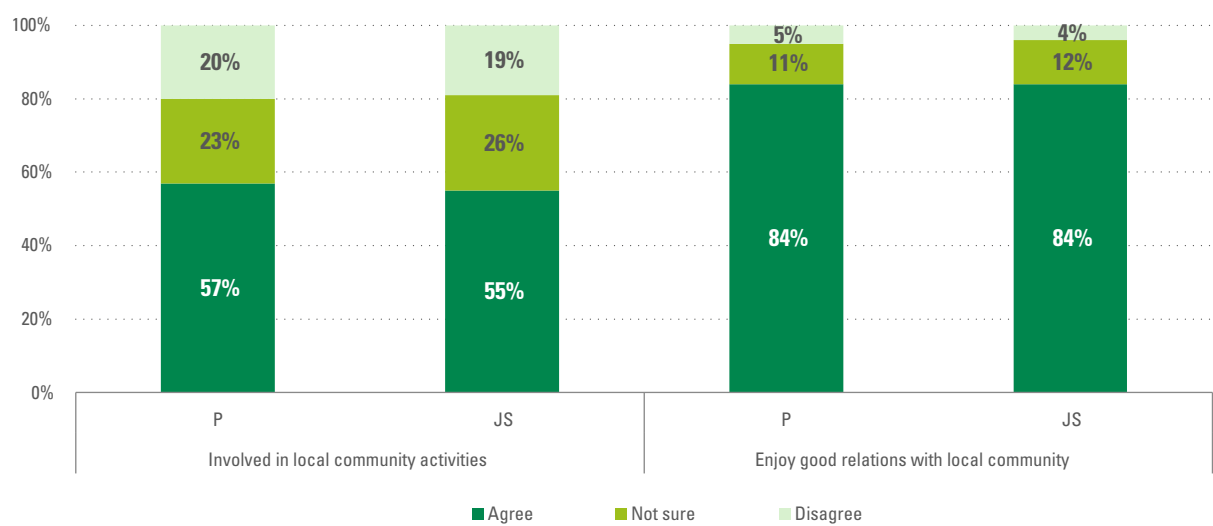


4.3.6 Engagement with local community

A cooperative relationship between schools and the local community is essential, as communities play a vital role in supporting school operations, curricular activities and extracurricular programmes. Findings from the NALABE 2022 survey highlighted the active involvement of teachers in local events and community relations.

A total of 57 per cent of primary school teachers and 55 per cent of junior secondary school teachers were involved in local activities hosted by the host community. An overwhelming majority (84 per cent) of teachers agreed that they enjoy a cordial relationship with the host community where the school is located. Ultimately, fostering positive interactions between teachers and communities enriches learning experiences, promotes local support for education and creates a more connected and thriving school environment.

Figure 4.34. Teachers’ engagement with local community

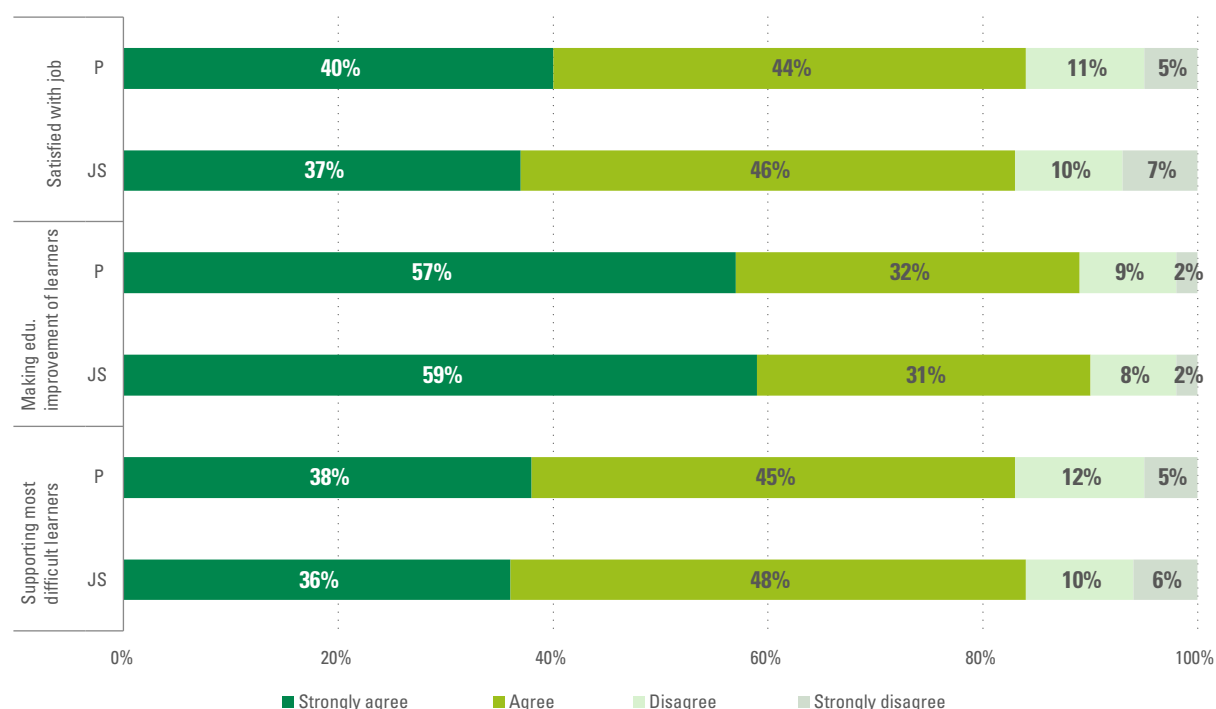


4.3.7 Teachers’ satisfaction with teaching profession

Satisfaction with the teaching profession, derived from their work, goes a long way to determine teachers’ level of motivation and commitment as well as retention in the profession. This section presents the results on teachers’ satisfaction with their job.

Teachers’ job satisfaction

The NALABE survey explored the extent to which teachers in Nigeria are satisfied with their job in general and specific aspects of their profession in particular. Some 84 per cent of teachers expressed satisfaction with their job. On their feelings about their contribution to the lives of learners, 89 per cent of primary teachers and 90 per cent of junior secondary school teachers agreed that they make important educational improvements in the lives of learners. Furthermore, 83 per cent and 84 per cent of primary and junior secondary teachers respectively felt that they support the most difficult learners. A strong professional culture among educators not only enhances teaching quality but also strengthens learner engagement and academic achievement. Encouraging continuous professional development, fostering collegial support and maintaining strong teacher-learner relationships can help sustain this positive educational environment and further improve teacher motivation and retention.

Figure 4.35. Teachers' job satisfaction

Teacher satisfaction with pay and promotion

While Nigerian teachers expressed high satisfaction with the professional aspects of their work, their contentment with pay and career advancement opportunities was notably lower. In fact, only half of teachers (53 per cent of primary school teachers and 49 per cent of junior secondary school teachers) were satisfied with the pay that they receive. Furthermore, only 40 per cent and 42 per cent of primary and junior secondary school teachers were satisfied with promotion. Approximately 28–35 per cent of teachers reported dissatisfaction with their pay and career progression.

The gap in satisfaction regarding compensation and advancement underscores the need for competitive salary adjustments to improve teacher welfare, transparent and fair promotion pathways to encourage career growth, and incentive programmes that recognize teacher contributions and enhance job stability. Addressing these concerns through policy reforms and structured career development plans could strengthen teacher retention, motivation and overall job fulfilment.

Figure 4.36. Teachers’ satisfaction with pay and promotion



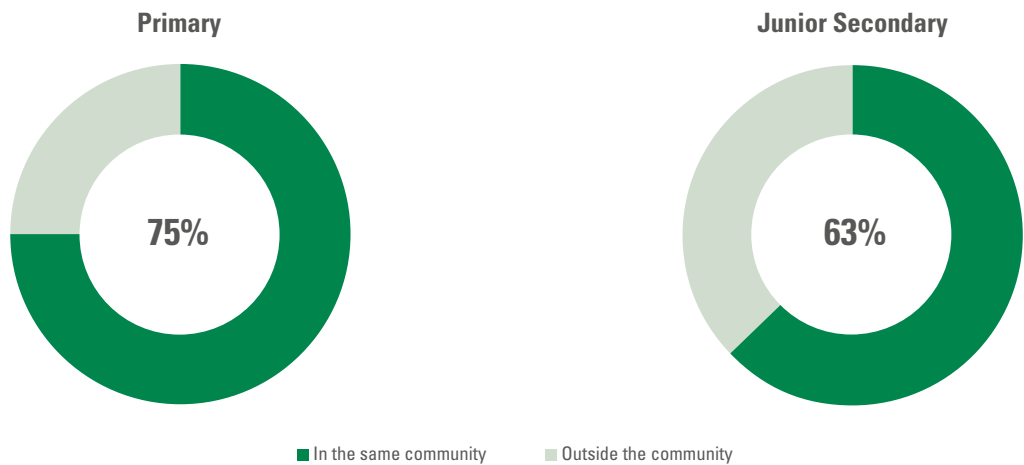
4.4 Head teachers’ and principals’ characteristics and perceptions

This section examines the profiles of primary school head teachers and junior secondary school principals, along with their views on teachers, learners and their school communities.

4.4.1 Residence of head teachers and principals

The NALABE 2022 survey examined the residential locations of primary school head teachers and junior secondary school principals. Living within the school community allows school leaders to better understand local challenges, learner needs and community dynamics. In all, 75 per cent of head teachers and 63 per cent of principals resided in the same community as their school. Encouraging community-based residency for school leaders may further enhance administrative efficiency, school-community integration and overall educational development.

Figure 4.37. Head teachers’ and principals’ residency within school communities

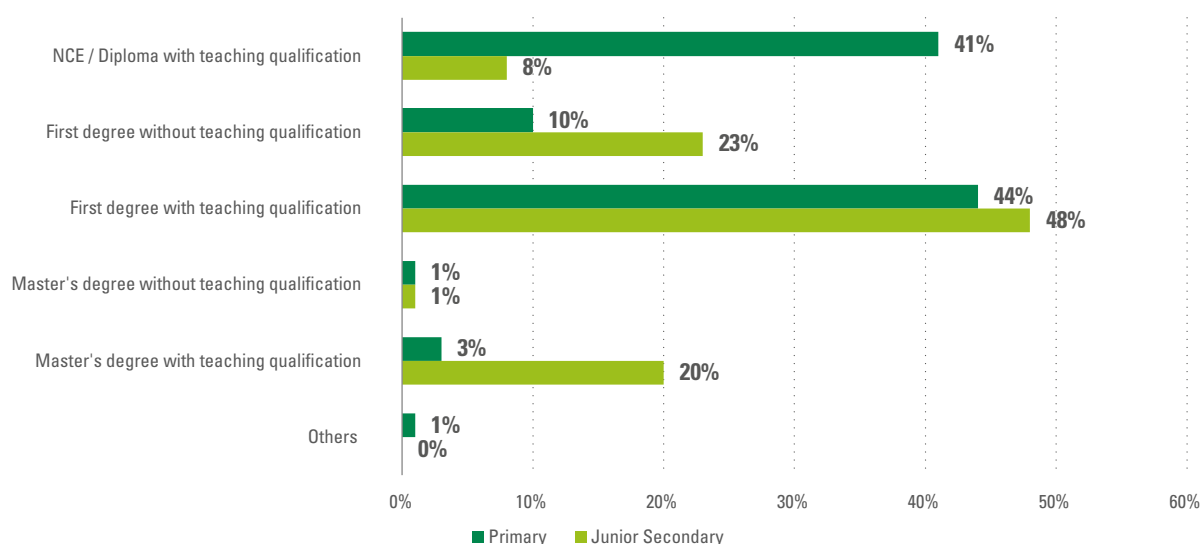


4.4.2 Head teachers' and Principals' education and teaching qualification

Head teachers and principals in Nigeria fulfil both administrative and instructional leadership roles, influencing school management and academic quality. The NALABE 2022 survey examined their highest education levels and teaching qualifications, revealing key differences between primary school head teachers and junior secondary school principals.

A total of 88 per cent of primary school head teachers held an NCE/diploma, first degree or master's degree with a teaching qualification, whereas 11 per cent did not possess professional teaching qualifications. At the junior secondary school level, 76 per cent of principals had an NCE, first degree or master's degree with a teaching qualification and 24 per cent lacked professional teaching qualifications. Junior secondary school principals were more likely to hold a master's degree (21 per cent of principals vs. 4 per cent of head teachers), while primary school head teachers were more likely to have an NCE or diploma (41 per cent of head teachers vs. 8 per cent of principals). These findings highlight variations in educational attainment and teaching qualification between school leaders, which may influence management styles, instructional leadership and professional development approaches.

Figure 4.38. Education level and teaching qualifications of school leaders



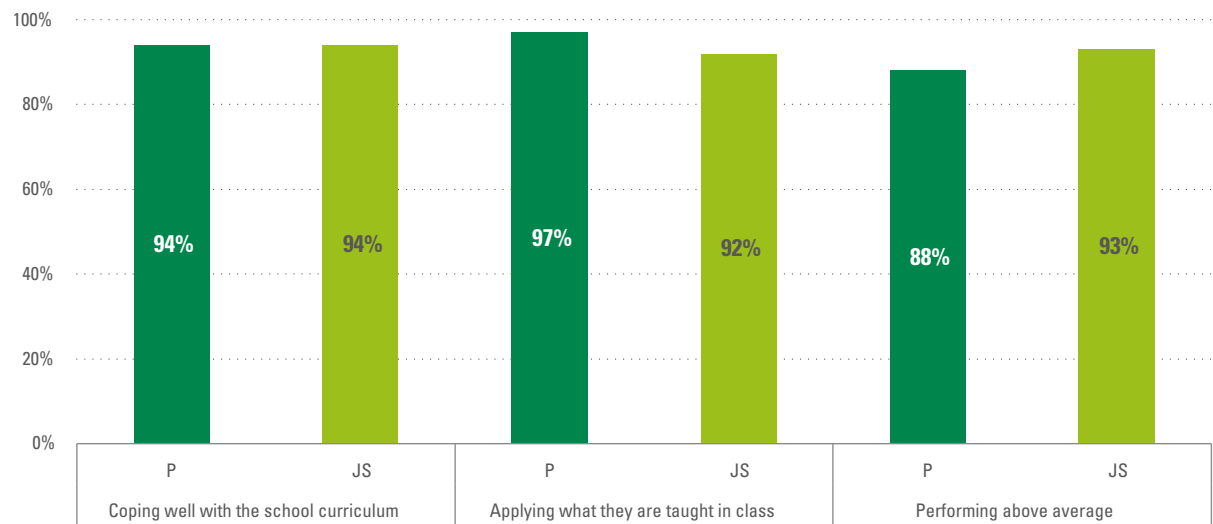
4.4.3 Head teachers' and principals' perception of learners' achievement

On the perception of learning achievements of the learners in their schools, an overwhelming majority of head teachers and principals expressed the view that their learners perform well in terms of their academic achievements. Given the academic performance assessed in NALABE 2022, this result clearly indicates that many head teachers and principals in Nigeria overestimate their learners' achievement.

Fully 94 per cent of head teachers and principals reported that learners in their school cope well with the school curriculum. The learning assessment in NALABE, however, showed that 50–86 per cent of learners did not meet the minimum proficiency in the core subjects. Similarly, over 90 per cent of head teachers and principals affirmed that learners can apply what they have learned in school, whereas the NALABE results indicated that learners in Nigeria did not perform relatively well in cognitively more complex items including application of knowledge. In addition, 88 per cent of head teachers and 93 per cent of principals had the view that learners in their school perform above the average, even though necessarily about 50 per cent of learners are below the average.

All these data points are evidence of optimism and the fact that school leaders are not aware of their learners’ competency level as per the curricular-based proficiency standards. This demonstrates the importance of conducting school-level assessments and sharing the results with school leaders.

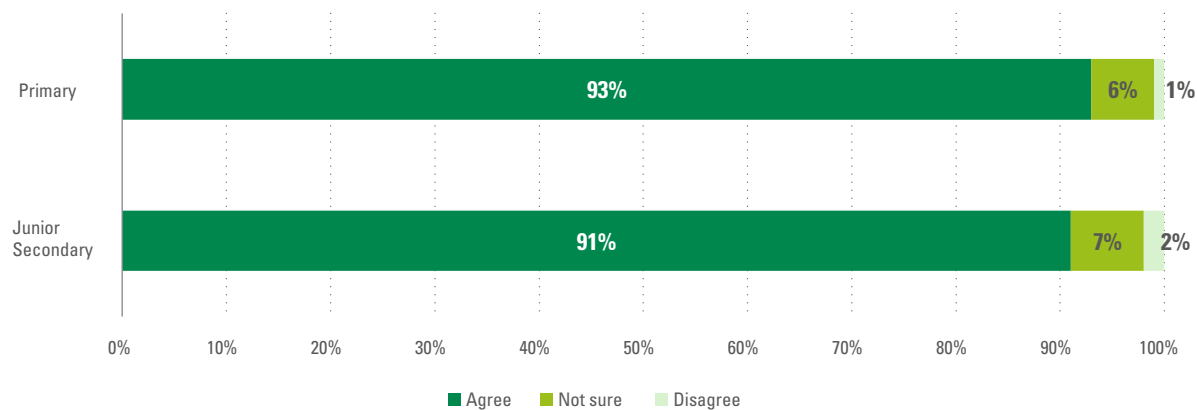
Figure 4.39. School leaders’ perception of their learners’ achievement



4.4.4 Head teachers’ and principals’ perception of teachers

As school managers and instructional leaders, head teachers and principals play a critical role in ensuring that teachers remain dedicated to teaching, learning activities and school administration. Findings from the NALABE 2022 survey highlighted their perceptions of teacher commitment. In all, 93 per cent of head teachers and 91 per cent of principals believed that teachers in their schools are committed to their roles. A small fraction of school leaders (1 per cent of head teachers and 2 per cent of principals) disagreed with the question regarding teachers’ commitment. By further fostering a supportive environment, school leaders can ensure that teachers remain engaged, motivated and effective in delivering quality education.

Figure 4.40. School leaders’ perception of teachers’ commitment

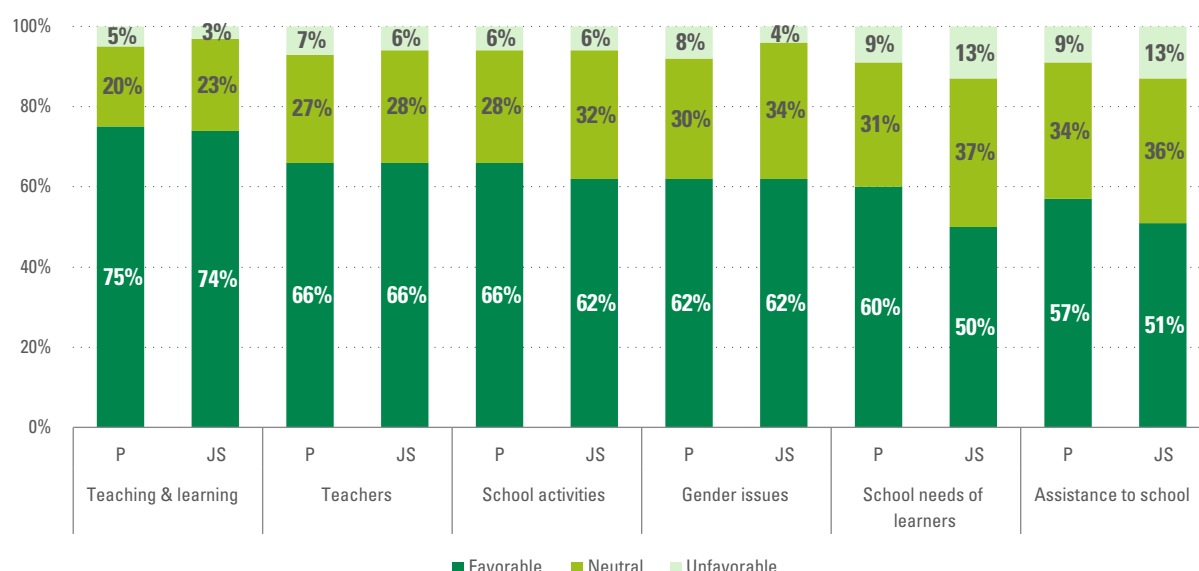


4.4.5 Head teachers' and principals' perception of community attitude

The attitude of the local community towards education plays a vital role in achieving school objectives. As key observers, head teachers and principals provide valuable insights into community perceptions and engagement.

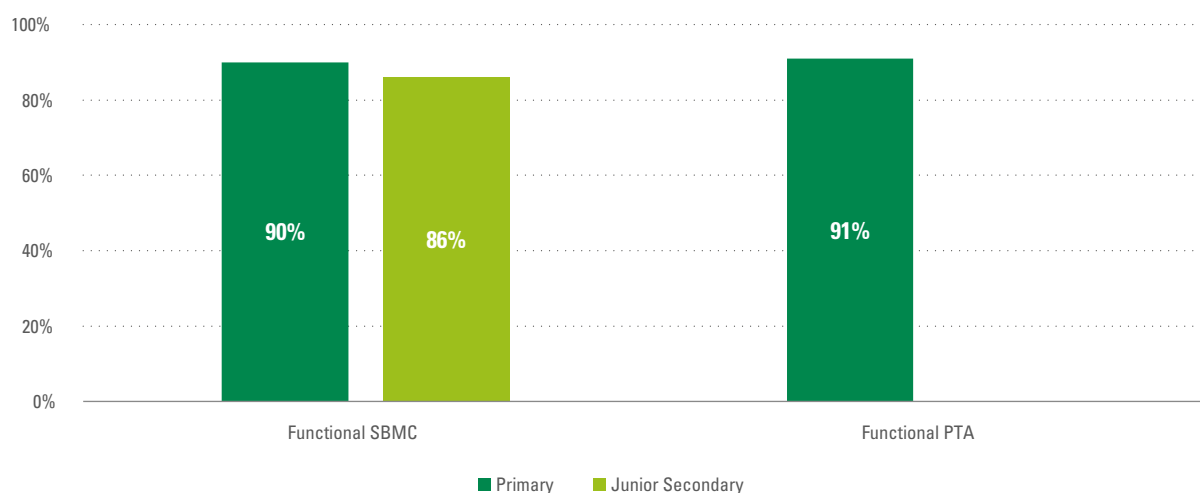
Findings from the NALABE 2022 survey presented both the positive attitudes and limitations in community involvement. About 75 per cent of school leaders reported that their communities have a favourable attitude towards teaching and learning in school, and 66 per cent considered the community's support for teachers and school activities to be positive. Fewer school leaders viewed community support for school needs as sufficient: 60 per cent of head teachers and 50 per cent of principals believed their communities adequately support learners' needs, and 57 per cent of head teachers and 51 per cent of principals reported positive community engagement in assisting their schools. While communities value education, their direct contributions to school operations and learner welfare might enhance learning environment in schools.

Figure 4.41. School leaders' perspectives on community engagement and support



4.4.6 Head teachers' and principals' perception of SBMC and PTA

SBMCs and PTAs represent collaborative frameworks within educational institutions, serving as foundations for community engagement and participatory school governance. Regarding SBMCs, a majority of school leaders (90 per cent of primary school head teachers and 86 per cent of junior secondary school principals) reported that their school has an operational SBMC. In addition, 91 per cent of primary school head teachers reported the existence of functional PTAs.⁶ These findings imply the prevalent role of SBMCs and PTAs in supporting community and parental collaboration for school management.

Figure 4.42. School leaders' perception of SBMC and PTA functionality

4.5 School resources

A chronic shortage of public funding for education affects resource availability in educational institutions. This section presents information on school resources, particularly regarding specialist teachers and school infrastructure, facilities and materials.

4.5.1 Instructional materials

Instructional materials are critical resources for teachers to plan and deliver quality teaching and learning activities in the classroom. Teachers develop their scheme of work by using syllabi, which are drawn from the national curriculum and the curriculum module. Figure 4.43 presents the availability, condition and adequacy of instructional materials for English studies. The results for other subjects are not presented because there exists little difference in this matter between the four core subjects.

A total of 71 per cent of primary schools had access to the national curriculum in English studies, while 64 per cent possessed the curriculum module. Among schools with these materials, 97 per cent actively used them in teaching, 94 per cent reported the materials were in good condition, but only 78–81 per cent considered them adequate for teachers' needs. Furthermore, 59 per cent of primary schools had syllabi in English studies, 98 per cent of which used them, yet only 81 per cent found the quantity sufficient. Additionally, 67 per cent of primary schools had a scheme of work for English studies, but 19 per cent found it insufficient to support teachers effectively.

The availability of instructional materials in junior secondary schools was significantly lower than in primary schools, with 35 per cent possessing the national curriculum, 30 per cent having the curriculum module, 34 per cent owning syllabi and 39 per cent having a scheme of work for English studies. Where these materials existed, 97–100 per cent of schools utilized them, and 93–96 per cent rated them in good condition. At the same time, 14–21 per cent of schools reported these materials as inadequate, reflecting a pressing gap in resources.

Figure 4.43. Availability, use, condition and adequacy of instructional materials for English studies

4.5.2 School facilities, equipment and services

Schools have different facilities and equipment as well as services to facilitate teaching and learning activities and promote well-being of learners. The NALABE 2022 survey examined the availability, use, condition and adequacy of school facilities, equipment and services in Nigeria.

More than half of primary schools had football fields (69 per cent), teachers' furniture (56 per cent), learners' furniture (64 per cent) and counselling services (68 per cent). Several facilities, however, were present in less than 40 per cent of primary schools, such as science laboratories (13 per cent), ICT facilities (26 per cent), gardens/farms (34 per cent), weather stations (8 per cent), auditoriums/halls (14 per cent), administration blocks (30 per cent) and clubs/societies (31 per cent). While 74–93 per cent of schools rated their facilities in good condition, a smaller number of schools reported that these facilities were not adequate (except for weather stations).

Junior secondary schools generally had better infrastructure except for learners' furniture and counselling services. Commonly available facilities included libraries (51 per cent), football fields (74 per cent), gardens/farms (60 per cent), staff rooms (73 per cent), teachers' furniture (60 per cent), administration blocks (54 per cent), counselling services (55 per cent) and clubs/societies (67 per cent). On the other hand, science laboratories (28 per cent) and maths rooms (35 per cent) remained underprovided and with limited opportunities. Though 72–86 per cent of schools rated their facilities in good condition, 28–45 per cent reported inadequacy, emphasizing the need for further improvements.

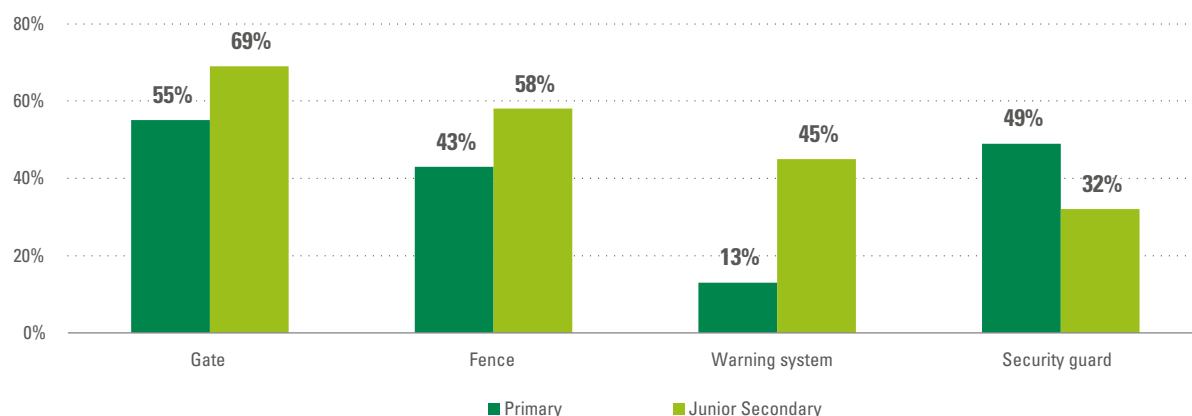
Table 4.2. School facilities, equipment and services

Facilities	Primary				Junior secondary			
	Available	Condition of available facilities			Available	Condition of available facilities		
		In use	Good condition	Adequate		In use	Good condition	Adequate
Science laboratory	13%	94%	88%	77%	28%	100%	76%	67%
Maths room	8%	94%	93%	88%	35%	100%	72%	55%
Library	39%	90%	80%	67%	51%	100%	75%	57%
ICT	26%	89%	86%	68%	38%	100%	80%	66%
Football field	69%	94%	84%	73%	74%	100%	82%	68%
Garden/farm	34%	90%	85%	74%	60%	100%	79%	61%
Weather station	8%	92%	91%	94%	27%	100%	77%	63%
Staff room	46%	96%	86%	70%	73%	100%	79%	60%
Teachers' furniture	56%	96%	81%	59%	60%	100%	79%	63%
Learners' furniture	64%	94%	79%	55%	39%	100%	78%	66%
Auditorium/hall	14%	92%	87%	79%	36%	100%	78%	67%
Admin block	30%	95%	89%	73%	54%	100%	78%	66%
Counselling service	68%	91%	74%	65%	55%	100%	79%	63%
Clubs/societies	31%	95%	89%	72%	67%	100%	86%	72%

4.5.3 Safe school facilities and practices

Ensuring the safety of learners within educational institutions is of paramount importance, and the physical infrastructure and risk mitigation measures play a crucial role in achieving this objective. Although decisions to invest in security are informed by potential security risks in local communities, the NALABE 2022 results indicate room for enhancement in certain aspects of security infrastructure and practices.

In terms of infrastructure, 55 per cent and 69 per cent of primary and junior secondary schools had a school gate. A smaller percentage of schools (43 per cent and 58 per cent of primary and junior secondary schools) had a perimeter fence. Junior secondary schools were more likely to have a gate and fence compared to primary schools. It is worth noting that a security warning system was in place in only 13 per cent of primary schools, compared to 45 per cent of junior secondary schools. In contrast, primary schools were more likely to employ a security guard (49 per cent) than junior secondary schools (32 per cent).

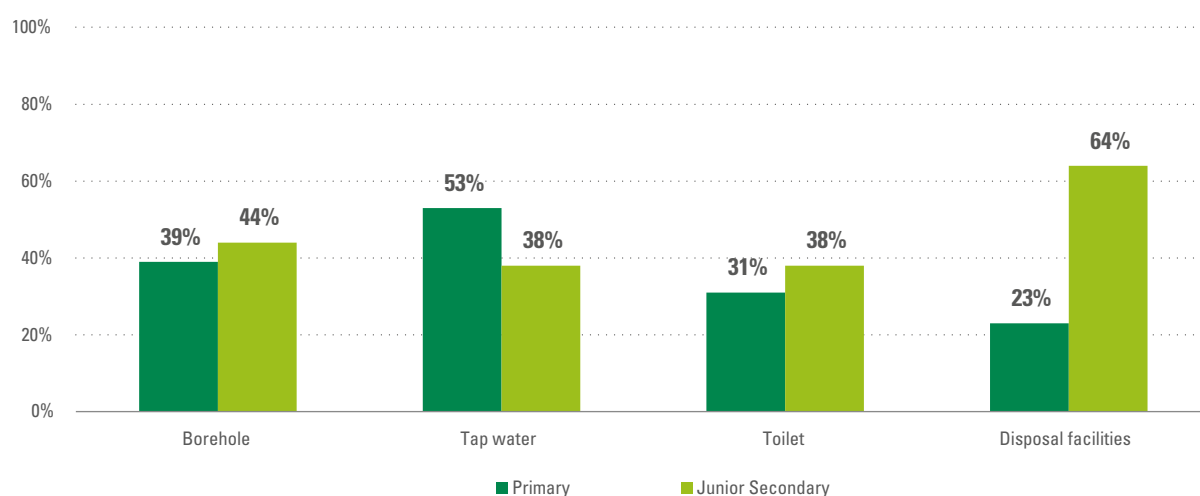
Figure 4.44. Safety measures in school facilities and operations

4.5.4 WASH facilities

Physical well-being is a precondition for quality learning. In primary and junior secondary schools across Nigeria, the provision of WASH facilities is a critical factor for a safe and healthy learning environment.

According to the NALABE 2022 survey, a borehole was available in 39 per cent and 44 per cent of primary and junior secondary schools. Disparities emerged in tap water access, however, with 53 per cent of primary schools having access to tap water compared to 38 per cent of junior secondary schools. The survey also revealed that only 31 per cent and 38 per cent of primary and junior secondary school were equipped with toilets. In addition, disposal facilities were available in only 23 per cent of primary schools compared to 64 per cent of junior secondary schools.

While water and sanitation infrastructure existed in some schools, widespread deficiencies highlight the need for targeted improvements in WASH provisions. Strengthening government policies, funding initiatives and community support is crucial for ensuring safe and hygienic learning environments for all learners.

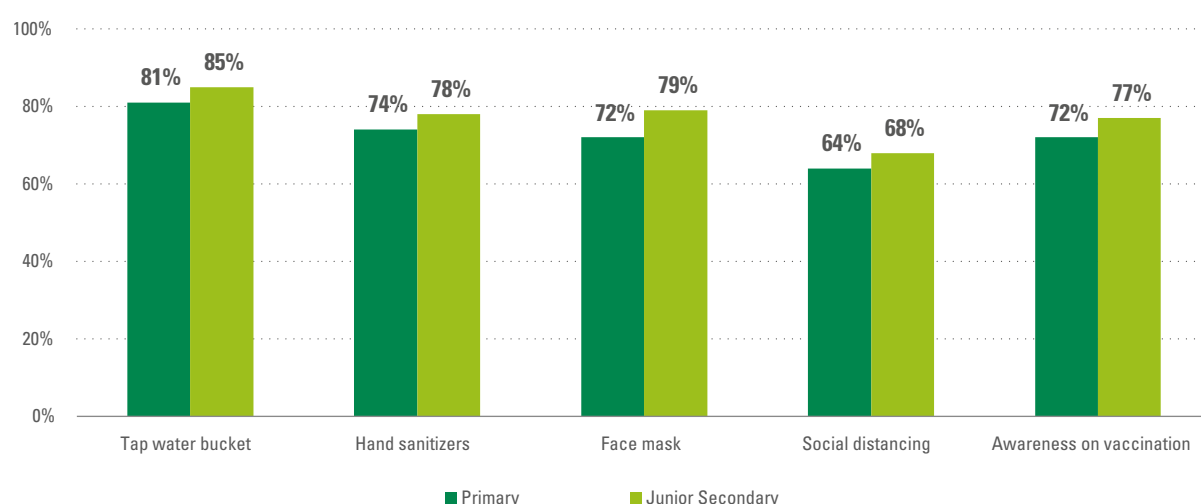
Figure 4.45. WASH facilities in schools

4.5.5 COVID-19 measures

The global outbreak of the COVID-19 pandemic has prompted the implementation of comprehensive prevention measures in educational institutions to ensure the safety and well-being of learners, teachers and other staff. The NALABE 2022 results demonstrated that schools in Nigeria adopted various measures to respond to the challenges posed by the pandemic.

Use of tap water buckets was a more pronounced measure taken in 81 per cent and 85 per cent of primary and junior secondary schools. Additionally, 72–79 per cent of schools used hand sanitizers and implemented use of face masks, while social distancing was practiced in 64 per cent of primary schools and 68 per cent of junior secondary schools. A majority of schools (72 per cent of primary schools and 77 per cent of junior secondary schools) also promoted learner and staff awareness of vaccination. Junior secondary schools were slightly more likely to implement these measures than primary schools. These findings underscore that, as the epicentre of learning and community engagement, schools have been at the forefront of adopting diverse COVID-19 measures, with room for expanding these good practices across the country.

Figure 4.46. COVID-19 measures in schools



4.5.6 School sport facilities

The significance of sport in the educational landscape extends far beyond physical activity; it encompasses the holistic development of learners, fostering teamwork, discipline and overall well-being. Central to this is the role of school sport facilities, which serve as the foundational arenas for cultivating a culture of athleticism and healthy competition among learners. The NALABE 2022 survey examined the diverse landscape of school sport facilities in primary schools.

Football fields were the most widely available, found in 64 per cent of primary schools and 45 per cent of junior secondary schools. Athletics facilities existed in 23 per cent of primary schools and 22 per cent of junior secondary schools. Track and field facilities were found in 19 per cent of primary schools and in 28 per cent of junior secondary schools. Other sport facilities were limited, with availability ranging from 2–15 per cent of primary schools and 6–15 per cent of junior secondary schools. Most available facilities were in good condition, although 10–17 per cent of schools reported their sport facilities as being in poor condition. Additionally, 4–19 per cent of schools indicated that their sport facilities were insufficient to meet learner needs. While many schools have some basic sport facilities, gaps in availability, condition and adequacy highlight the need for continued investment and improvement.

Table 4.3. School sport facilities

Facilities	Primary				Junior secondary			
	Available	Condition of available facilities			Available	Condition of available facilities		
		In use	Good condition	Adequate		In use	Good condition	Adequate
Athletics	23%	92%	89%	74%	22%	99%	89%	74%
Football	64%	93%	85%	68%	45%	95%	86%	73%
Handball	15%	91%	90%	65%	14%	91%	86%	69%
Lawn tennis	4%	90%	90%	81%	28%	87%	86%	72%
Table tennis	11%	88%	87%	71%	15%	95%	87%	75%
Basketball/netball	10%	88%	87%	76%	9%	86%	87%	73%
Volleyball	14%	85%	84%	65%	16%	94%	82%	71%
Ladder	8%	92%	89%	75%	6%	89%	87%	92%
Swing	15%	89%	81%	64%	15%	91%	78%	71%
See-saw	12%	90%	87%	68%	11%	74%	78%	62%
Slide	15%	89%	82%	65%	14%	96%	88%	72%
Merry-go-round	15%	86%	83%	69%	43%	96%	78%	66%
Swimming pool	2%	89%	96%	89%	6%	96%	98%	71%
Track and field	19%	91%	88%	74%	28%	88%	80%	64%

Chapter 5. **Factors associated** **with learners'** **performance**

5





In this chapter, we examine how learning achievement is associated with non-cognitive factors in order to shed light on learning environments and policies that may affect learning outcomes. First, we explore the characteristics and learning environments of low-performing schools and high-performing schools. Second, we investigate the outcomes of multiple regression analyses conducted to examine how school, teacher, learner and parent characteristics are uniquely associated with learning achievement.

5.1 Background factors in high- and low-performing schools

In this section, we explore the contextual factors that distinguish high-performing and low-performing school, using the non-cognitive data collected from school leaders, teachers, learners and parents. The following steps were carried out:

- ▶ The overall school performance scores were calculated by aggregating percentages of proficient learners (those in levels 3 and 4) based on the assessments that were administered in each school. For primary schools, these assessments include mathematics and English studies in P3 and P5, and basic science and technology and social studies in P5. For junior secondary schools, the assessments covered mathematics, English studies, basic science and technology, and social studies in JS2.
- ▶ Schools were identified that fell under the top 25 per cent and bottom 25 per cent in the overall score distribution.
- ▶ Using the contrasting groups approach, high-performing schools were compared with low-performing schools across the contextual factors.

The results must be interpreted with the following limitations:

- ▶ The labels 'high-performing' and 'low-performing' are relative to the ranking of schools, indicating that they ranked in either the highest or lowest 25 per cent of schools among the schools included in the NALABE sample.
- ▶ The top 25 per cent of schools included a larger number of private schools than did the bottom 25 per cent schools. Therefore, the distinctions between high-performing and low-performing schools are likely to reflect differences in learning environment between public and private schools to some extent.
- ▶ The findings reported here indicate the associations between learner academic performance and background factors. As the nature of the relationships reported here is correlational, these findings do not provide causal attribution.
- ▶ The information on and ratings of background factors could be subjective, as they were given by respondents who live and work within the assessed contexts.

Key findings

- ▶ **Teaching-learning materials (TLMs):** The contextual features that distinguished the high-performing and low-performing schools the most at the junior secondary level were the adequacy, condition and usage of TLMs, whereas at the primary level the most differentiating factor was the availability of these TLMs.
- ▶ **School facilities:** The next highly distinctive characteristics at the junior secondary level were the condition and adequacy of school facilities (e.g., science laboratory, learner furniture, mathematics room, library), whereas at the primary level the most distinctive features were the availability, adequacy, condition and usage of select facilities and services (e.g., counselling services, science laboratory, mathematics room, staff room).

- ▶ **WASH facilities and COVID-19 compliance:** At the junior secondary level, high-performing schools were distinguished by better condition, usage and availability of WASH facilities (e.g., tap water, borehole, toilets) and higher COVID-19 compliance (e.g., social distancing, awareness of vaccination, hand sanitizers, face masks), whereas at the primary level fewer aspects of WASH facilities emerged to distinguish high-performing schools.
- ▶ **School safety environment:** High-performing schools were characterized by better condition, adequacy and availability of safety features (e.g., school gate, perimeter fence, warning system, school security guard).
- ▶ **Community support:** At the primary level, high-performing schools reported higher rates of community support in security, writing materials and equipment. High-performing schools at the junior secondary level had more SBMC and PTA meetings.
- ▶ **Teacher professional development:** High-performing schools at the junior secondary level were more likely to report a large impact from various teacher professional development activities (e.g., training on classroom management, improvisation of instructional materials, TaRL, school safety and PSS, teaching subject methods, guidance and counselling). At the primary level, however, this was observed only for Jolly Phonics and World Bank/UBE training.
- ▶ **Teacher qualifications and experience:** Educated teachers with teaching qualification (e.g., first degree/ HND with teaching qualification) was a distinctive feature of high-performing junior secondary schools. Teaching experience also distinguished high-performing schools (specifically, 3–5 years at the primary level and 6–10 years at the junior secondary level).
- ▶ **Teaching methods and technology:** High-performing schools at the junior secondary level were distinguished by the use of some teaching methods (e.g., facilitate work in small groups, grouping learners based on their abilities, working with learners individually, customizing tasks to learner's ability, using periodical assessments, encouraging learners to suggest activities, reviewing homework together with learners, using discussions) as well as utilizing technology (e.g., projector, computer). Just a few of these features were distinctive at the primary level.
- ▶ **Language of instruction:** Using English only or English combined with a local language was a distinctive feature of high-performing schools.
- ▶ **Parent socio-economic Status (SES):** A distinctive feature of high-performing schools was a higher parental socio-economic status (e.g., household monthly income above NGN 30,000, living in a flat, employed by government, providing transportation to school and money to a child, child having two or three sets of uniforms, child eating three times a day, child having access to technology).
- ▶ **Parental support:** High-performing schools at the junior secondary level were distinguished by higher rates of parents being aware of child's academic performance, using commendation when child achieves, spending a lot of time weekly supporting child's learning and ensuring that child goes to school. These trends were not observed in primary schools.
- ▶ **Learner's use of ICT:** Distinctive features of high-performing schools at the junior secondary level were rates of using ICT (e.g., usage of cell phone/GSM, frequent usage of internet, usage of internet for learning about new things and school subjects, frequent usage of tablets or computers, frequent usage of email, usage of computer at home). The trend was not observed at the primary school level.

The graphs in the next sections present the profiles of background factors for high- and low-performing schools (conveniently called 'hi-lo profiles'), with green lines marking high-performing schools and red lines for low-performing schools. The graphs show the factors with a difference of at least 6 percentage points between high- and low-performing schools. The factors are ordered based on the size and direction of the difference

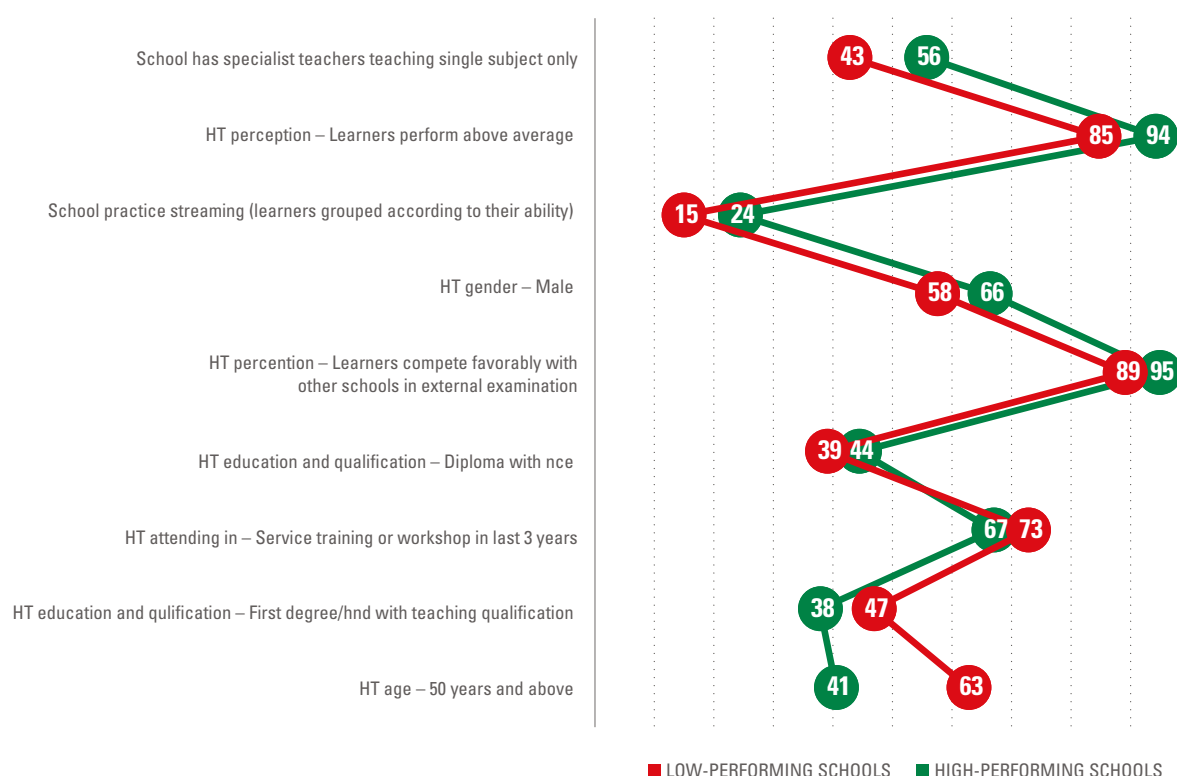
5.1.1 School and head teacher characteristics in high- and low-performing primary schools

Head teacher characteristics, practices and perceptions

Figure 5.1 presents the percentage of high-performing primary schools (coloured in green) and low-performing primary schools (coloured in red) that had the specified head teacher or school profile. For instance, head teachers in high-performing primary schools were more likely to be male (66 per cent in high-performing schools vs. 58 per cent in low-performing schools) and have a diploma with NCE (44 per cent vs. 39 per cent). Head teachers in high-performing schools also tended to perceive that learners in their school perform above average (94 per cent vs. 85 per cent) compared to those in low-performing schools. Concerning school practice, high-performing primary schools were more likely to have specialist teachers who teach a single subject (56 per cent in high-performing schools vs. 43 per cent in low-performing schools) and practice 'streaming' by grouping learners by their ability (24 per cent vs. 15 per cent).

On the other hand, low-performing primary schools were more likely to have a head teacher in the age group of 50 and above (63 per cent in low-performing schools vs. 41 per cent in high-performing schools). Head teachers in low-performing primary schools were also more likely to take in-service training in the last three years than those in high-performing primary schools. This may reflect a need for capacity building of head teachers in low-performing contexts.

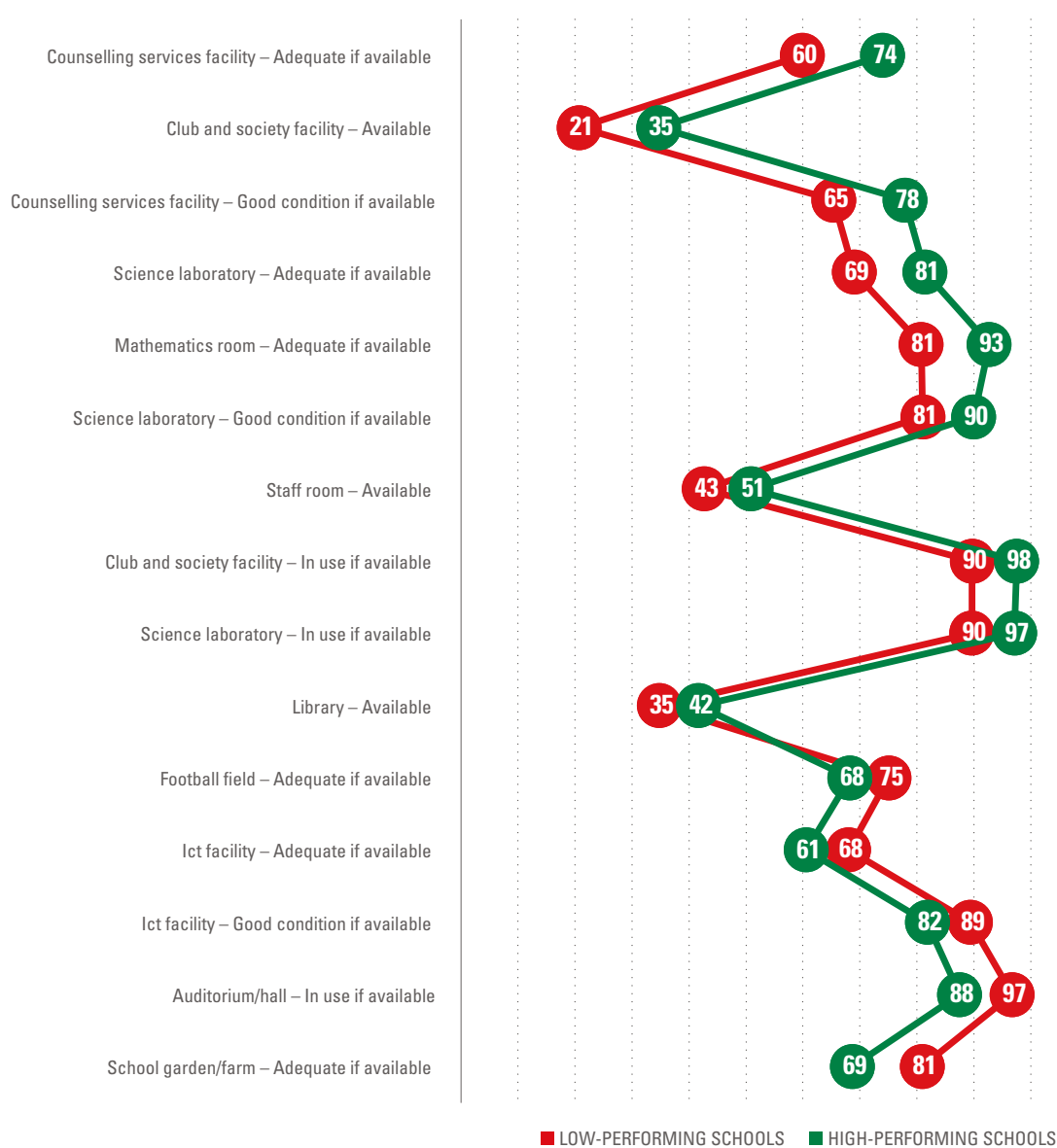
Figure 5.1. Head teacher characteristics, practices and perceptions in high-/low-performing primary schools



School facilities and services

The profile of school facilities and services in high-performing primary schools was differentiated from that in low-performing primary schools. For example, adequacy of counselling services (74 per cent in high-performing schools vs. 60 per cent in low-performing schools) and its service quality (78 per cent vs. 65 per cent) distinguished high-performing primary schools when such services were available. Also, high-performing primary schools were distinguished by the availability of club and society facilities (35 per cent vs. 21 per cent), as well as the adequacy and condition of the science laboratory (when available). Other remarkable background factors favouring high-performing primary schools included the availability of a staff room and library.

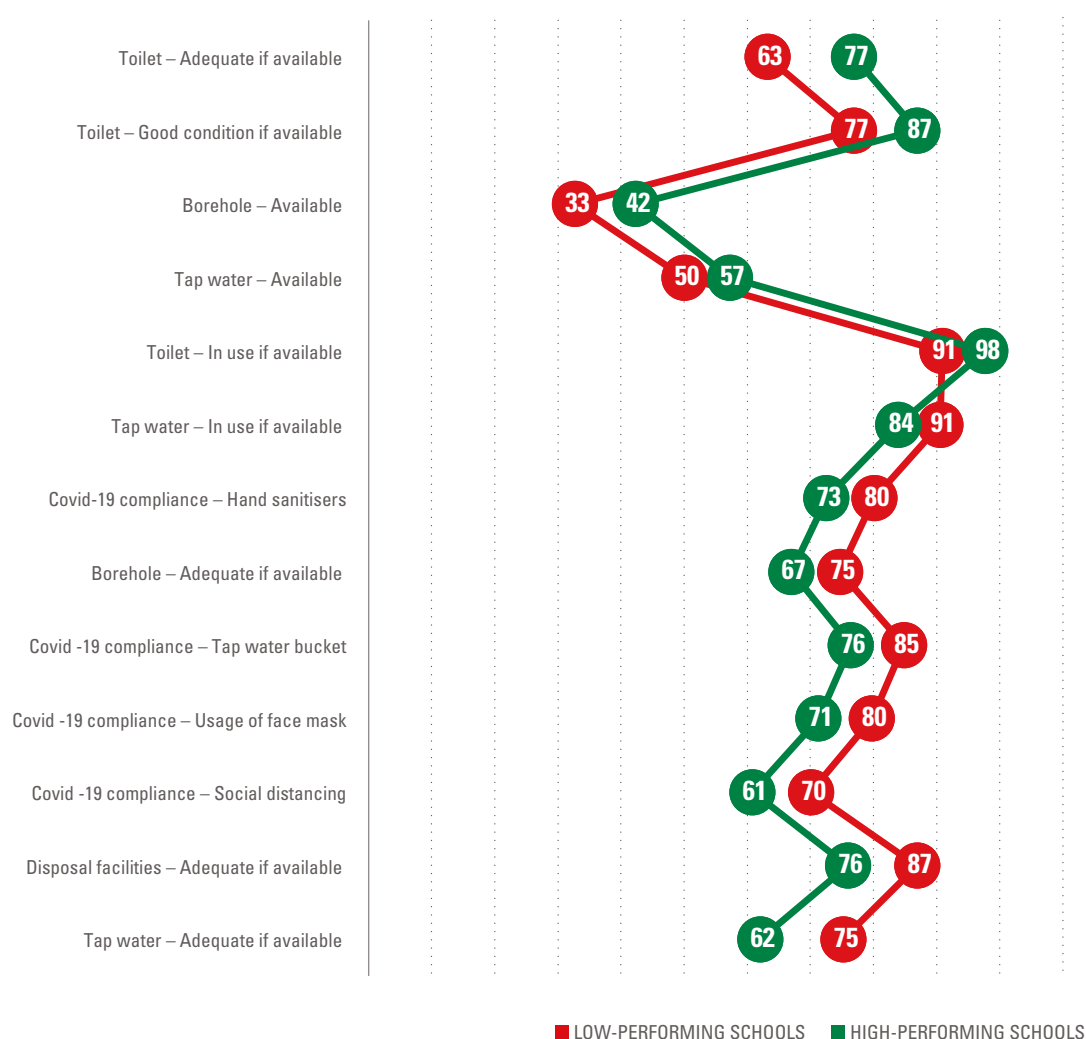
Figure 5.2. School facilities and services in high-/low-performing primary schools



WASH facilities and COVID-19 measures

WASH facilities and COVID-19 measures also distinguished high- and low-performing primary schools. For example, high-performing schools were distinct from low-performing schools in adequacy (77 per cent in high-performing schools vs. 63 per cent low-performing schools) and condition (87 per cent vs. 77 per cent) of toilets (when available). Other background factors significantly favouring high-performing primary schools included availability of a borehole and/or tap water. On the other hand, low-performing primary schools were distinguished by the adequacy of tap water, disposal facilities and borehole as well as multiple aspects of compliance with COVID-19 regulations.

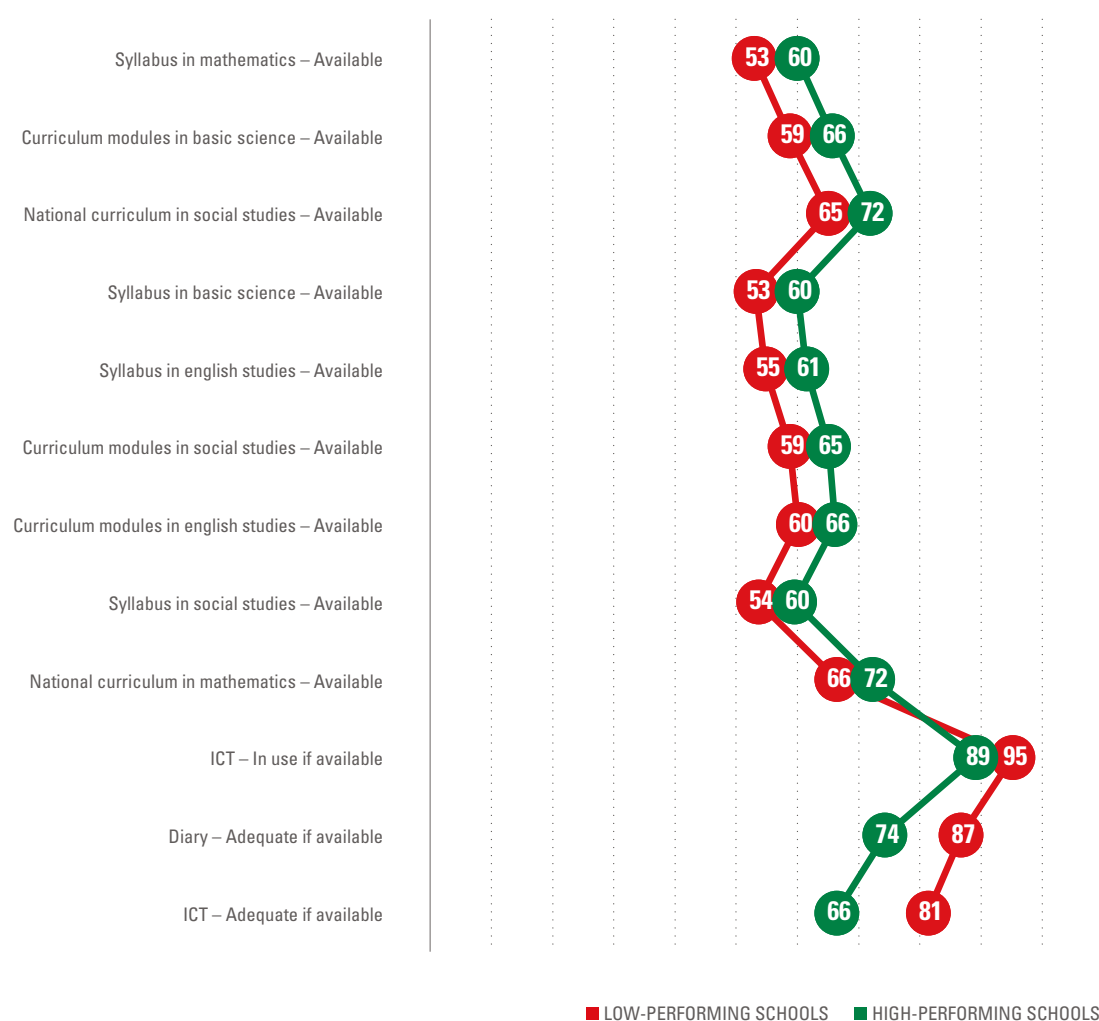
Figure 5.3. WASH facilities and COVID-19 measures in high-/low-performing primary schools



Teaching-learning materials

High-performing primary schools were more likely to have several TLMs compared to low-performing primary schools. These included the availability of syllabi in mathematics (60 per cent in high-performing schools vs. 53 per cent in low-performing schools), curriculum modules in basic science and technology (66 per cent vs. 59 per cent), national curriculum in social studies (72 per cent vs. 65 per cent) and syllabi in basic science and technology (60 per cent vs. 53 per cent). The same pattern was observed with syllabi in English studies, curriculum modules in social studies and national curriculum in mathematics. Interestingly, when ICT was available, low-performing primary schools were more likely to use ICT than high-performing primary schools (95 per cent in low-performing schools vs. 89 per cent in high-performing schools).

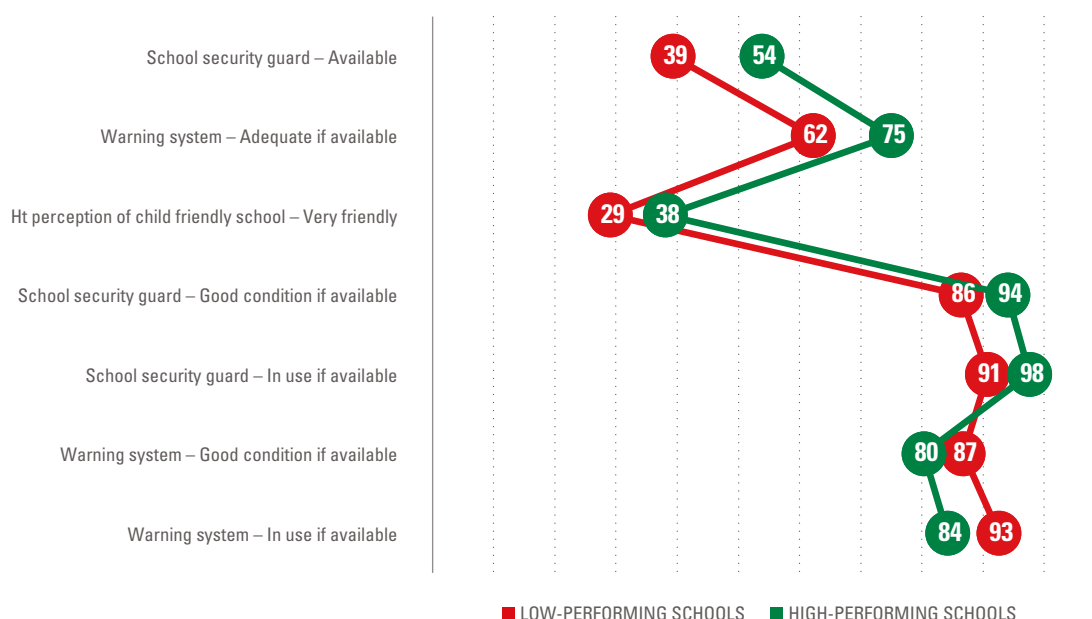
Figure 5.4. Teaching and learning materials in high-/low-performing primary schools



Safe school facilities and practices

High-performance primary schools were distinguished by several safe school facilities and practices. These included the availability of a school security guard (54 per cent vs. 39 per cent) and the adequacy of the early warning system (when available) (75 per cent in high-performing schools vs. 62 per cent in low-performing schools). On the other hand, low-performing primary schools were more likely to use the warning system than high-performing primary schools, when such a system is available. Head teachers in high-performing primary schools were also more likely to perceive that their school is very child friendly compared to those in low-performing primary schools.

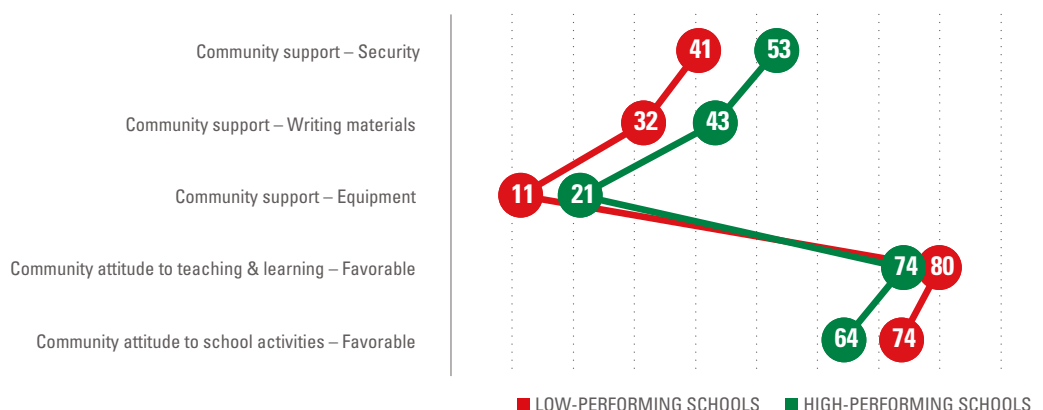
Figure 5.5. Safe school facilities and practices in high-/low-performing primary schools



Community support

High-performing primary schools were more likely to receive community support for school security (53 per cent in high-performing schools vs. 41 per cent in low-performing schools) as well as provision of writing materials (43 per cent vs. 32 per cent) and equipment (21 per cent vs. 11 per cent). Interestingly, despite the lower chance of receiving community support, head teachers in low-performing schools were more likely to find community attitude towards teaching, learning and school activities favourable.

Figure 5.6. Community support in high-/low-performing primary schools

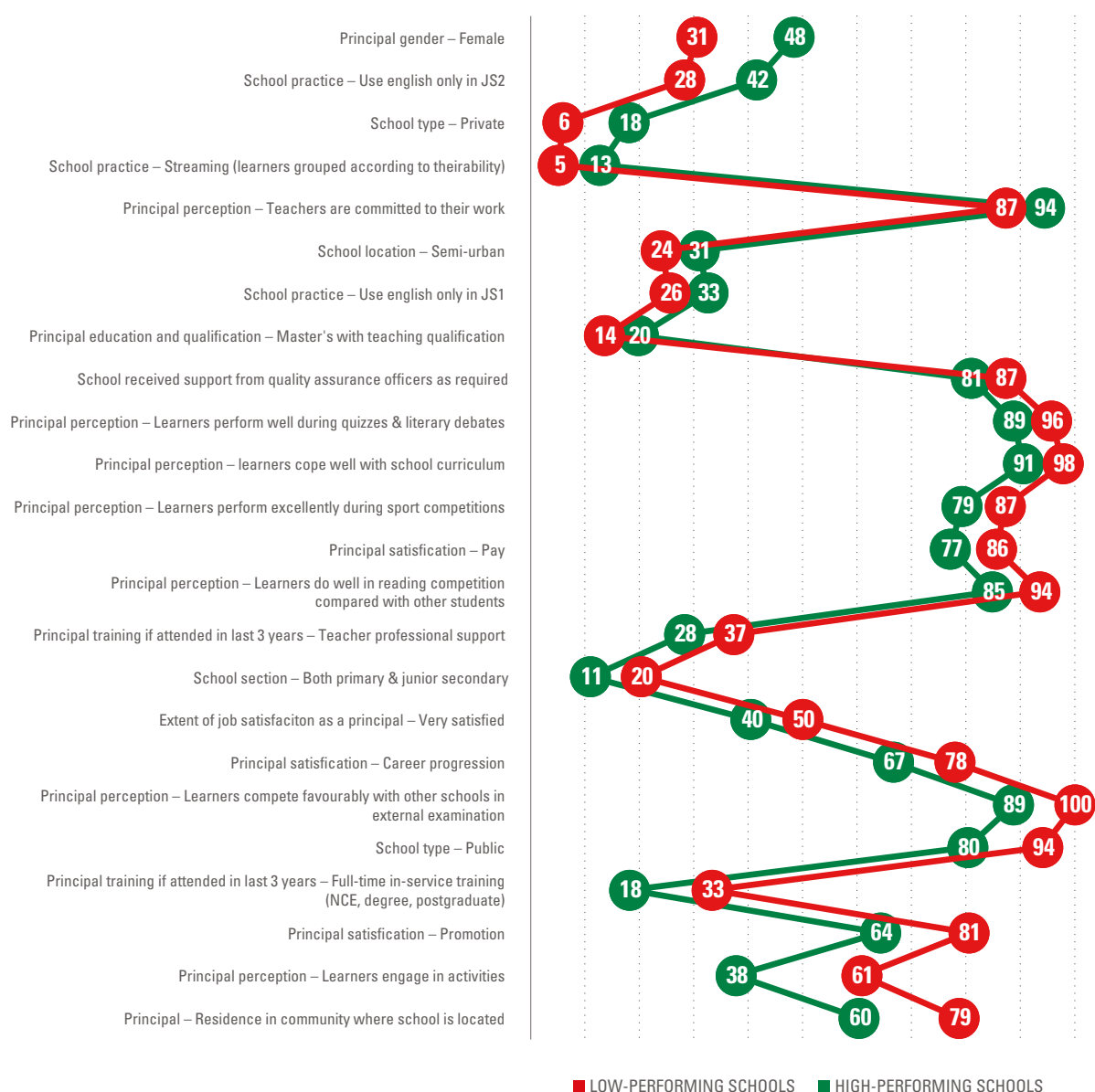


5.1.2 School and principal characteristics in high- and low-performing junior secondary schools

Principal characteristics, practices and perceptions

A number of principals' characteristics, practices and perceptions distinguished high-performing and low-performing junior secondary schools. For instance, high-performing junior secondary schools were more likely to have female principals (48 per cent in high-performing schools vs. 31 per cent in low-performing schools), have a principal who earned a master's degree with teaching qualification (20 per cent vs. 14 per cent), use English only for instruction in JS1 and JS2, and have a principal who perceives the teachers as being committed to their teaching jobs (94 per cent vs. 87 per cent). On the other hand, low-performing junior secondary schools were more likely to have both primary and secondary sections in the same premises (20 per cent in low-performing schools vs. 11 per cent in high-performing schools) and receive professional support from quality assurance officers (87 per cent vs. 81 per cent). Principals of these low-performing schools were also more likely to consider that their learners cope well with the curriculum (98 per cent vs. 91 per cent).

Figure 5.7. Principal characteristics, practices and perceptions in high-/low-performing junior secondary schools

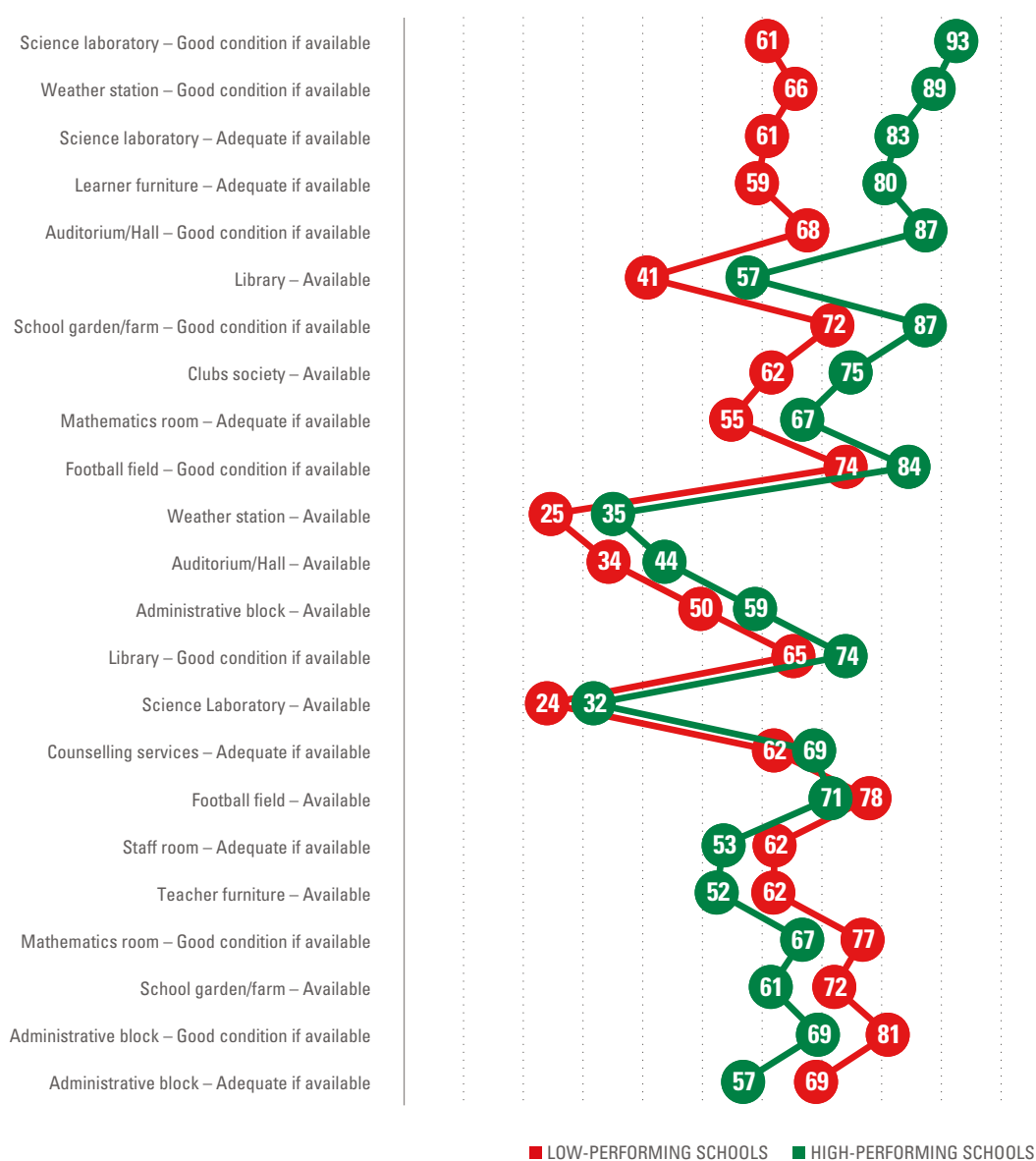


School facilities and services

High-performing junior secondary schools were distinguished from low-performing junior secondary schools by the availability of several different school facilities and services. For instance, high-performing schools were more likely to have a library (57 per cent in high-performing schools vs. 41 per cent in low-performing schools), club society (75 per cent vs. 62 per cent), administrative block (59 per cent vs. 50 per cent) and science laboratory (32 per cent vs. 24 per cent).

The adequacy and condition of some facilities also emerged as factors differentiating high-performing schools from low-performing schools. These included the condition of science laboratories (93 per cent in high-performing schools vs. 61 per cent in low-performing schools), adequacy of science laboratories (83 per cent vs. 61 per cent) and adequacy of learners' furniture (80 per cent vs. 59 per cent), when these facilities were available.

Figure 5.8. School facilities and services in high-/low-performing junior secondary schools



WASH facilities and COVID-19 measures

WASH facilities and COVID-19 measures also distinguished high- and low-performing junior secondary schools. For instance, high-performing junior secondary schools had higher rates of implementing COVID-19 measures such as social distancing (76 per cent in high-performing schools vs. 59 per cent in low-performing schools), awareness of vaccination (82 per cent vs. 65 per cent) and hand sanitizers (82 per cent, vs. 72 per cent). High-performing schools were also distinguished by the availability of disposal facilities (71 per cent vs. 59 per cent). Additionally, the condition of WASH facilities was another distinction of high-performing junior secondary schools, including good condition of tap water (98 per cent vs. 78 per cent) and borehole (95 per cent vs. 80 per cent).

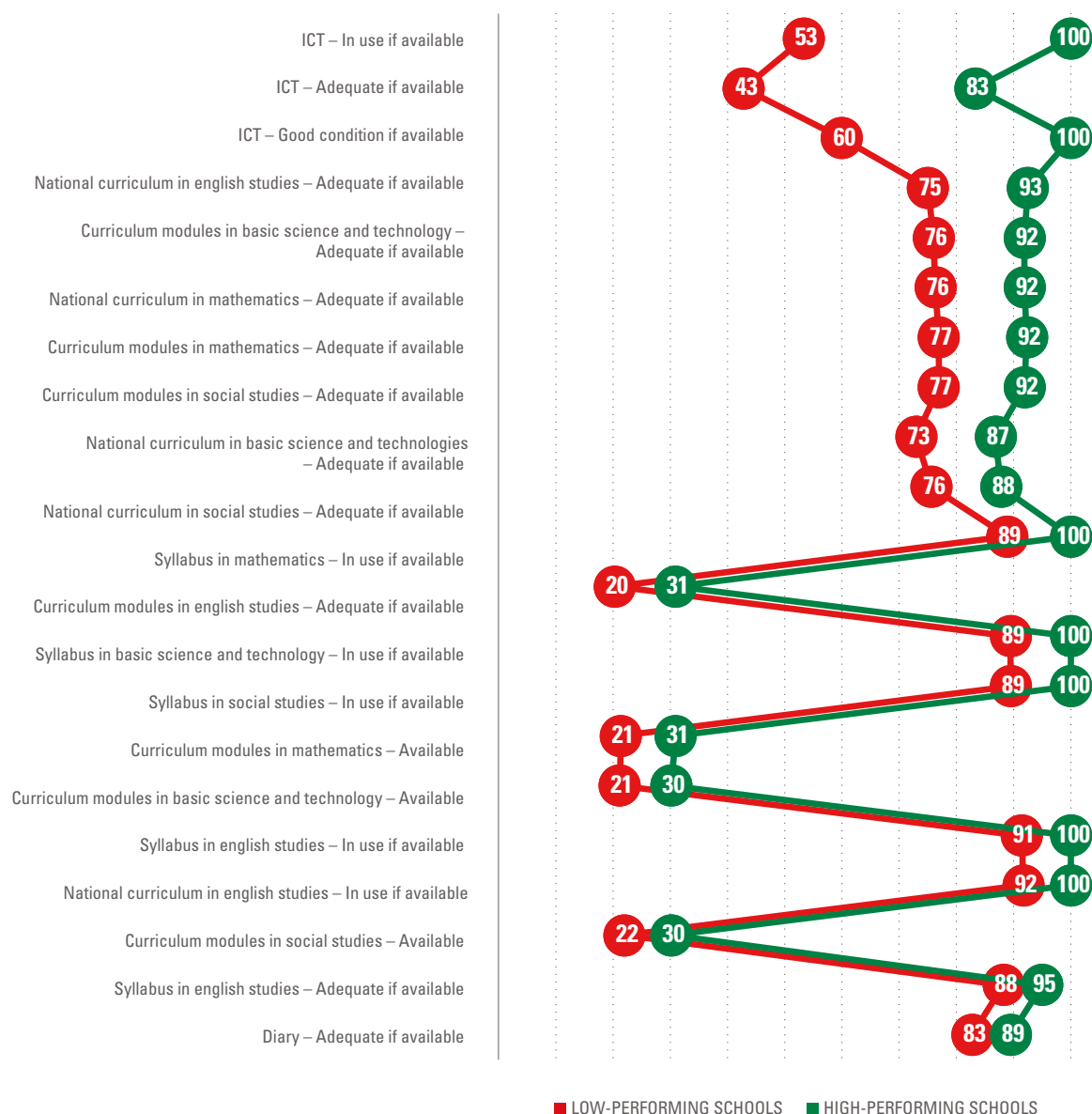
Figure 5.9. WASH facilities and COVID-19 measures in high-/low-performing junior secondary schools



Teaching-learning materials

Availability, adequacy and use of TLMs also distinguished high-performing and low-performing junior secondary schools. For instance, high-performing junior secondary schools were more likely to own curriculum modules in mathematics, English studies, basic science and technology, and social studies compared to low-performing junior secondary schools. The adequacy of national curriculum and curriculum modules, however, emerged as factors that more clearly distinguished high-performing from low-performing schools when the curriculum and modules were available. Use of syllabi was another dimension that distinguished high-performing schools from low-performing schools. The largest difference between high- and low-performing junior secondary schools was identified in the adequacy, condition and use of ICT when available. For instance, almost all high-performing schools reported use of ICT while only 53 per cent of low-performing schools used ICT when available.

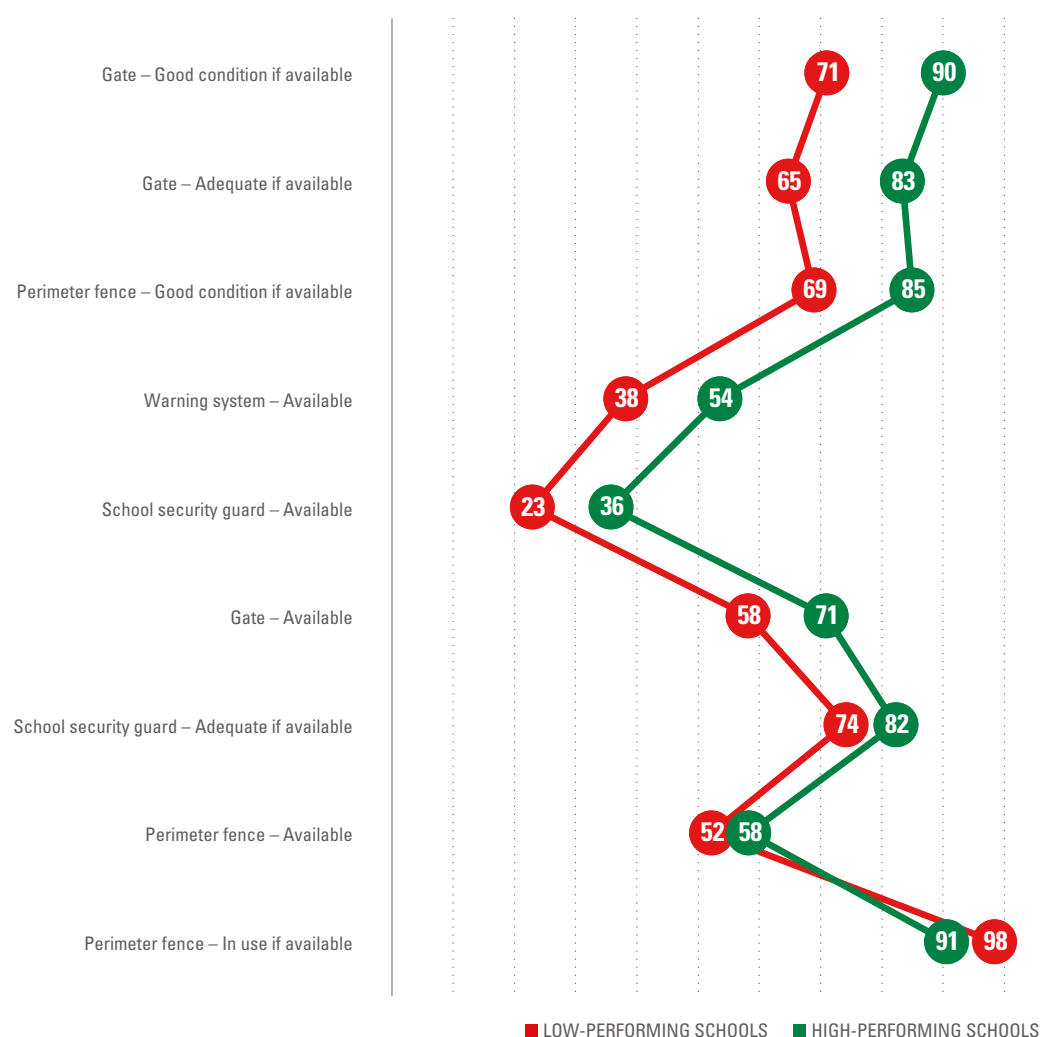
Figure 5.10. Teaching and learning materials in high-/low-performing junior secondary schools



Safe school facilities and practices

High-performing junior secondary schools were more likely to have safe school facilities than low-performing junior secondary schools. These included the availability of a warning system (54 per cent in high-performing schools vs. 38 per cent in low-performing schools), security guard (36 per cent vs. 23 per cent) and school gate (71 per cent vs. 58 per cent). When safe school facilities were available, their condition and adequacy also emerged as key distinctions of high-performing schools, such as condition of school gate (90 per cent vs. 71 per cent) and perimeter fence (85 per cent vs. 69 per cent), and adequacy of school gate (83 per cent vs. 65 per cent) and security guard (82 per cent vs. 74 per cent).

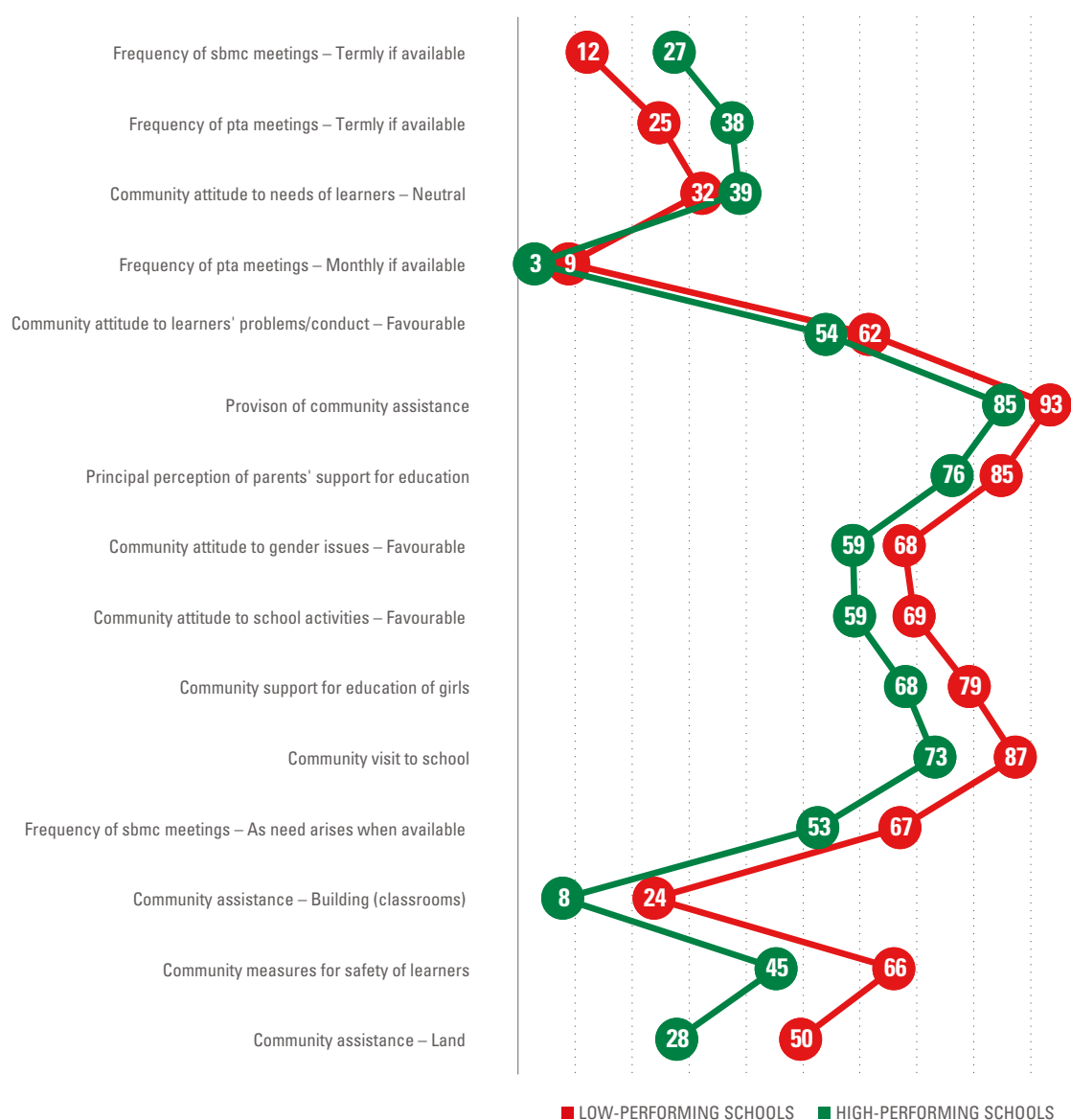
Figure 5.11. Safe school facilities and practices in high-/low-performing junior secondary schools



Community support

The results indicated that low-performing junior secondary schools were more likely to have favourable community support and attitude compared to high-performing junior secondary schools in several aspects. These included favourable community attitude to learners' problems and conduct (62 per cent in low-performing schools vs. 54 per cent in high-performing schools), community assistance to school (93 per cent vs. 85 per cent), community's favourable attitude towards school activities (69 per cent vs. 59 per cent) and community support for girls' education (79 per cent vs. 68 per cent). On the other hand, high-performing junior secondary schools were more likely than low-performing junior secondary schools to organize SBMC and PTA meetings on a termly basis.

Figure 5.12. Community support in high-/low-performing junior secondary schools

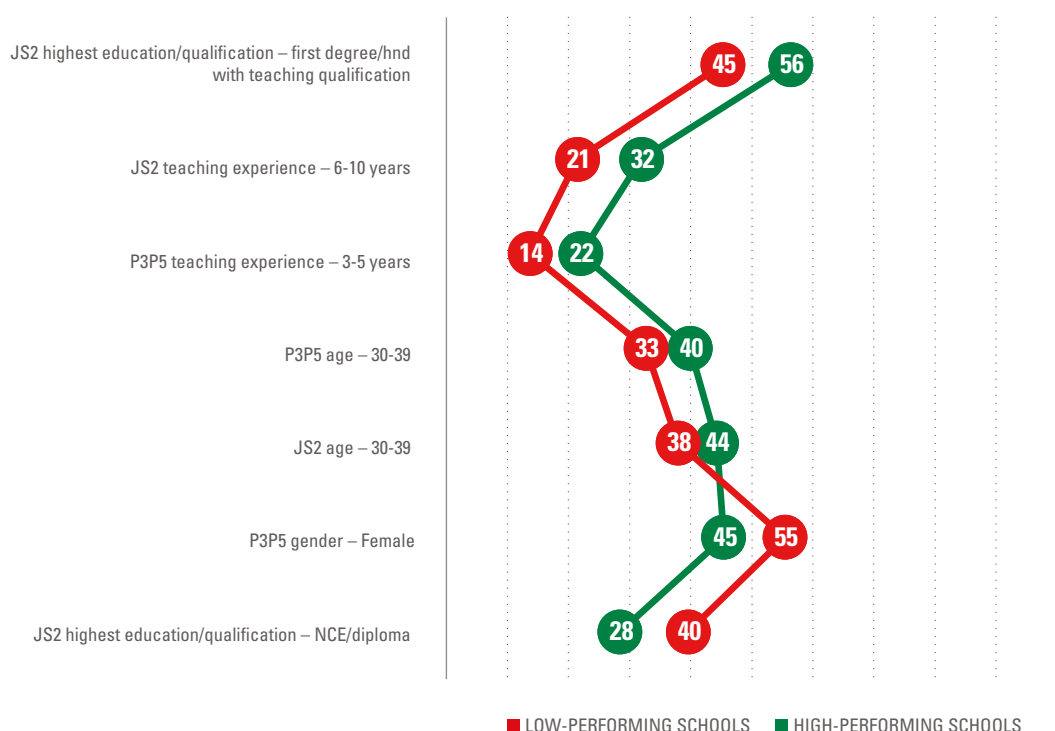


5.1.3 Teacher characteristics in high- and low-performing primary and junior secondary schools

Teacher demographics, education, qualification and experience

High-performing schools were distinguished from low-performing schools by teachers' demographic characteristics and their education and qualifications. For instance, high-performing junior secondary schools were more likely than low-performing junior secondary schools to have teachers with first degree/HND and teaching qualification (56 per cent vs. 45 per cent) and 6–10 years of teaching experience (32 per cent vs. 21 per cent). On the other hand, low-performing primary schools were more likely to have female teachers, and low-performing junior secondary schools were more likely to have teachers with NCE/diploma.

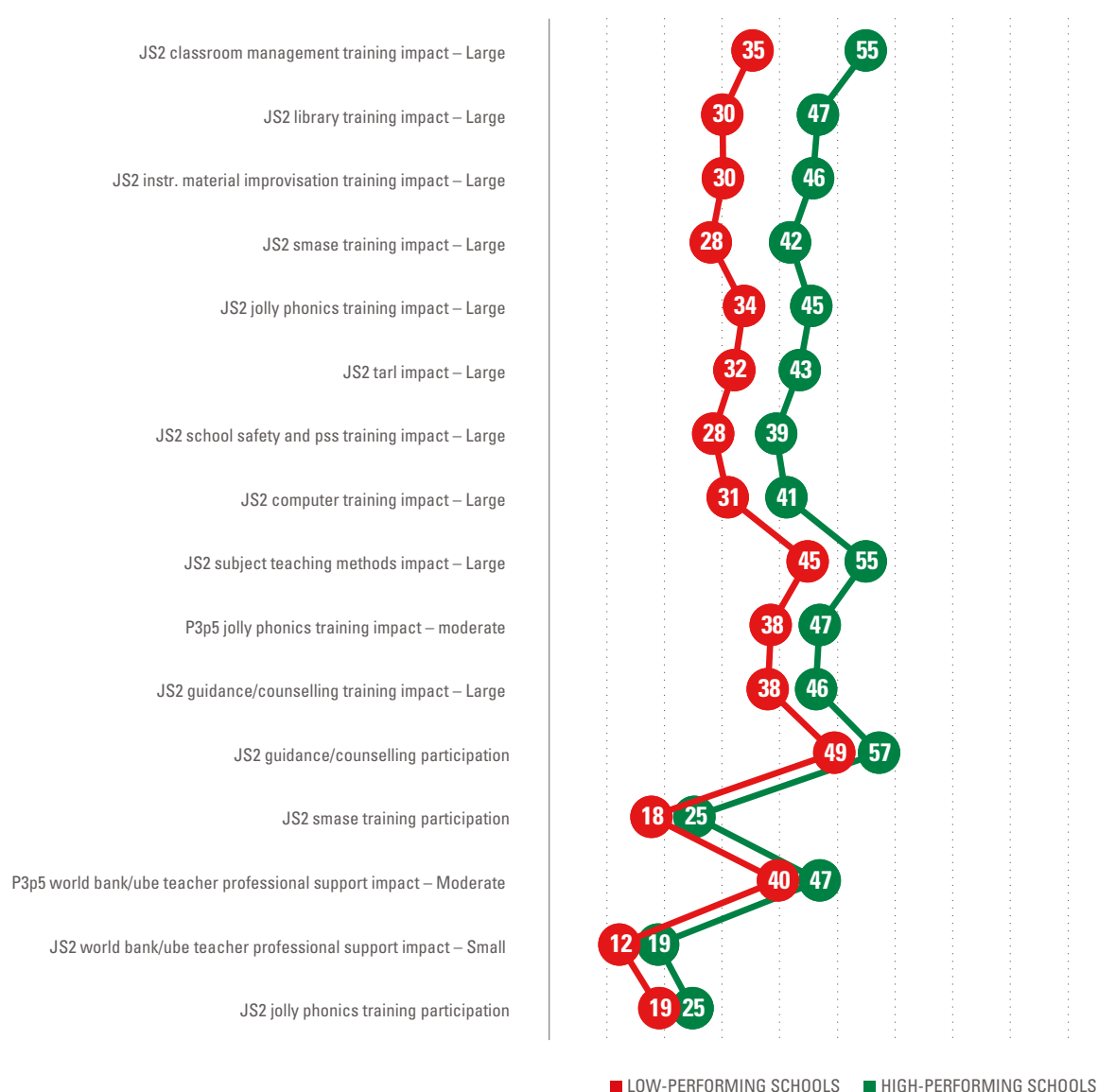
Figure 5.13. Teacher demographics, education, qualification and experience in high-/low-performing schools



Teacher professional development

High-performing schools were consistently distinguished from low-performing schools in terms of teachers' perceptions of the impact of teacher professional development. For example, teachers in high-performing junior secondary schools were more likely to acknowledge moderate to large impact of various teacher professional development activities – such as trainings on classroom management, improvisation of instructional materials, TaRL approach and subject teaching methods – compared to those in low-performing junior secondary schools. Teachers in high-performing schools were also more likely to feel a moderate level of impact of Jolly Phonics and teacher professional support sponsored by the World Bank and UBEC.

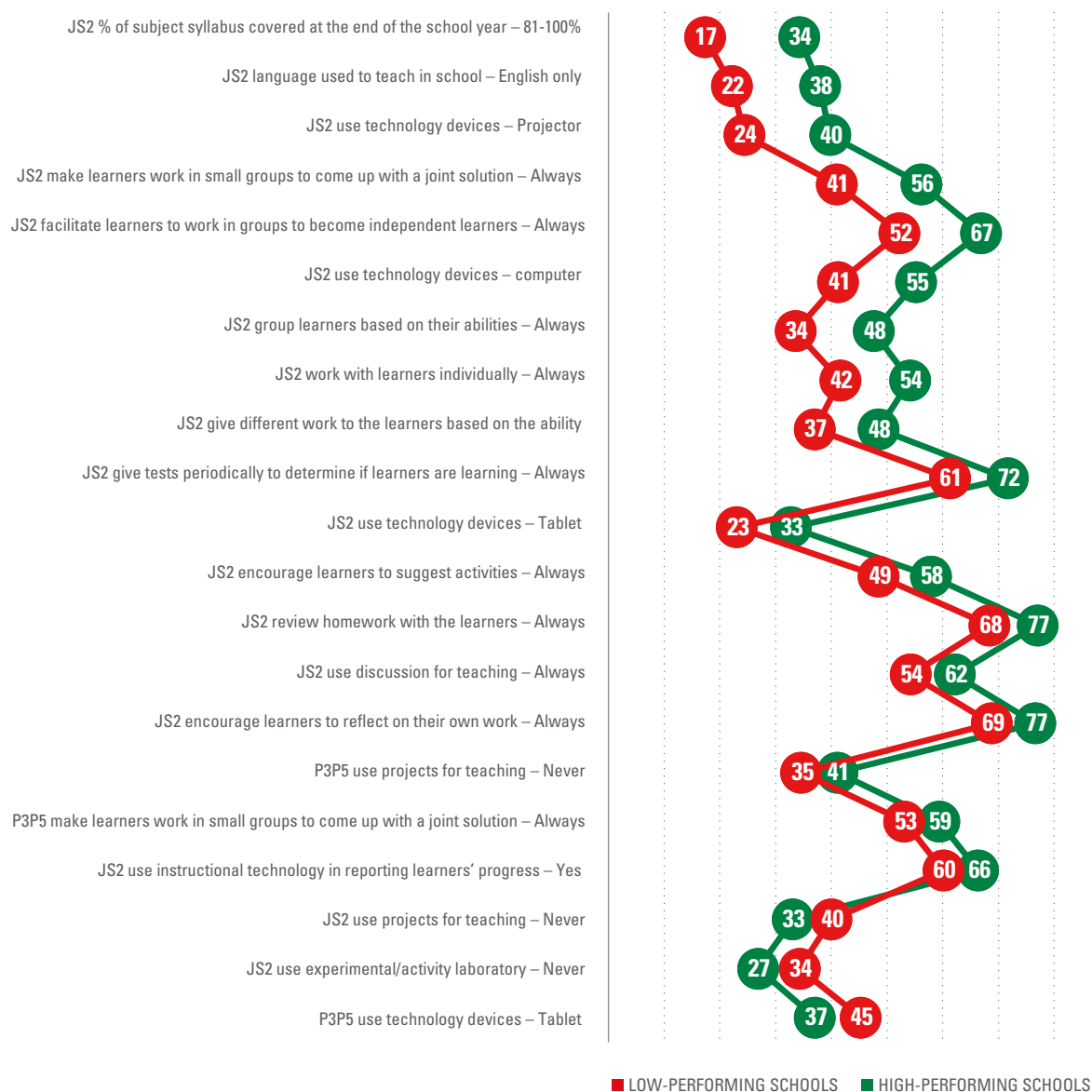
Figure 5.14. Teacher professional development in high-/low-performing schools



Teaching methods and practice

The difference in teaching methods and practice between high-performing and low-performing schools emerged mostly in the junior secondary level. Teachers in high-performing junior secondary schools were more likely to group learners for different purposes: to help learners find joint solutions (56 per cent vs. 41 per cent), to become independent learners (67 per cent vs. 52 per cent) and to learn based on their ability (48 per cent vs. 34 per cent). Teachers in high-performing junior secondary schools were also distinguished by use of computers, tablets and projectors, conduct of tests periodically, use of discussions and review of homework with learners. It is also noteworthy that teachers in high-performing junior secondary schools were more likely to cover 81–100 per cent of the subject syllabus (34 per cent vs. 17 per cent) and work in a school where only English is used as the instructional language (38 per cent vs. 22 per cent).

Figure 5.15. Teaching methods and practices in high-/low-performing schools

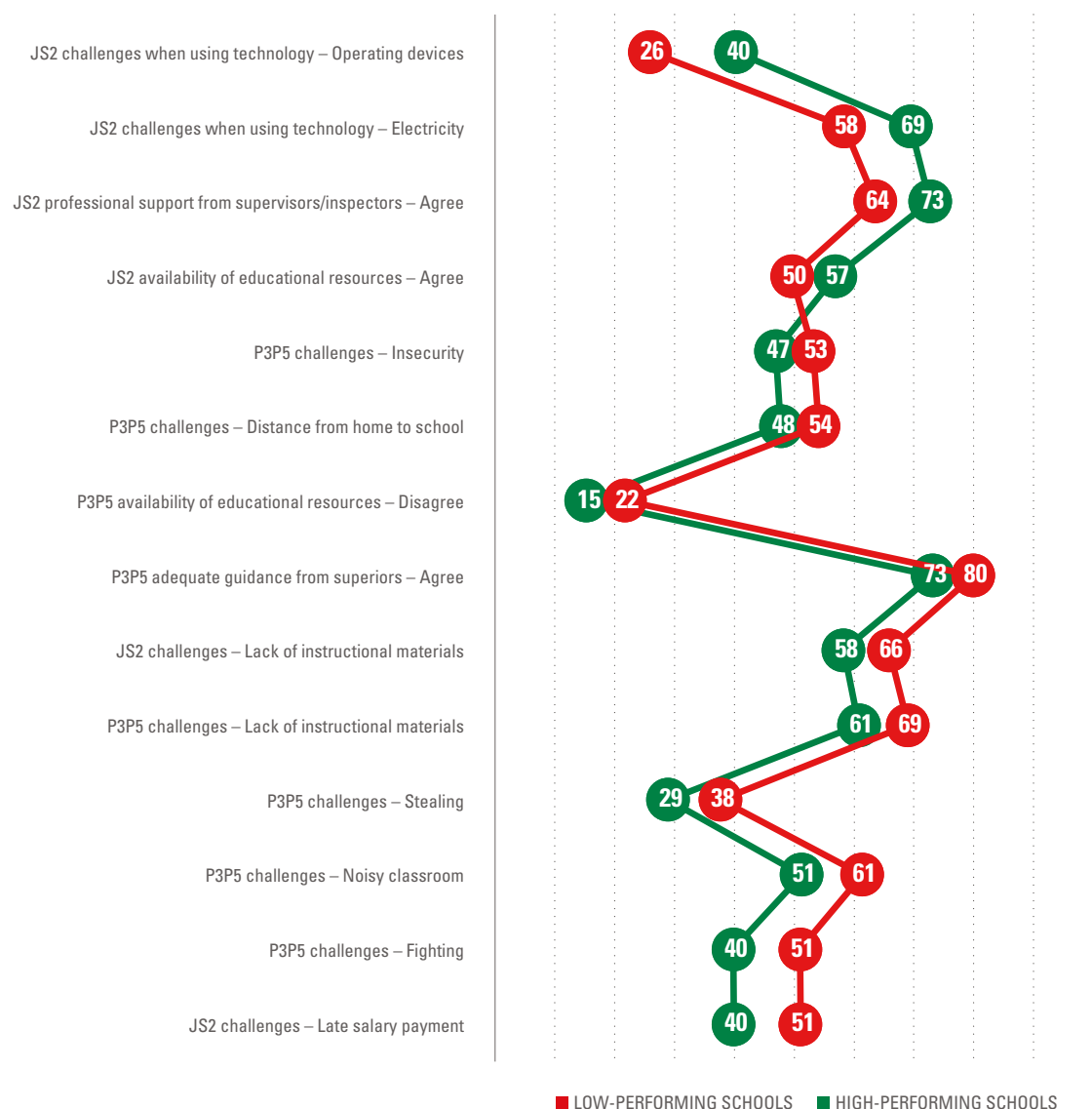


Challenges and support for teachers

Teachers in low-performing schools tended to face challenges in their teaching jobs more than those in high-performing schools. These challenges ranged from administrative issues like late payment at the junior secondary level (51 per cent in low-performing schools vs. 40 per cent in high-performing schools), learners' behaviour such as fighting (51 per cent vs. 40 per cent) and noisy classroom (61 per cent vs. 51 per cent) at the primary school level, resource constraints including a lack of instructional materials in both junior secondary schools (66 per cent vs. 58 per cent) and primary schools (69 per cent vs. 61 per cent), and security issues at the primary school level (53 per cent vs. 47 per cent). Instead, teachers in high-performing junior secondary schools were more likely to face challenges in the availability of electricity and use of devices than those in low-performing junior secondary schools.

Teachers in high- and low-performing schools were also distinguished by the types of support they receive. For instance, at the junior secondary level, teachers in high-performing schools were more likely than teachers in low-performing schools to receive professional support from inspectors and supervisors; this was reversed at the primary level, where teachers in low-performing primary schools tended to receive more guidance from supervisors than did teachers in high-performing schools.

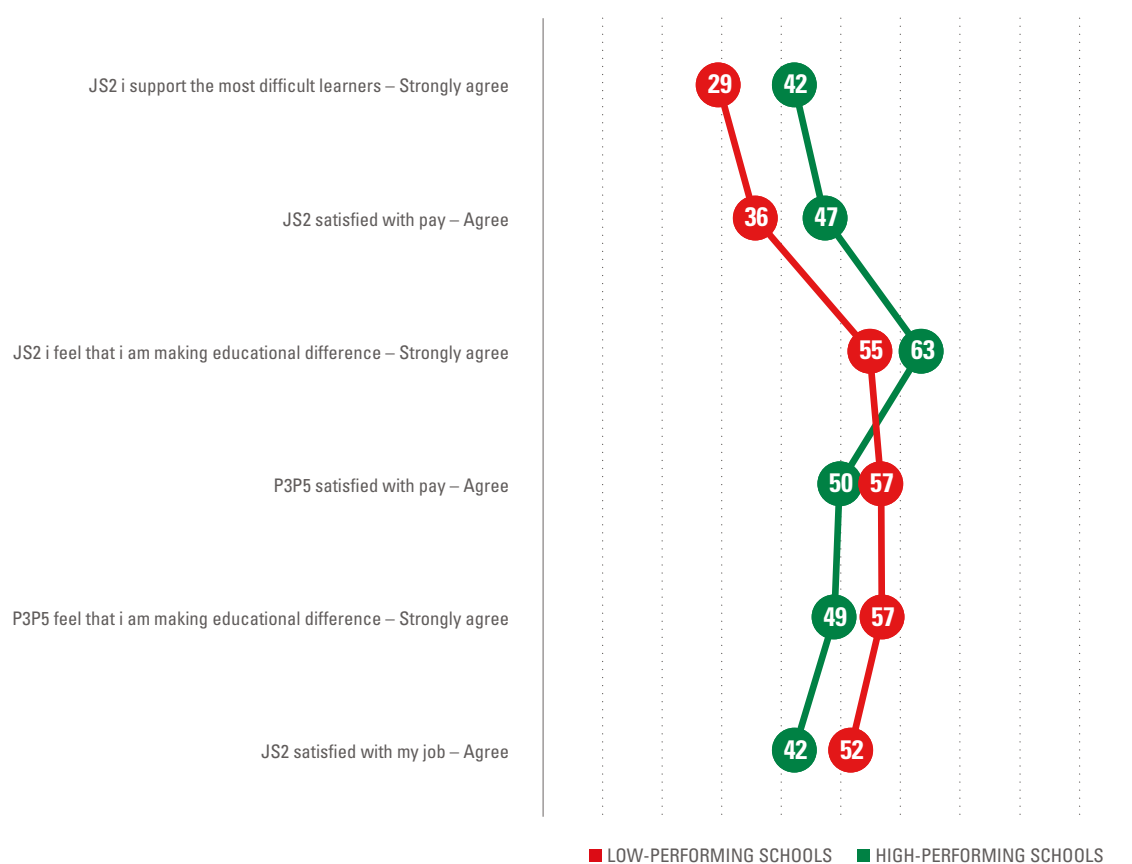
Figure 5.16. Challenges and support for teachers in high-/low-performing schools



Satisfaction with teaching jobs

Higher-performing schools were also distinguished by several aspects of teacher satisfaction with their teaching jobs, especially in the junior secondary level. These included teachers' feelings of supporting the most difficult learners (42 per cent vs. 29 per cent) and making an educational difference in the lives of learners (63 per cent vs. 55 per cent) as well as their satisfaction with pay (47 per cent vs. 36 per cent). Interestingly, at the primary level, teachers in low-performing schools were more likely to be satisfied with pay and feel that they make an educational difference for learners.

Figure 5.17. Satisfaction with teaching jobs in high-/low-performing schools

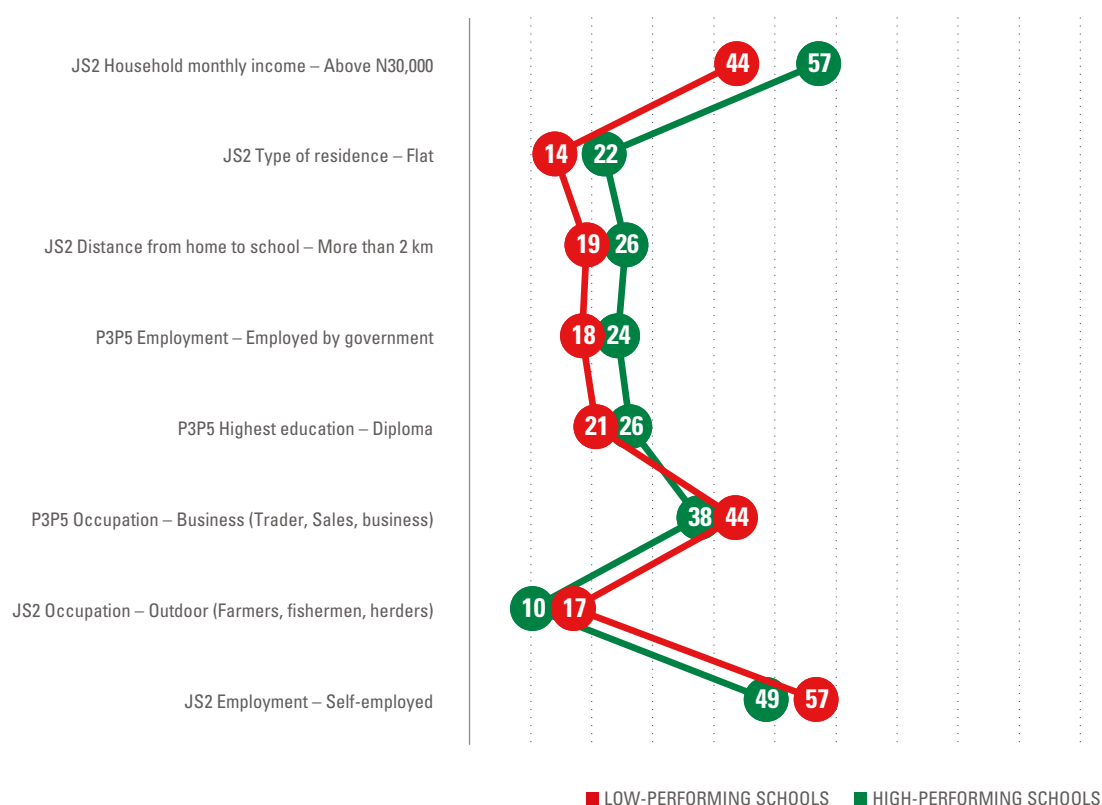


5.1.4 Parent characteristics in high- and low-performing primary and junior secondary schools

Parent demographic information

High-performing schools and low-performing schools had different profiles in terms of parents' demographics. For instance, at the junior secondary school level, parents in high-performing schools were more likely to have monthly household income above NGN 30,000 (57 per cent in high-performing schools vs. 44 per cent low-performing schools), live in a flat (22 per cent vs. 14 per cent) and live more than two kilometres away from school (26 per cent vs. 19 per cent) compared to those in low-performing schools. At the primary school level, parents in high-performing schools were more likely to be a government employee (24 per cent vs. 18 per cent) and have a diploma as the highest education attainment (26 per cent vs. 21 per cent). On the other hand, parents in low-performing schools were distinguished by self-employment at the junior secondary school level and engagement in business-related occupations at the primary school level.

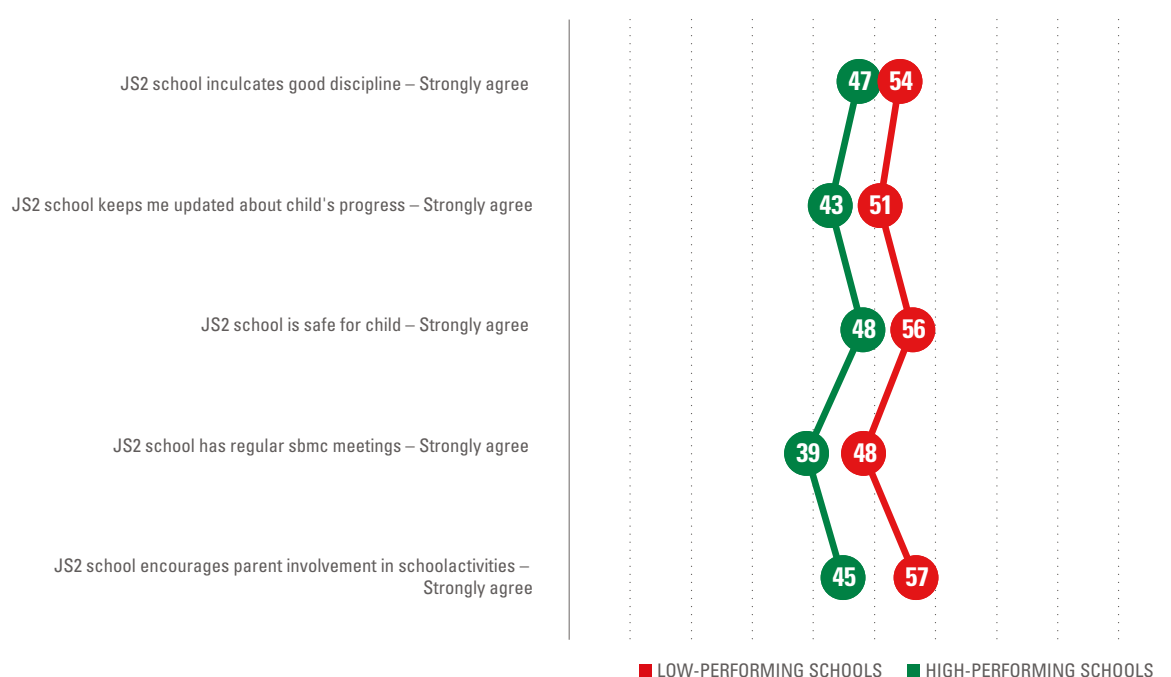
Figure 5.18. Parent demographic information in high-/low-performing schools



Parent perception of school

Parents in low-performing schools were more likely to perceive their child's school positively compared to those in high-performing schools, but such differences were observed only at the junior secondary level. Parents in low-performing junior secondary schools were more likely to affirm that their child's school inculcates good discipline (54 per cent in low-performing schools vs. 47 per cent in high-performing schools), keeps parents updated on their child's academic progress (51 per cent vs. 43 per cent), provides a safe environment (56 per cent vs. 48 per cent), holds regular SBMC meetings to improve the school (48 per cent vs. 39 per cent) and encourages parent involvement in school activities (57 per cent vs. 45 per cent). It is important to note that the parents' responses may reflect differences not only in school practices but also parents' expectations.

Figure 5.19. Parents' perception of school in high-/low-performing schools

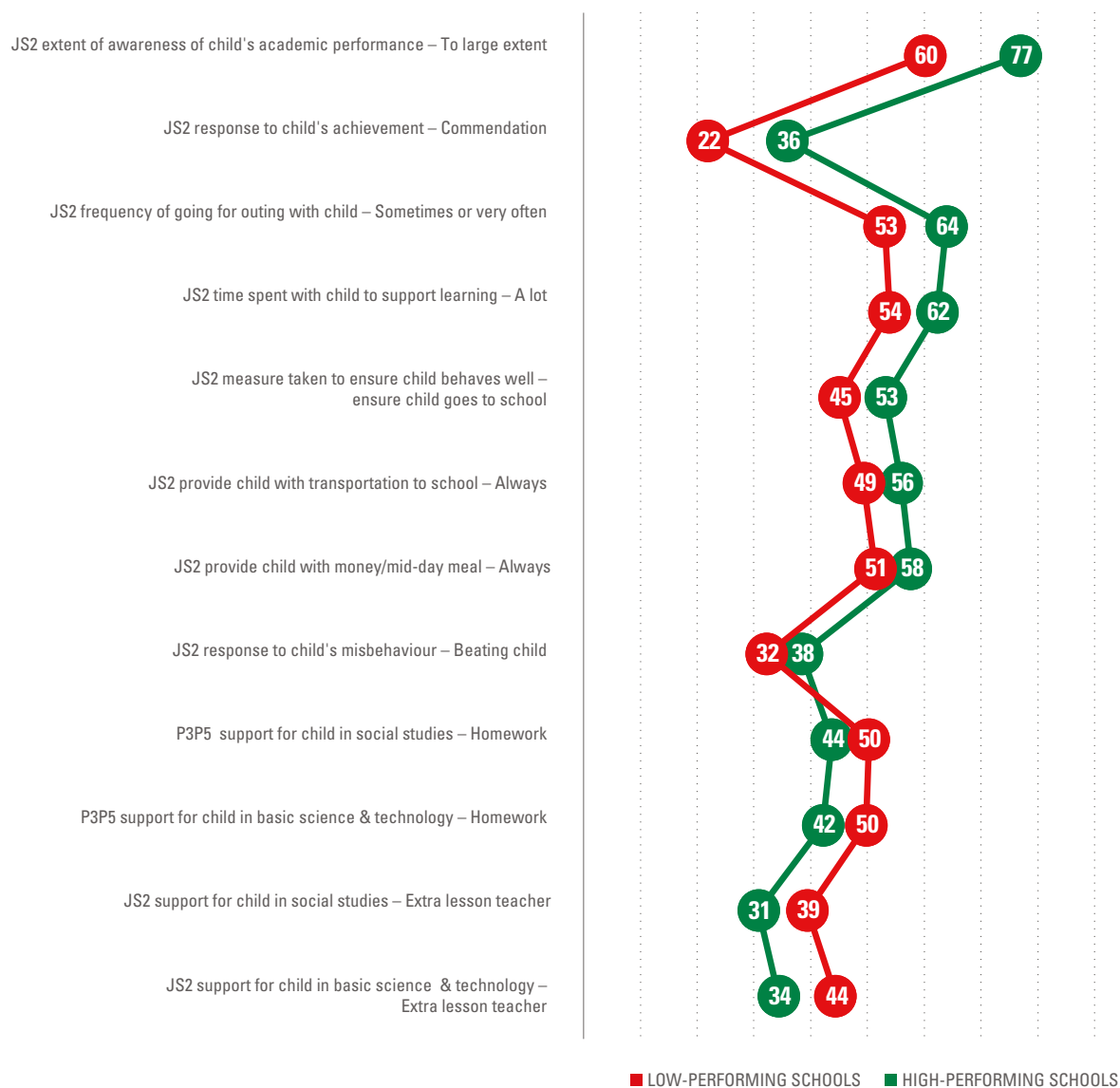


Parent support for schooling and learning

Parents in high-performing schools were also distinguished from low-performing schools in their support for their child's schooling and learning. At the junior secondary school level, parents in high-performing schools were more likely to be aware of their child's academic performance (77 per cent in high-performing schools vs. 60 per cent in low-performing schools), commend child for high achievement (36 per cent vs. 22 per cent), spend a lot of time to support child's learning (62 per cent vs. 54 per cent) and ensure child goes to school (53 per cent vs. 45 per cent).

On the other hand, parents in low-performing primary schools were more likely to support their child's learning by supporting homework in social studies and basic science and technology compared to those in high-performing primary schools. At the junior secondary level, parents in low-performing schools tended to support learning in these two subjects by providing tutoring.

Figure 5.20. Parent support for child's schooling and learning in high-/low-performing schools

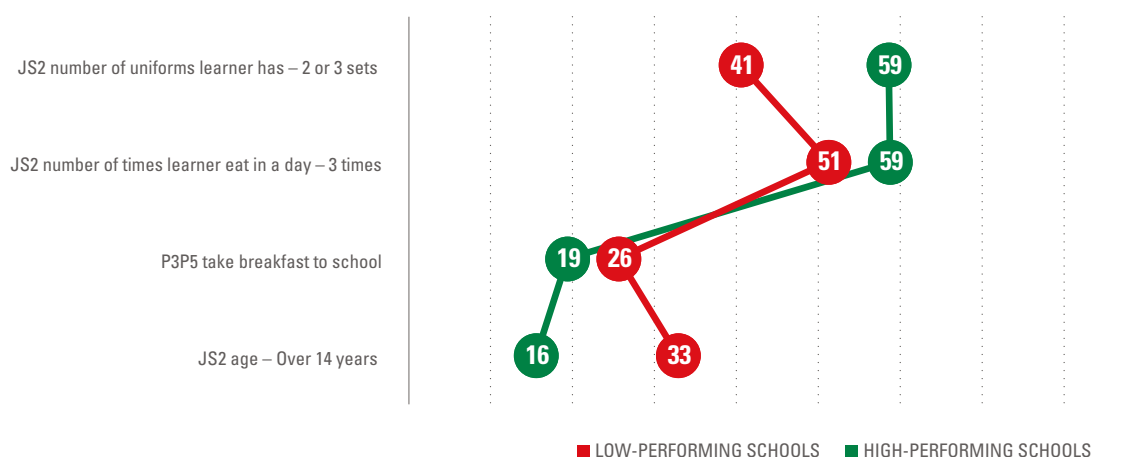


5.1.5 Learner characteristics in high- and low-performing primary and junior secondary schools

Learner demographic information

A few demographic factors distinguished learners in high-performing schools from those in low-performing schools. For example, learners in high-performing junior secondary schools were more likely to have two or three sets of uniforms (59 per cent in high-performing schools vs. 41 per cent in low-performing schools) and eat three times a day (59 per cent vs. 51 per cent) than those in low-performing junior secondary schools. These differences possibly reflect household socio-economic gaps. On the other hand, low-performing junior secondary schools were more likely to have learners over 14 years old than high-performing junior secondary schools, possibly indicating that there are higher proportions of over-aged learners in low-performing schools.

Figure 5.21. Learner demographic information in high-/low-performing schools

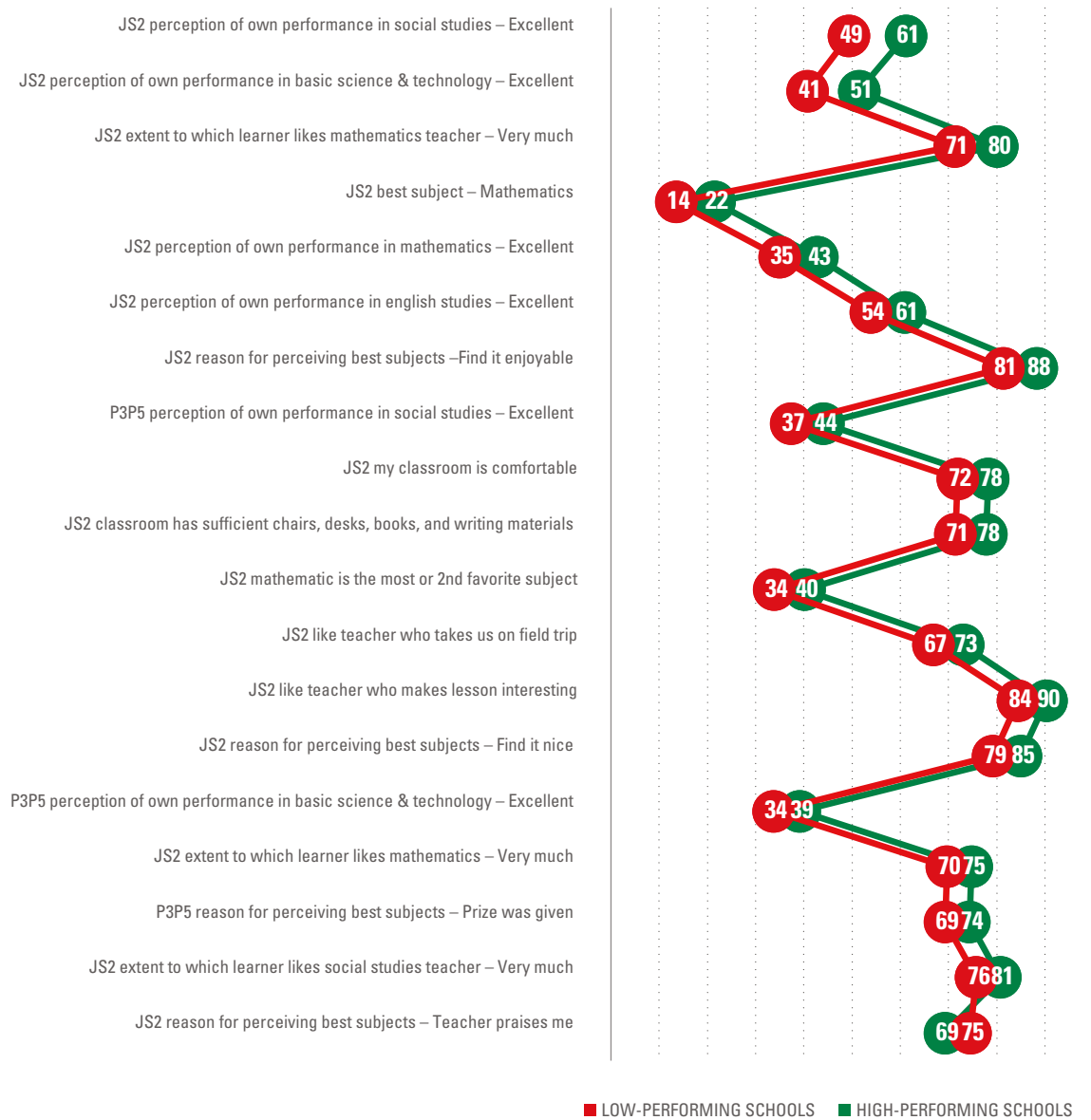


Learner perception of school and own performance

Learners' perceptions of their school and own academic performance distinguished high-performing schools from low-performing schools, especially at the junior secondary school level. For instance, learners in high-performing junior secondary schools were more likely to rate their performance as excellent in social studies (61 per cent in high-performing schools vs. 49 per cent in low-performing schools), basic science and technology (51 per cent vs. 41 per cent), mathematics (43 per cent vs. 35 per cent) and English studies (61 per cent vs. 54 per cent) than those in low-performing junior secondary schools. At the primary school level, learners in high-performing schools also tended to rate their achievement as excellent in social studies and basic science and technology compared to those in low-performing primary schools.

Learners in high-performing junior secondary schools were also distinguished by the extent to which they like mathematics. For instance, learners in high-performing junior secondary schools were more likely to perceive mathematics as their best and favourite subject and like their mathematics teacher very much, compared to those in low-performing junior secondary schools.

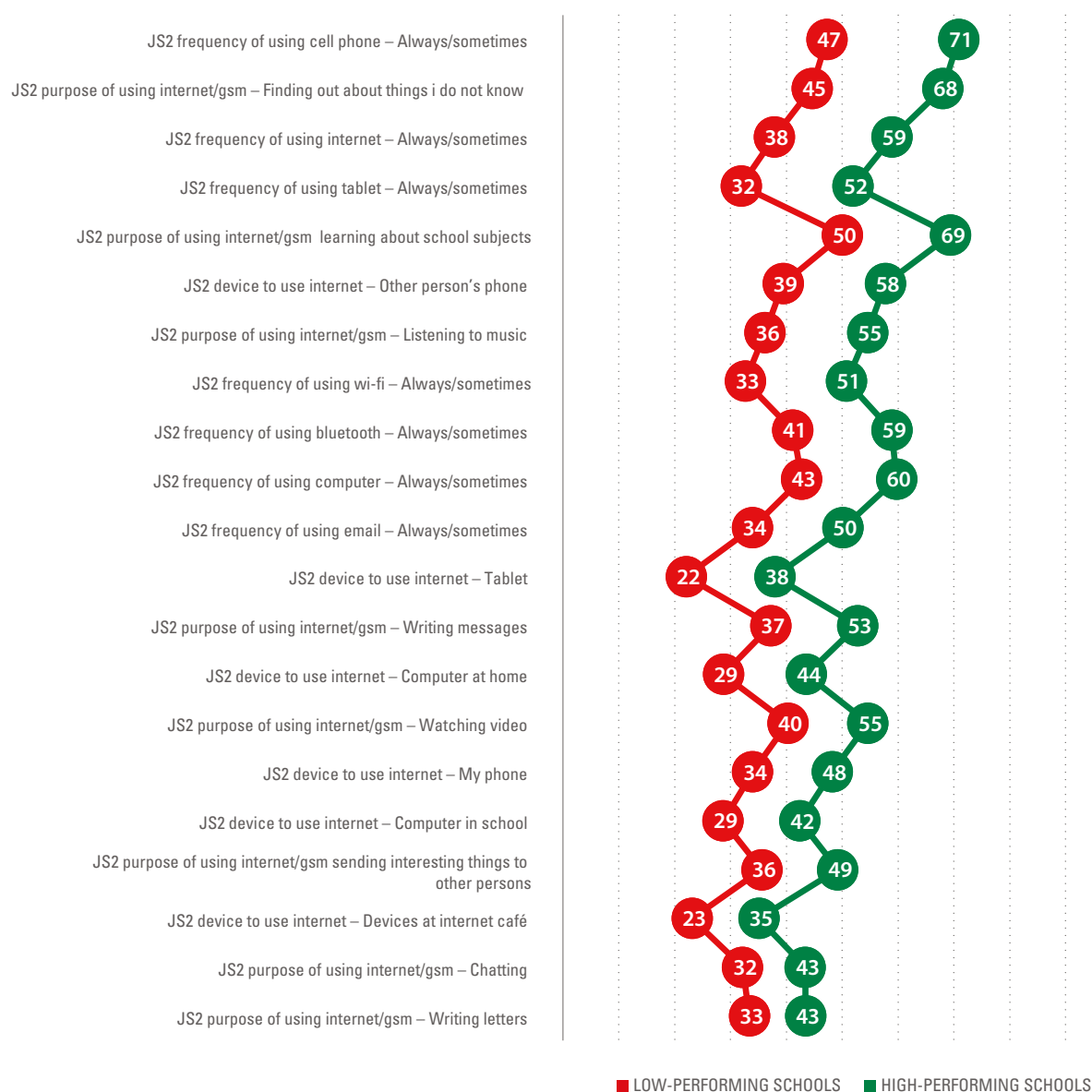
Furthermore, junior secondary learners in high-performing schools were more likely to find their classroom comfortable and equipped with sufficient school furniture and materials such as chairs, desks, books and writing materials compared to those in low-performing junior secondary schools.

Figure 5.22. Learner perception of school and own performance in high-/low-performing schools

Learner use of ICT

Use of ICT distinguished between learners in high- and low-performing schools at the junior secondary level. The proportion of learners who always or sometimes used ICT devices (i.e., mobile phones, tablet and computers), internet, Wi-Fi, Bluetooth and emails was higher in high-performing junior secondary schools than low-performing junior secondary schools. Learners in high-performing junior secondary schools were more likely to use internet/GSM for finding out about things they do not know, learning about school subjects, listening to music and writing messages, among other purposes. They were also more likely to use computers both at home and school than those in low-performing junior secondary schools.

Figure 5.23. Learner use of ICT in high-/low-performing schools



5.2 Multivariate analyses of associations between learners' performance and background factors

The previous section shows how learners' performance varied with specific school conditions and characteristics of teachers, learners and parents. The bivariate analysis, however, which looks at two variables at each time, poses a challenge in understanding how these factors are uniquely associated with learners' achievement. For instance, the observed relationship between school type (i.e., public and private schools) and learners' academic performance reflects not only a difference in quality of education between public and private schools but also a difference in socio-economic status of households, which in turn is related to different levels of parental support for learning at home.

Accordingly, multiple regression analyses were conducted to examine how school, teacher, learner and parent characteristics were uniquely associated with learners' achievement. First, OLS regression was fitted to examine the relationship between the various factors and learner performance in scale scores.⁷ Second, logistic regression models were estimated to examine how background factors were associated with the probability of learners meeting the minimum proficiency level. To identify a set of background factors with the strongest associations with learners' performance, a stepwise regression analysis technique was used. The stepwise technique adds one variable at a time to the model, starting with the most significant predictor, until the optimal solution is reached. The significance of the variables included in previous steps is re-evaluated in each model, with any variable that would not change the preset significance value being dropped from the equation.

The analysis has several limitations. First, we had to exclude learners who did not match between cognitive and non-cognitive data from the analysis. Since the probability of having non-matched observations is not completely random, the results of this analysis are subject to bias. Second, teachers and parents in the data are not linked to their learners in the data. Therefore, teacher and parent information had to be aggregated to the school level. Particularly, this resulted in weak control for family socio-economic status. Third, the results are subject to bias if there were unobserved factors that were correlated with both learners' performance and the independent variables (i.e., school, teacher, learner and parent characteristics) in the model. Therefore, no causality can be established in this analysis. The results must be interpreted with these limitations in mind.

Key findings

- **Instructional policy and practice:** Schools in Nigeria implement different instructional policies to support instruction and learners' performance. For example, the regression analyses in junior secondary education demonstrated that using English-only, or both English and a local language, had a positive association with learner performance, holding the state, school, teacher, learner and parent characteristics constant. In primary schools, using only a local language as the medium of instruction had a small, practically negligible negative association with learners' performance.
- **Teacher qualification, education and training:** The provision of a competent teacher is a key policy agenda to provide quality education and effective teaching and learning. For example, higher rates of teachers with a first degree and HND with teaching qualification were strongly associated with the probability of meeting minimum proficiency level in junior secondary schools, although this association was at negligible practical significance in primary schools. Teacher professional development may also matter for better learning achievement. At the junior secondary level, Strengthening Mathematics and Science Education (SMASE) training was associated with learners' performance. On the other hand, at the primary level, the associations of background variables related to teacher training did not reach practical significance.

- **Teaching methods:** Use of select teaching methods was positively associated with the probability of learners achieving the minimum proficiency at the junior secondary level. These included the application of experimental and laboratory activities and the practice of grouping learners for collaborative learning.
- **Quality assurance:** Schools in Nigeria receive different types of support that aim to improve the quality of teaching and learning. The results demonstrated a strong and practically relevant association between support to teachers provided by supervisors/inspectors and learners' achievement. Learners attending schools where quality assurance officers visited to provide support to teachers had a better chance of achieving higher scores and meeting the minimum proficiency level in junior secondary schools.
- **Parental engagement in learning:** We found suggestive evidence on the importance of parental support for learning. For example, there was a significant and positive association between learning performance and parents' practices of ensuring their child goes to school and commending their child's achievement. Parents' approach to disciplining child showed different patterns for primary school learners and junior secondary school learners. At the primary level, withdrawing privileges showed positive associations with learning performance, whereas advising the child showed negative associations. At the junior secondary level, however, the direction of these associations was reversed.

5.2.1 OLS regression analyses of background factors from all sources of data

In this section, the results of the OLS regression analysis are presented. The outcome variable is a linear combination of the scale scores from all the tests learners took (i.e., averaged scale scores of all the assessments within the class level).⁸ In the tables, contextual variables are sorted by their beta coefficients, which indicate their unique degree of association with the learners' overall performance. Variables with positive associations are shaded in blue, and those with negative associations are shaded in red. The tables present only variables that exhibited practically relevant strength of association (i.e., with a beta coefficient of 0.15 or larger for primary schools and 0.20 or larger for secondary schools).

OLS regression using primary school results

The results at the primary school level indicated that availability, adequacy, condition and use of some educational resources had strong positive associations with learner performance. These included, among others, national curriculum and scheme of work in mathematics, curriculum modules and scheme of work in English studies, national curriculum, curriculum modules and scheme of work in basic science and technology, and curriculum modules in social studies. Use of school facilities and services were also uniquely associated with learners' achievement, such as usage of an administrative block and school security guard. It is important to note, however, that many educational resources and school facility contexts also showed negative association with learning achievement.

It is also interesting to note that the only parents' practice significantly associated with learners' achievement was the practice of withdrawing privileges when their child misbehaves. On the other hand, parents' practices of beating and advising had negative associations with learning achievement, implying that neither harsh (beating) nor mild (advising) methods work well for primary school learners.

Table 5.1. Results of OLS regression analysis of background factors in primary schools

Variables	B	Std. error	Beta
School: Scheme of work in basic science and technology – Available	28.720	1.585	0.430
School: Curriculum modules in basic science and technology – Good condition	23.123	1.328	0.360
School: Scheme of work in English studies – Good condition	22.560	1.129	0.345
School: National curriculum in basic science and technology – Available	21.678	1.437	0.313
School: National curriculum in mathematics – In use	19.622	1.086	0.283
School: Administrative block – In use	17.884	1.059	0.256
School: Scheme of work in mathematics – Adequate	14.443	1.356	0.228
School: Auditorium/hall – Good condition	19.294	1.233	0.200
School: Security guard – In use	12.030	0.819	0.190
School: Curriculum modules in social studies – Available	10.826	1.317	0.166
School: Curriculum modules in English studies – In use	10.524	0.946	0.162
Parent: Response to child's misbehaviours – Withdraw privileges	9.064	0.731	0.250
School: Scheme of work in English studies – Available	-28.477	1.488	-0.424
School: Scheme of work in basic science and technology – Adequate	-21.962	1.212	-0.347
School: National curriculum in basic science and technology – In use	-22.771	1.343	-0.334
School: Syllabus in social studies – In use	-16.826	0.976	-0.264
School: Security guard – Available	-15.966	0.761	-0.252
School: Scheme of work in basic science and technology – Good condition	-16.212	1.142	-0.249
School: Curriculum modules in mathematics – Good condition	-15.481	1.339	-0.240
School: Curriculum modules in basic science and technology – In use	-15.477	1.343	-0.239
School: Curriculum modules in social studies – Good condition	-13.610	1.179	-0.212
School: Administrative block – Good condition	-14.354	0.758	-0.202
School: Auditorium/hall – In use	-18.423	1.182	-0.194
School: Warning system – Good condition	-19.208	1.133	-0.188
School: Curriculum modules in basic science and technology – Available	-11.862	1.740	-0.182
School: Staff room – Available	-11.208	0.892	-0.177
School: Toilet – Available	-11.832	0.726	-0.174
Parent: Response to child's misbehaviours – Advise the child	-10.447	0.475	-0.260
Parent: Response to child's misbehaviours – Beat the child	-7.507	0.581	-0.198

OLS regression using junior secondary school results

The results for junior secondary school demonstrated a much larger number of practically significant associations with learners' achievement. Some positive associations were similar to those in primary schools, particularly availability, condition, adequacy and usage of school educational resources. These included, among others, use of scheme of work in mathematics, adequacy of national curriculum in English studies, use of syllabus in basic science and technology, and availability of curriculum modules in social studies. Also, learners' achievement showed positive associations with school facility variables such as condition of ICT facilities, availability of administrative block and condition of school security guard services. There were many other school resources and facilities, however, that were negatively associated with learners' achievement.

Several teachers' characteristics and perceptions appeared positively associated with achievement. These included teachers with HND with teaching qualification and those who received professional support from their supervisors and inspectors.

A couple of parents' practices emerged as having a positive association with learners' achievement. For instance, parents' practice of fostering child's discipline by ensuring the child goes to school was positively associated

with learners' achievement. Parents' methods of dealing with children that misbehave were also associated with learner performance. At the junior secondary level, beating and advising appeared to have positive associations with learning achievement.

Table 5.2. Results of OLS regression analysis of background factors in junior secondary schools

Variables	B	Std. error	Beta
School: Syllabus in basic science and technology – In use if available	201.546	6.364	3.773
School: Scheme of work in mathematics – In use if available	177.010	9.797	3.409
School: National curriculum in English studies – Adequate if available	93.022	4.214	1.649
School: Scheme of work in basic science and technology – Adequate if available	83.474	10.334	1.559
School: ICT facility – Good condition if available	99.851	5.338	1.537
School: Curriculum modules in social studies – Available	76.947	6.170	1.394
School: Scheme of work in basic science and technology – In use if available	67.694	5.235	1.310
School: Scheme of work in English studies – Good condition if available	57.670	4.542	1.109
School: Curriculum modules in English studies – Adequate if available	62.454	5.461	1.079
School: Diary – Adequate if available	59.060	2.705	1.042
School: Scheme of work in social studies – Adequate if available	53.770	5.874	1.003
School: Administrative block – Available	40.528	1.309	0.797
School: National curriculum in mathematics – In use if available	37.210	2.460	0.702
School: Security guard – Good condition if available	33.228	2.596	0.600
School: Gate – Available	30.024	3.217	0.552
School: Tap water – Good condition if available	27.540	1.367	0.503
School: National curriculum in basic science and technology – Good condition if available	27.054	3.292	0.503
School: Language of instruction – English and local languages	25.719	2.013	0.458
School: Borehole – Good condition if available	22.094	2.017	0.424
School: Warning system – In use if available	20.538	1.161	0.402
School: Athletics – Good condition if available	25.109	2.049	0.399
School: Furniture for teachers – Adequate if available	20.686	1.026	0.396
School: Weather station – Good condition if available	23.528	1.234	0.377
School: Security guard – Available	18.283	4.682	0.338
School: Syllabus in mathematics – Adequate if available	18.860	7.137	0.337
School: Diary – Available	16.564	4.104	0.309
School: Gate – Adequate if available	15.071	0.935	0.297
School: Auditorium/hall – Available	13.812	1.001	0.264
School: Tap water – In use if available	13.639	1.669	0.252
School: School garden/farm – Good condition if available	11.753	1.039	0.232
School: Staff room – Available	12.913	0.946	0.223
School: Language of instruction – English only	14.182	2.073	0.211
Principal: Perception – Learners apply what they are taught in class	14.792	2.029	0.288
Principal: Perception – Community has favourable attitude to teaching & learning	14.170	0.733	0.283
Teacher: Receive professional support from supervisors/inspectors	17.700	0.723	0.309
Teacher: Perceived impact of training – Conflict and disaster risk reduction	11.011	0.560	0.248
Teacher: Education & qualification – HND with teaching qualification	17.510	1.297	0.204
Parent: Response to child's misbehaviour – Beat the child	18.842	1.714	0.616
Parent: Response to child's misbehaviour – Advise the child	18.299	1.662	0.567
Parent: Perception of school – Regularly organize SBMC meetings	22.545	1.314	0.326
Parent: Perception of school – Meet my child's learning needs	17.616	1.306	0.269
Parent: Frequency of going for outing with child	9.160	0.418	0.244

Variables	B	Std. error	Beta
Parent: Measure taken to ensure child behaves well – Ensure child goes to school	7.222	1.375	0.228
School: Scheme of work in mathematics – Adequate if available	-187.600	9.623	-3.533
School: Scheme of work in basic science and technology – Good condition if available	-170.656	9.720	-3.278
School: Syllabus in basic science and technology – Good condition if available	-123.084	4.678	-2.303
School: Syllabus in social studies – In use if available	-77.173	3.987	-1.445
School: National curriculum in English studies – Good condition if available	-69.188	3.375	-1.282
School: Scheme of work in mathematics – Available	-64.061	4.823	-1.241
School: Diary – Good condition if available	-66.461	4.697	-1.222
School: ICT facility – In use if available	-70.101	5.661	-1.088
School: National curriculum in mathematics – Adequate if available	-58.220	3.541	-1.025
School: Scheme of work in English studies – In use if available	-40.973	4.597	-0.790
School: Curriculum modules in English studies – Available	-43.020	4.346	-0.778
School: Tap water – Available	-37.738	1.548	-0.717
School: Gate – In use if available	-37.761	2.895	-0.704
School: Syllabus in English studies – Adequate if available	-38.916	6.840	-0.697
School: Security guard – In use if available	-36.327	4.913	-0.668
School: National curriculum in basic science and technology – Adequate if available	-30.775	3.056	-0.544
School: Administrative block – Good condition if available	-25.407	1.354	-0.495
School: Perimeter fence – In use if available	-25.136	1.986	-0.494
School: Curriculum modules in social studies – In use if available	-27.441	5.939	-0.493
School: Administrative block – Adequate if available	-25.735	1.152	-0.487
School: Curriculum modules in basic science and technology – In use if available	-26.218	3.824	-0.471
School: Auditorium/hall – Good condition if available	-24.626	1.363	-0.440
School: Weather station – Adequate if available	-24.432	1.341	-0.359
School: Warning system – Good condition if available	-16.878	1.223	-0.325
School: Curriculum modules in social studies – Adequate if available	-18.332	5.182	-0.316
School: Furniture for teachers – Good condition if available	-14.494	1.109	-0.286
School: Toilet – In use if available	-13.968	1.749	-0.260
School: Borehole – In use if available	-12.434	2.309	-0.239
School: Security guard – Adequate if available	-13.696	1.546	-0.231
School: Curriculum modules in mathematics – Adequate if available	-12.539	4.634	-0.217
School: ICT facility – Available	-13.420	3.897	-0.216
Principal: Perception – Learners compete favourably with other schools in external examinations	-20.304	3.071	-0.397
Principal: Perception – Community has favourable attitude to school activities	-14.000	0.563	-0.338
Teacher: Challenges to teaching – Noise in classroom	-21.413	0.931	-0.273
Teacher: Committed to teaching jobs	-22.643	1.118	-0.235
Teacher: Receive training – Guidance/counselling	-16.793	0.945	-0.216
Teacher: Perceived impact of training – RANA	-8.625	0.591	-0.201
Parent: Measures taken to ensure child's good behaviour – Check friends	-22.168	1.599	-0.715
Parent: Perception of school – School inculcates good discipline	-37.908	1.756	-0.452
Parent: Measures taken to ensure child's good behaviour – Check homework	-10.334	1.368	-0.327
Parent: Response to child's misbehaviour – Withdraw privileges	-9.680	1.919	-0.325
Parent: Support for learning – Homework in basic science and technology	-28.931	1.390	-0.284
Parent: Support for learning – Tutoring in social studies	-20.336	2.031	-0.200

5.2.2 Logistic regression analyses of background factors from all sources of data

This section presents the results of the logistic regression, which examined how different school, teacher, learner and parent characteristics were uniquely associated with the probability of learners reaching the minimum proficiency level. In classifying learners' performance above and below the minimum proficiency, learners' scale scores on all the assessments were averaged and classified as 'proficient' if the average score was at or above the threshold score of 500.

Logistic regression deals with odds ratios, which is the ratio between the probability of an event to happen and the probability of the event not to happen. To fit this into the logistic curve model, logistic regression takes a natural logarithm of the odds ratio (log odds), which represents the logistic regression coefficient. The regression coefficient for each predictor shows how much the log odds will change with one unit change in the value of that predictor. In other words, a larger positive coefficient indicates a stronger positive relationship between that predictor and the outcome, meaning that an increase in the predictor value leads to a higher probability of the outcome being reached, and vice versa.

Logistic regression using primary school results

The findings from the primary school results indicated that availability, adequacy, condition and use of some teaching and learning materials and facilities were positively associated with the probability of learners meeting the minimum proficiency level, while other educational resources and facilities were negatively associated with the chance of achieving the minimum proficiency.

It is worth noting that a learner's probability of meeting the minimum proficiency level was positively associated with teachers who teach in more than one school and negatively associated with teachers who teach using only the local language. Additionally, parents' practice of commending their child's high performance was positively associated with the probability of achieving the minimum proficiency.

Table 5.3. Results of logistic regression analysis in primary schools

Variables	B (log odds)	Exp(B) (odds)	Change in model if item removed
School: Curriculum modules in basic science and technology – Good condition if available	2.45	11.60	411.39
School: Scheme of work in basic science and technology – Available	2.40	11.00	345.33
School: National curriculum in mathematics – In use if available	1.82	6.14	306.51
School: Security guard – In use if available	1.08	2.93	243.41
School: Administrative block – In use if available	1.43	4.19	212.91
School: Scheme of work in English studies – Good condition if available	1.51	4.53	198.71
School: Syllabus in social studies – Adequate if available	0.99	2.70	158.45
School: National curriculum in social studies – Good condition if available	0.72	2.05	141.49
School: Auditorium/hall – Available	0.93	2.53	110.85
School: Warning system – Available	0.97	2.64	110.51
School: ICT facilities – Good condition if available	0.85	2.33	107.11
School: Curriculum modules in mathematics – Available	1.35	3.85	72.49
School: Auditorium/hall – Good condition if available	0.89	2.44	71.60
School: Science laboratory – In use if available	0.68	1.97	68.32
School: Club & society – In use if available	0.70	2.02	64.21
School: National curriculum in basic science and technology – Available	0.89	2.45	56.29
School: Curriculum modules in basic science and technology – Adequate if available	0.82	2.27	52.71
School: Scheme of work in mathematics – Adequate if available	0.84	2.31	51.01
School: Curriculum modules in social studies – Available	0.89	2.44	45.75

Variables	B (log odds)	Exp(B) (odds)	Change in model if item removed
School: Curriculum modules in mathematics – Adequate if available	0.68	1.98	42.30
School: Syllabus in social studies – Good condition if available	0.77	2.15	39.23
Teacher: Teaching in more than one school	0.79	2.19	308.67
Parent: Response to child's achievement – Commend	0.66	1.93	232.05
School: School security guard – Available	-1.24	0.29	367.33
School: Syllabus in social studies – In use if available	-1.62	0.20	267.30
School: Scheme of work in basic science and technology – Good condition if available	-1.85	0.16	228.73
School: Curriculum modules in mathematics – Good condition if available	-2.20	0.11	216.28
School: Warning system – Good condition if available	-1.39	0.25	207.08
School: Curriculum modules in basic science and technology – Available	-2.26	0.10	174.20
School: Scheme of work in English studies – Available	-1.74	0.18	160.28
School: Auditorium/hall – In use if available	-1.19	0.30	139.47
School: National curriculum in basic science and technology – In use if available	-1.32	0.27	138.24
School: National curriculum in mathematics – Good condition if available	-1.06	0.35	120.25
School: Scheme of work in basic science and technology – Adequate if available	-1.15	0.32	117.23
School: Administrative block – Available	-0.94	0.39	98.10
School: Weather station – In use if available	-1.01	0.36	74.94
School: Mathematics room – In use if available	-1.39	0.25	64.22
Teacher: Language for teaching – Local language only	-1.84	0.16	174.42

Logistic regression using junior secondary school results

The results from junior secondary school showed many learning context characteristics with substantial positive association with the probability of meeting the minimum proficiency level. With regards to languages of instruction, using English only or English and a local language was associated with a higher chance of achieving the minimum proficiency level. The probability of meeting the minimum proficiency was also positively associated with principals' perception of teachers as being committed to teaching, and with community's favourable attitude both to teaching and learning at school and to learners' needs.

Several aspects of teachers' characteristics and practices appeared to be associated with the learners' chance of meeting the minimum proficiency. These included, among others, having a first degree/HND, using experimental/ laboratory activities and group work as teaching methods, receiving professional support from supervisors/ inspectors, perceiving SMASE training as impactful and feeling internal satisfaction with making educational differences in the lives of learners. Learners who acknowledged their teachers' use of different teaching methods were also more likely to achieve the minimum proficiency.

With regards to parents' characteristics and practices, ensuring that their child goes to school and commending their child for high achievement were associated with the probability of achieving the minimum proficiency level.

Table 5.4. Results of logistic regression analysis in junior secondary schools

Variables	B (log odds)	Exp(B) (odds)	Change in model if item removed
School: Language of instruction at school – English and local language	7.97	2897.20	393.15
School: Tap water – Good condition if available	4.23	68.88	266.16
School: Language of instruction at school – English only	6.54	695.32	233.01
School: Borehole – Good condition if available	3.61	37.08	153.31
School: Furniture for learners – Adequate if available	2.82	16.77	146.60
School: Science laboratory – Good condition if available	1.74	5.70	126.67
School: Warning system – In use if available	1.39	4.00	120.27
School: Disposal facilities – Available	3.01	20.21	107.97
School: National curriculum in social studies – Available	3.08	21.73	80.29
School: National curriculum in English studies – Adequate if available	3.67	39.25	61.60
School: Administrative block – Available	1.44	4.21	55.34
School: ICT facilities – Adequate if available	1.50	4.47	52.59
School: Syllabus in English studies – In use if available	3.28	26.54	48.97
School: Furniture for teachers – Available	1.39	4.00	48.47
School: Curriculum modules in mathematics – In use if available	3.61	36.98	46.58
School: Mathematics room – Adequate if available	1.07	2.92	46.29
School: COVID-19 compliance – Hand sanitizers	1.07	2.92	46.01
School: Library – Good condition if available	1.29	3.65	43.99
School: Scheme of work in basic science and technology – Adequate if available	5.46	235.55	39.50
School: Counselling services – Good condition if available	1.54	4.66	38.24
School: Perimeter fence – Good condition if available	0.90	2.46	34.86
School: Teacher furniture – Adequate if available	1.17	3.23	28.26
School: Counselling services – Available	1.14	3.11	26.93
School: Gate – Good condition if available	0.86	2.36	14.94
School: Gate – Available	2.23	9.32	10.71
School: Syllabus in mathematics – Adequate if available	1.01	2.74	6.53
Principal: Perception – Community has favourable attitude to needs of learners	1.08	2.95	109.10
Principal: Education & qualification – NCE/Diploma	1.80	6.08	87.89
Principal: Perception – Learners perform well during quizzes & literary debates	4.23	68.56	67.40
Principal: Perception – Teachers committed to teaching jobs	1.33	3.78	41.28
Principal: Perception – Community has favourable attitude to teaching & learning	0.91	2.47	35.49
Teacher: Received professional support from supervisors/inspectors	2.69	14.78	385.71
Teacher: Education & qualification – HND with teaching qualification	3.00	20.14	131.88
Teacher: Gender – Female	2.16	8.67	115.72
Teacher: Use of ICT devices – Computer	1.91	6.73	100.09
Teacher: Teaching methods – Experimental & laboratory activities	1.49	4.46	96.36
Teacher: Perceived impact of training – Conflict and disaster risk reduction	1.15	3.16	93.82
Teacher: Perceived impact of training – SMASE	1.09	2.96	85.53
Teacher: Teaching methods – Facilitate work in groups	1.45	4.28	74.17
Teacher: Teaching methods – Make learners work in small groups	1.71	5.52	68.39
Teacher: Challenges to teaching – Stealing	2.17	8.74	65.64
Teacher: Satisfaction – Pay	1.15	3.14	64.30
Teacher: Education & qualification – NCE/Diploma	2.32	10.18	63.60
Teacher: Feel that I make important educational difference in the lives of learners	1.14	3.13	47.94
Teacher: Perceived impact of training – School safety and PSS	0.87	2.38	43.62

Variables	B (log odds)	Exp(B) (odds)	Change in model if item removed
Teacher: Challenges to teaching – Fighting	1.69	5.42	32.51
Teacher: Challenges to teaching – Lack of salary payment	1.27	3.55	30.43
Teacher: Feel that I support difficult learners	0.82	2.27	26.06
Teacher: Challenges in use of ICT – Difficulty in operating devices	0.96	2.62	22.70
Parent: Measure taken to ensure child behaves well – Ensure child goes to school	2.81	16.62	177.67
Parent: Frequency of going for outings with child	1.05	2.86	130.40
Parent: Response to child's achievement – Commend	2.91	18.40	128.61
Parent: Perception of school – Does not allow bullying	1.65	5.19	52.09
Parent: Perception of school – Meets my child's learning needs	1.86	6.40	44.58
Parent: Frequency of providing money to child	0.99	2.69	43.97
Learner: Perception of teachers – Most of teachers use different methods to explain during teaching	0.81	2.25	10.69
School: Syllabus in social studies – Good condition if available	-6.46	0.00	345.69
School: Tap water – Available	-3.52	0.03	193.40
School: Furniture for learners – Available	-3.10	0.04	189.56
School: National curriculum in English studies – In use if available	-5.22	0.01	167.01
School: Scheme of work in mathematics – Adequate if available	-8.27	0.00	166.06
School: Staff room – Good condition if available	-1.71	0.18	130.90
School: Security guard – Adequate if available	-1.52	0.22	123.62
School: Furniture for teachers – Good condition if available	-2.30	0.10	102.81
School: Toilet – Good condition if available	-2.09	0.12	100.51
School: School shift – AM and PM	-3.44	0.03	99.45
School: School shift – AM only	-2.99	0.05	83.04
School: Assistance given by community – Land	-1.15	0.32	80.84
School: Club & society – Adequate if available	-1.20	0.30	59.83
School: Borehole – Available	-2.02	0.13	41.43
School: National curriculum in basic science and technology – Adequate if available	-2.73	0.07	35.11
School: Disposal facilities – In use if available	-1.94	0.14	33.68
School: Counselling services – Adequate if available	-1.46	0.23	32.68
School: Weather station – Adequate if available	-1.01	0.36	32.58
School: Administrative block – Adequate if available	-1.03	0.36	24.58
School: Gate – In use if available	-3.23	0.04	22.42
School: Disposal facilities – Good condition if available	-0.97	0.38	14.87
School: Curriculum modules in basic science and technology – Good condition if available	-1.51	0.22	8.23
Principal: Training attended – Conference, seminars & workshop	-1.62	0.20	93.67
Principal: Perception – Community has favourable attitude to school activities	-1.12	0.33	85.91
Principal: Training attended – Full time in-service training (NCE, degree, postgraduate)	-1.08	0.34	46.94
Principal: Perception – Learners compete favourably with other schools in external examination	-3.32	0.04	28.96
Principal: Reside in community in which school is located	-0.93	0.40	26.42
Principal: Perception – Learners perform excellently during sport competitions	-0.93	0.40	10.84
Principal: Perception – Learners do well in reading competition compared to other learners	-1.08	0.34	6.26
Teacher: Challenges to teaching – Noise	-3.34	0.04	307.72
Teacher: Committed to teaching jobs	-2.96	0.05	185.05
Teacher: Use of ICT devices – Projector	-2.73	0.07	152.97

Variables	B (log odds)	Exp(B) (odds)	Change in model if item removed
Teacher: Perceived impact of training – RANA	-1.40	0.25	126.88
Teacher: Teaching method – Review homework with learners	-2.05	0.13	103.11
Teacher: Satisfaction – Promotion	-1.09	0.34	78.86
Teacher: Teaching method – Use of projects	-1.08	0.34	65.51
Teacher: Teaching in more than one school	-2.10	0.12	34.30
Parent: Support for learning – Tutoring in basic science and technology	-3.58	0.03	260.38
Parent: Support for learning – Homework in basic science and technology	-3.15	0.04	143.29
Parent: Perception of school – Inculcates good discipline in my child	-3.64	0.03	122.71
Parent: Gender – Female	-2.08	0.12	65.98
Parent: Occupation – Outdoor (farmer, fisher, herder)	-3.99	0.02	60.75
Parent: Response to child's misbehaviour – Beat the child	-1.33	0.26	45.78
Parent: Perception of school – Encourages parent involvement	-1.78	0.17	39.10
Parent: Response to child's misbehaviour – Withdraw privileges	-1.60	0.20	38.38

Chapter 6. Conclusion and recommendations

6





Learning performance of Nigerian learners

NALABE 2022 provided a robust measurement of learning performance of a nationally representative sample of P3, P5 and JS2 learners in Nigeria in the four core subjects of mathematics, English studies, basic science and technology, and social studies. The results indicated that learners' achievement varied by class and subject.

On average, a third to half of learners in Nigeria met or exceeded the required minimum proficiency level (levels 3 and 4), except in JS2 mathematics where only 14 per cent of learners achieved the minimum proficiency. In P3, 50 per cent of learners in mathematics and 32 per cent in English studies reached the minimum proficiency. In P5, 34 per cent of learners in mathematics, 44 per cent in English studies, 43 per cent in basic science and technology, and 50 per cent in social studies reached the minimum proficiency. In JS2, 14 per cent in mathematics, 31 per cent in English studies, 50 per cent in basic science and technology, and 48 per cent in social studies attained the minimum proficiency.

This suggests that the educational system in Nigeria has enabled a good proportion of learners to develop the required competencies in the core subjects based on the national curriculum. It is noteworthy that there were also learners who exceeded the minimum proficiency (at level 4), which accounted for 1–7 per cent of learners, except for P3 mathematics where 17 per cent reached the top proficiency level (level 4).

NALABE 2022 also revealed, however, that a sizable number of learners in Nigeria did not make progress as expected in the national curriculum. The percentage of learners who failed to reach the required minimum proficiency, i.e., either partially meets the minimum proficiency (level 2) or below partially meets the minimum proficiency (level 1), ranged from 49 per cent to 86 per cent. Inevitably, the largest percentages of learners failing to meet the minimum proficiency levels were found in JS2, where 86 per cent in mathematics, 62 per cent in English studies, 39 per cent in basic science and technology, and 43 per cent in social studies were not able to attain the minimum proficiency.

These are learners who struggled to achieve the required proficiency level and whom teachers should target through data-informed, content-based strategies and support for improvement so that they reach the next level up on the proficiency scale. In addition, a fairly large number of learners functioned at below partially meets proficiency (level 1), accounting for 8–15 per cent of learners in P3, 10–15 per cent in P5 and 7–36 per cent in JS2. These learners at the lowest level of proficiency (level 1) have been left behind in learning and need targeted, intensive and tailored support.

Mathematics

The results in P3 mathematics were the best across all subjects and class levels. Half of P3 learners (50 per cent) attained the minimum proficiency (levels 3 and 4), with 17 per cent exceeding the minimum proficiency (level 4). Mathematics in P5 and JS2 gets progressively more difficult as the content becomes more challenging. The percentage of learners with the minimum proficiency dropped to 34 per cent in P5 with only 3 per cent exceeding the minimum proficiency (level 4). The decline continued in JS2 where just 14 per cent of learners attained the minimum proficiency with only 1 per cent reaching level 4. In other words, the proportion of learners who failed to reach the minimum proficiency (levels 1 and 2) increased from 50 per cent in P3 to 66 per cent in P5 and 86 per cent in JS2.

There was no notable gender difference in the percentage of learners meeting the minimum proficiency in mathematics in all the classes. Learners in urban schools outperformed rural school learners in P3 and P5, but rural school learners outperformed their urban school counterparts in JS2. The urban school advantage in P3 and P5 and the rural advantage in JS2 were observed for both females and males. Private school learners outperformed public school learners in P3, P5 and JS2. The private school advantage in mathematics held for both female and male learners in all the classes.

The domains of mathematics assessed in NALABE 2022 were numbers and numeration, basic operations, algebraic processes mensuration and geometry, and everyday statistics. No clear pattern emerged in terms of percent-correct scores by content domain.

English studies

The learners' performance in English studies was marked by steady improvement from P3 to P5 but a decline from P5 to JS2, quite possibly a product of the development of skills in language use rather than the acquisition of knowledge. The percentage of learners who attained the minimum proficiency (levels 3 and 4) was 32 per cent in P3, 44 per cent in P5 and 31 per cent in JS2. From the other side of the coin, learners who failed to perform the expected proficiency (levels 1 and 2) comprised as much as 68 per cent of learners in P3, 56 per cent in P5 and 69 per cent in JS2.

On average, female learners outperformed male learners in English studies in P5 and JS2, but not in P3. Learners in urban schools slightly outperformed their rural counterparts, particularly in P3 and P5. The small but consistent urban advantage in P3 and P5 was observed for both female and male learners. Private school learners also achieved significantly higher performance than public school learners across all three classes. The private school advantage in English studies held for both female and male learners in P3, P5 and JS2.

Mean percent-correct scores on reading comprehension – the most important aspect of language learning especially in the early grades – were 55 per cent in P3, 56 per cent in P5, and 50 per cent in JS2. This indicates a clear need to provide focused attention to those learners who fail to develop necessary, foundational skills in reading at the early grades.

Basic science and technology

In basic science and technology, just under half (43 per cent) of P5 learners attained the minimum proficiency (levels 3 and 4). The percentage increased to 50 per cent in JS2 with 5 per cent of learners exceeding the minimum proficiency (level 4). This, however, still left 56 per cent and 50 per cent of learners in P5 and JS2, respectively, failing to reach the minimum proficiency. About 12 per cent of learners were below partially meets the minimum proficiency (level 1) in both classes.

There was no significant gender difference in performance in basic science and technology in either class. Similarly, no significant difference in performance was identified between urban and rural schools in P5, although JS2 learners in rural schools achieved slightly better results than their urban school counterparts. The rural advantage in JS2 was more evident for female learners than male learners. Private school learners were higher performers than their public school counterparts in both P5 and JS2. The private school advantage was more evident for male learners in P5, while it held for both male and female learners in JS2.

The contents of basic science and technology in P5 and JS2 targeted in NALABE 2022 were basic science, basic technology, physical and health education, and information technology. Learners in P5 were more successful in basic science but relatively weak in basic technology and information technology. This pattern was reversed in JS2 where learners achieved better results in basic technology and information technology but were less successful in basic science and physical and health education.

Social studies

Achievement in social studies in both P5 and JS2 was marginally the best of all subjects and classes assessed on NALABE 2022. The percentage of learners who achieved the minimum proficiency (levels 3 and 4) was 50 per cent in P5 and 48 per cent in JS2, with 7 per cent and 3 per cent exceeding the minimum proficiency (level 4) in each class. There still remained half of learners, however, who failed to reach the expected proficiency (levels 1 and 2), with 15 per cent of P5 learners and 10 per cent of JS2 learners below partially meets the minimum proficiency (level 1).

There were no notable gender differences in performance in P5, but females outperformed their male counterparts in JS2. Also, no significant differences in performance were identified between urban and rural schools in P5, while JS2 learners in rural schools achieved slightly better results than their urban school counterparts. The rural advantage in JS2 held for both female and male learners. Private school learners performed better than their public school counterparts in both classes.

With regards to subject content, learners in P5 were more successful in family and least successful in social and health issues, while those in JS2 achieved best results in social and health issues and did not perform well on national economy.

Cognitive levels

In NALABE 2022, percent-correct scores by cognitive levels (i.e., knowledge, reasoning and application) were the highest for knowledge items on 4 of the 10 total tests, for reasoning items on 1 test, and for application items on 5 tests. When we produce a dichotomy between cognitively simpler versus cognitively more complex items (i.e., knowledge vs. reasoning and application), learners in Nigeria were more comfortable with cognitively simpler items on 5 tests, equally comfortable with simpler and more complex items on 3 tests, and scored higher on the cognitively more complex items than on the simpler items on the remaining 2 tests. This implies that learners tend to perform better on knowledge-based items.

State performance

The state of Imo stood out as by far the most consistently high performer, the top state out of 37 states on 7 of 10 of the tests, and second top in a further 2 tests. The state of Kebbi was the top-performing state on 1 test, and among the top five states in a further 6 tests. The states of Katsina and Kogi also were top states in 1 test, and in the top five states in a further 4 tests. Other states performing in the top five states multiple times include Kaduna, Sokoto, Rivers and Gombe.

Context of learning

Supporting all learners to achieve the minimum proficiency and closing the learning gaps is an important goal in basic education in Nigeria. In order to facilitate it, it is critical to understand the school and home environments in which children in Nigeria grow and learn. The NALABE 2022 survey shed light on both positive and challenging aspects of learning conditions and environments in Nigeria.

For example, a considerable number of primary and junior secondary schools reported a deficit of facilities and equipment for learning (e.g., libraries, science laboratories, furniture and staff rooms), safety (e.g., gates, fences and warning systems) and WASH (e.g., boreholes and toilets), as well as essential teaching and learning materials (e.g., curricula, syllabi and schemes of work). Many learners also experienced bullying, fighting and stealing in school. All of these pose challenges to securing safe, healthy and academically conducive learning environments for learners.

A majority of teachers in Nigeria hold a teaching qualification and are committed to their work and satisfied with their job. Many of them, however, face various challenges such as overcrowded and noisy classrooms, lack of instructional materials, insecurity and delayed salary payment, which result in diminished teacher efficacy. Nonetheless, many teachers made efforts to help learners learn by applying different teaching strategies, which included telling the objective of lessons, supporting group work, giving tests periodically and encouraging self-reflection. Close to 70 per cent of teachers also received professional training in the last three years.

On a positive side, most primary and junior secondary school learners live with their parents, and majority of the parents support their child's learning and respond to the child's learning outcomes to encourage him/her

to do better academically. Most schools also have functional SBMCs, which implies parental and community engagement in school operations as well. Parents and local communities in Nigeria support learners' learning both in school and at home.

One important challenge is that, given a lack of robust and comparable learning assessment data for schools and children, a majority of school leaders believed that learners in their school learn well, and most parents perceived that their child's school meets the child's learning needs adequately. With the optimism derived from the absence of credible learning data, the school leaders and parents do not have a sense of urgency to improve the quality of education and learning.

Addressing the learning crisis

Since resources for education reform are limited, it is critical to invest in interventions that are proven effective by evidence so that education stakeholders are held accountable for effective and efficient delivery of results. NALABE 2022, through regression analysis, provided suggestive evidence and insights into potential policy actions.

For instance, we found positive association between learning achievement and use of English as instructional language (i.e., English only or both English and a local language) at the junior secondary school level. Teachers' practices of applying experimental/laboratory activities and grouping learners during lessons also show a positive association with the probability of junior secondary school learners meeting the minimum proficiency. There is also suggestive evidence of the importance of teacher's education, qualification and professional support. For instance, learning achievement of JS2 learners was positively associated with the proportion of teachers who earned a first degree and HND with teaching qualifications and who received professional support from supervisors/inspectors. Furthermore, the analysis indicated the role of parents in promoting their child's learning. For example, there was a significant and positive association between learning performance and parents' practices of ensuring their child go to school and commending child's achievement.

It is important to conduct more robust and contextual analysis to examine which interventions are more critical for increasing quality of teaching and learning and how these interventions should be implemented in alignment with the national and state education sector strategies and plans.

Policy recommendations

NALABE 2022 provided the most reliable analysis of learners' performance ever in the history of Nigeria. It provides an unprecedented opportunity to develop a shared understanding of how well Nigerian learners perform in the Basic Education Curriculum, facilitate evidence-based policy dialogue on education and learning, and inform education policy and plans to close the learning gaps. The timing is opportune, since Nigeria has recently launched the Nigeria Education Sector Renewal Initiative to transform the education sector in order to achieve the country's education goals. Based on the key findings and new evidence from the 2022 NALABE, the following policy recommendations are presented as ways forward to transform education systems and practices, enhance the quality of education and improve learning for all learners in Nigeria.

Recommendation 1: Promote equity in basic education by supporting children who do not achieve the minimum proficiency.

A large share of Nigerian learners in basic education across classes and subjects did not meet the minimum proficiency level. These children have already fallen behind in learning and do not have the foundations to develop more advanced knowledge and skills. Especially vulnerable are the 13 per cent of learners who, on average, were below partially meets the minimum proficiency level (level 1). Bringing these children to the minimum proficiency level is of critical importance given the equal right to quality, inclusive education and learning for all learners. The following actions are recommended to achieve this goal:

- ▶ **Review and update both the curriculum standards and performance standards for each subject and class level.** The foundation of an effective assessment system are the curriculum standards that define what learners should know and be able to do, what teachers should therefore focus on, and what assessment systems should measure. These provide performance standards for all children in Nigeria and thus should be coherent with national and state level educational policies. It is therefore important that curriculum standards are reviewed and revised periodically, considering assessment results from surveys such as NALABE.
- ▶ **Review available evidence to identify and implement policy and interventions proven effective to improve learning of academically disadvantaged learners.** It is critical to understand why some children are left behind in learning while others meet the minimum proficiency level. For example, the logistic regression analysis in this report provided suggestive evidence on factors associated with the probability of meeting the minimum proficiency. These include quality assurance by supervisors and school support officers and teaching methods like grouping learners into small groups. Such evidence and insights should be further examined in context to scale up evidence-based interventions that are designed to support learners who struggle in their learning. State governments are encouraged to develop an action plan to address the learning gaps in their state.

Recommendation 2: Enable learners who achieved the minimum proficiency to further strengthen their competencies by improving the coherence of education systems and learning support across grades and education levels.

The percentage of learners who met the minimum proficiency level decreased as learners moved to higher grades and transitioned from primary to junior secondary in mathematics and basic science and technology. This means that many learners who achieved the minimum proficiency in lower grades could not make expected learning progress as they stayed in the education system. To support learners' learning trajectory, the school systems, curriculum, textbooks and teaching practices must be designed and delivered coherently across classes and education levels. It is recommended that a review be conducted to improve the coherence of school systems and learning support across classes and levels to facilitate continuous, seamless, and progressive learning.

Recommendation 3: Address learning gaps between states by encouraging all states to improve the quality of education and by providing targeted support to states in need.

There were large interstate differences in learners' performance across classes and subjects. Given that basic education is a human right, every Nigerian learner should benefit from education and achieve the minimum proficiency regardless of where learners were born and live. It is recommended that all states commit to providing equitable, inclusive quality education for all learners, while the federal government and development partners support states facing bottlenecks such as insecurity and poverty.

► Encourage and support state governments to develop remedial plans to address major learning gaps.

It is recommended that NALABE 2022 State Scorecards be used to analyse and identify subject themes and sub-themes as well as cognitive levels where learners in each state did not perform well. The state government should use the analyses to design remedial activities that are customized to address challenges specific to each state to close learning gaps.

Recommendation 4: Develop school scorecards to help school-level stakeholders understand the performance of learners in their schools and be accountable for improving the quality of education and learning.

NALABE 2022 uncovered optimism among school leaders and parents. About 94 per cent of school leaders reported that learners in their school coped with the school curriculum, and 88–93 per cent of head teachers and principals perceived that their learners performed above the national average. Additionally, 93 per cent of primary school parents and 91 per cent of junior secondary school parents reported that schools were meeting their child's learning needs. Yet only 14–51 per cent of learners met the minimum proficiency level in the core subjects. Similarly, while more than 90 per cent of school leaders (97 per cent of head teachers and 92 per cent of principals) believed that learners in their schools could apply what they learned, 49–67 per cent of learners struggled with reasoning and application skills at the cognitive level.

With the optimism resulting from the lack of robust school-level and child-level performance data, school leaders cannot have a sense of urgency to improve the quality of education and learning in their school, while parents do not take proactive actions to hold their schools accountable for the child's academic development. It is recommended to share the results of learning achievement with school and community members in the form of school scorecards.

► Improve assessment data sharing for greater awareness: Develop robust assessment data systems to distribute school-level assessment results, information and insights with school leaders and community members to facilitate data-informed decision making.

► Strengthen parental and community involvement: Improve communication between schools and parents/communities to ensure families are fully informed about education and learning in their schools and to enable parents to actively support their child's learning. This includes addressing issues such as bullying and enhancing parental involvement in school activities.

Recommendation 5: Plan the next round of NALABE with a revised design that enables Nigeria to assess improvement of learning performance with more accurate, contextual and policy-oriented analysis:

Although NALABE 2022 successfully measured and presented the performance of Nigerian learners, it is recommended that national learning assessments be implemented with the following key features.

Representative sample of learners

- **Provide the most recent, accurate sampling frame:** Listings of all schools in the country with accurate enrolment information and school metadata is a precondition for estimating learning achievement at national, state and local government area (LGA) levels and for different subgroups. The government must ensure that the complete school listing with enrolment data is produced for the next NALABE.
- **Conduct random sampling at the federal level:** There is evidence that some states did not follow the guidance on sampling design. To ensure that the sampling procedures are conducted in full compliance with the guidelines, a technical group formed at the federal level should conduct sampling of schools.
- **Conduct school sampling at the LGA level to obtain valid performance results:** The sampling plan for NALABE 2022 was designed at the state level without stratification for LGAs, which did not enable a valid estimation of learners' performance at the LGA level. Conducting random sampling of schools within each LGA is recommended in the next round of NALABE to enable calculation of valid LGA-level performance results.

Learning achievement by cognitive level

- **Improve clarity of specifications of cognitive levels for each subject:** NALABE 2022 did not have precise specifications of cognitive levels that would enable clear distinction of test items between reasoning and application levels. It is suggested that the next round of NALABE make necessary improvements so that learners' performance can be accurately measured at three cognitive levels. This should allow for custom definitions of cognitive levels within each subject, assuming some loss of comparability of cognitive levels across subjects.

Assessment of learning gains over time

- **Link NALABE 2022 and its next round to enable comparability (i.e., equating):** The next round of NALABE should employ a 'common items' design by including at least 20 per cent of test items from NALABE 2022 into the next cycle. In such a way NALABE 2022 will serve as a baseline to measure the change in national- and state-level learning performance over the years.

Test administration

- **Provide standardized test administration manual with improved guidance to learners about how to fill out the answer sheets for tests and questionnaires:** It was observed that some learners had difficulty using optical mark recognition (OMR) answer sheets. To reduce missing data and measurement errors, the guidance given to learners must be revised and standardized.

Analysis of factors associated with learning achievement

- **Collect more contextual information on learners:** The non-cognitive survey should be revised to collect more contextual information of individual learners, which helps uncover factors associated with learners' learning achievement. This could include the presence of functional difficulties and engagement in child labour, among others. Some information collected at the school level, such as ability grouping practice, should be also collected at the learners' level.
- **Design the coding of respondents to the non-cognitive survey in a way that links school, teacher and parent data to individual learners:** Non-cognitive data collected from parents and teachers in NALABE 2022 were not linked to their learners, which reduced accuracy in exploring associations between contextual factors and learners' achievement. The next round of NALABE should design a coding system for schools, teachers, parents and learners in a way that enables linking learners with their parents, teachers and schools. The school identifier should be the school code used in the National Personnel Audit (NPA), so that NALABE can link the school data from the NPA.

Capacity to use the assessment results

- **Develop and implement local capacity-strengthening plans:** It is recommended that the next NALABE develops plans for embedded capacity-strengthening activities for policymakers, education authorities and schools on using the assessment data to inform development and implementation of policy, programmes and practices for promoting education quality through improved teaching and learning practices.

Dissemination of assessment results

- Separate the NALABE report into multiple parts to enable more timely and targeted reporting: The development of the NALABE 2022 integral report represented a long and laborious endeavour that yielded a large and complex document difficult to consume by typical readers. Thus, it is recommended to develop different reports and materials for different audiences, which may include: 1) a public report to meet informational needs of broad audiences; 2) a technical report presenting more technical background and details; and 3) state/school scorecards informing instructional support teams to develop remedial activities at state and school levels.

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Endnotes

¹ Data obtained from the Nigeria National Personnel Audit carried out by UBEC in 2022.

² 'Case' in this context does not refer to a unique learner; rather, 'case' refers to a single test booklet or answer sheet. The total number of learners is much smaller as each learner was answering multiple tests (up to 4).

³ In the NALABE 2022 design, the number of schools is the same as the number of classes because only one class was selected at each sampled school.

⁴ For the results of these efforts, see Global Proficiency Framework for Reading and Global Proficiency Framework for Mathematics, both from December 2020.

⁵ The question on parents' highest education level was assessed using a questionnaire that is designed to ask education attainment and teaching qualification together. This may result in measurement error in the collected information.

⁶ The question on functional PTAs was not included in the questionnaire for junior secondary school principals.

⁷ In OLS regression, a standardized regression coefficient (beta) is most typically used to evaluate the unique association of each predictor with variation in the criterion variable. The beta coefficient shows how many standardized units (i.e., fractions of standard deviation) the outcome will change with a change of one unit in the predictor. The practical significance of a predictor will depend on the research domain and specific research question. In education research, it is common to use Cohen's d measure of effect size as an orientation to what is considered a meaningful change. Cohen's d represents a change in a dependent variable expressed in fractions of standard deviation. Based on arbitrarily defined criteria, Cohen's d below 0.20 is considered zero or negligible effect, a small effect is $d = 0.2$, a moderate effect is $d = 0.5$ and a large effect is $d = 0.8$. Since beta predictors represent a change in terms of standard deviation,

they can be interpreted using the same rationale as Cohen's d. Thus, our interpretation of predictors in OLS regression analyses will focus on those with beta coefficient at least 0.20.

⁸ This approach is known as a 'compensatory model', which allows scores in one subject to compensate for deficiencies in other subjects. Thus, a high score in one test, when combined with a lower score in another, produces an average that represents an overall learner's performance. This approach is also supported by the fact that learners' scores in multiple subjects are typically convergent, yielding correlations that are reasonably high to justify aggregation into the composite score.

⁹ Note that St. Agbadoogun is thought to be under Ifo local government in the State of Ogun although has been sampled separately in the Ogun LGEA sampling lists, hence accounting for the additional one participating LGEA above the total number for the State.

Appendices





Appendix A: Test blueprints

Table A1. P3 Mathematics: Test blueprint

CONTENT – Mathematics P3				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Numbers & Numeration	1	Whole numbers	10	23%	MCQs	6	2	2
		2	Fractions	4			2		2
2	Basic Operations	3	Addition	2	17%		2		
		4	Subtraction	2					2
		5	Multiplication	2			2		
		6	Division	4					4
3	Mensuration & Geometry	7	Money	10	40%		2	2	6
		8	Length	4			2		2
		9	Time	4			4		
		10	Weight	2				2	
		11	Capacity	4			2		2
4	Algebraic Processes	12	Open Sentences	6	10%			2	4
5	Everyday Statistics	13	Data collection & presentation	6	10%				6
TOTALS:				60	100%		37%	13%	50%

Notes: Count of items is given for two forms; MCQs = Multiple Choice Questions

Table A2. P5 Mathematics: Test blueprint

CONTENT – Mathematics P5				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Numbers & Numeration	1	Whole numbers	10	23%	MCQs	8		2
		2	Fractions and decimals	8			4		4
2	Basic Operations	3	Division	2	10%		2		
		4	Multiplication	6			2	2	2
3	Algebraic Processes	5	Open Sentences	14	18%			6	8
4	Mensuration & Geometry	6	Area	2	35%		2		
		7	3-dimensional shapes	2			2		
		8	Money	6			2	4	
		9	Time	4			4		
		10	Length/perimeter	8			6	2	
		11	Capacity	2			2		
		12	Weight	2				2	
		13	Volume	2			2		
		5	Everyday Statistics	14			Measures of central tendency	8	15%
15	Data collection			4			2	2	
TOTALS:				80	100%		38	18	24

Notes: Count of items is given for two forms; MCQs = Multiple Choice Questions

Table A3. JS2 Mathematics: Test blueprint

CONTENT – Mathematics JS2				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Numbers & Numeration	1	Whole numbers	12	28%	MCQs	2	2	8
		2	Fractions	10			6	4	
2	Basic Operations	3	Transactions at home and office	6	13%		4	2	
		4	Approximation	2					2
		5	Multiplication & Division	2				2	
3	Algebraic Processes	6	Algebraic expressions	6	23%		2	2	2
		7	Simple equations	8			6	2	
		8	Linear equalities	4			0	4	
4	Mensuration & Geometry	9	Plane Figures/Shapes	16	25%		2	12	2
		10	Angles	4			4		
5	Everyday Statistics	11	Data presentation	6	13%		4		2
		12	Probability	4			2	2	
TOTALS:				80	100%		32	32	16

Notes: Count of items is given for two forms; MCQs = Multiple Choice Questions

Table A4. P3 English studies: Test blueprint

CONTENT – English Studies P3				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Reading Comprehension	1	Comprehension Explicit	15	60%	MCQs	13	2	
		2	Comprehension Implicit, Summary	12				7	5
		3	Vocab Known & Unknown	9			3	2	4
2	Grammatical Accuracy	4	Verbs (form, tense, aux, adverbs)	12	40%		12		
		5	Nouns (forms, adjectives, prepositions)	8			8		
		6	Phonics (Syllabification)	4			4		
TOTALS:				60	100%		40	11	9

Notes: Count of items is given for two forms; MCQs = Multiple Choice Questions

Table A5. P5 English studies: Test blueprint

CONTENT – English Studies P5				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Reading Comprehension	1	Comprehension Explicit	19	68%	MCQs	14	5	
		2	Comprehension Implicit, Summary	18			1	9	8
		3	Vocab Known & Unknown	17			12		5
2	Grammatical Accuracy	4	Verbs (form, tense, aux, adverbs, conjunctions)	12	33%		12		
		5	Nouns (forms, adjectives, prepositions)	6			6		
		6	Phonics (Syllabification)	8			8		
TOTALS:				80	100%		53	14	13

Notes: Count of items is given for two forms; MCQs = Multiple Choice Questions

Table A6. JS2 English studies: Test blueprint

CONTENT – English Studies JS2				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Reading Comprehension	1	Comprehension Explicit	22	62%	MCQs	10	12	
		2	Comprehension Implicit, Summary	12				12	
		3	Vocab Known & Unknown	14			10		4
2	Grammatical Accuracy	4	Verbs (form, tense, aux, adverbs, conjunctions)	6	31%		6		
		5	Nouns (forms, adjectives, prepositions)	12			12		
		6	Phonic/Syllabification	6			6		
3	Literary Appreciation	7	Figure of speech	4	8%		4		
		8	Literary devices	2			2		
TOTALS:				78	100%		50	24	4

Notes: Count of items is given for two forms; * one item is excluded from each form; MCQs = Multiple Choice Questions

Table A7. P5 Basic science and technology: Test blueprint

CONTENT – Basic Science & Technology P5				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Basic Science	1	Exploring our environment	10	32%	MCQs	6	2	2
		2	Living and non-living things	14			6	6	2
2	Basic Technology	3	Understanding basic technology	14	29%		8	4	2
		4	You and energy	8			2	4	2
3	Physical & Health Education	5	Basic movements	4	32%		2	2	
		6	Athletics	4			2	2	
		7	Games and sports	4			2	2	
		8	Health education	10			4	4	2
		9	Pathogens, diseases, and prevention	2			2		
4	Information & Communication Technology	10	Basic concepts in IT	4	8%		2	2	
		11	Basic computer operations	2			2		
TOTALS:				76 *	100%		38	28	10

Notes: Count of items is given for two forms; * two items are excluded from each form; MCQs = Multiple Choice Questions

Table A8. JS2 Basic science and technology: Test blueprint

CONTENT – Basic Science & Technology JS2				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Basic Science	1	Learn about environment	10	26%	MCQs	2	2	6
		2	You and energy	8			2	4	2
		3	Science and development	2			2		
2	Basic Technology	4	Materials and processing	4	26%		2	2	
		5	Drawing practice	4			2	2	
		6	Tools, machines, processes	8			4	2	2
		7	Safety	4			2	2	
3	Physical & Health Education	8	Basic human movement	18	24%		9	4	5
4	Information & Communication Technology	9	Basic computer concepts	10	24%		4	4	2
		10	Computer app packages	2				2	
		11	Basic knowledge of IT	6			2	2	2
TOTALS:				76 *	100%		31	26	19

Notes: Count of items is given for two forms; * two items are excluded from each form; MCQs = Multiple Choice Questions

Table A9. P5 Social studies: Test blueprint

CONTENT – Social Studies P5				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Fundamentals of Social Studies	1	How environment affects man and vice versa	16	20%	MCQs	6	3	7
2	Family	2	Other people in the family and how they relate to each other	6	10%		4	2	
		3	Tolerance of other people in the family	2					2
3	Unity in Cultural Diversity	4	Meaning of culture	19	50%		8	4	7
		5	Responsible parenthood	11			4	4	3
		6	Unity in cultural diversity	10			4	3	3
4	Social and Health Issues	7	Personal hygiene & physical develop	16	20%		3	11	2
TOTALS:				80	100%		29	27	24

Notes: Count of items is given for two forms; MCQs = Multiple Choice Questions

Table A10. JS2 Social studies: Test blueprint

CONTENT – Social Studies JS2				ITEMS across 2 forms			COGNITIVE LEVEL		
Theme		Sub-Theme		COUNT	PERCENT	TYPE	Know	Reason	Apply
1	Culture & Social Values	1	Marriage	4	10%	MCQs	2	2	
		2	Religion	4			2	2	
2	Social & Health Issues	3	Drug abuse	16	45%		6	4	6
		4	Poverty	6				6	
		5	Corruption	11			1	7	3
		6	Cultism	2			1		1
		7	Accidents	1				1	
3	Science & Technology Development	8	Meaning and importance of ST development	12	15%		4	6	2
4	National Economy	9	Saving and ways of saving	10	30%		6	4	
		10	Resources	14			2	11	1
TOTALS:				80	100%		24	43	13

Notes: Count of items is given for two forms; MCQs = Multiple Choice Questions

Appendix B: Test maps and item statistics

Table B1. P3 Mathematics: Test map and item statistics (Forms A and B)

Position		CONTENT STRUCTURE - P3 Mathematics						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav Grp
1	3	MA0322001	C	Algebraic Processes	Open sentences (Find unknown)	Apply	63752	11	11	62	13	-0.26	-0.17	0.47	-0.22	0.62	0.47	0.81	-0.48	53.82	no DIF	n/a
2	2	MA0322002	A	Algebraic Processes	Open sentences (Find unknown)	Reason	63752	77	11	6	4	0.44	-0.24	-0.23	-0.20	0.77	0.44	0.89	-1.12	191.40	no DIF	n/a
3	1	MA0322003	D	Basic Operations	Division	Apply	63752	18	13	15	50	-0.22	-0.17	-0.25	0.50	0.50	0.50	0.87	-0.02	110.46	no DIF	n/a
4	4	MA0322004	D	Mensuration & Geometry	Length (perimeter of square)	Know	63752	11	10	11	64	-0.21	-0.20	-0.11	0.38	0.64	0.38	0.58	-0.71	90.21	no DIF	n/a
5	8	MA0322005	C	Basic Operations	Addition of 3-digit numbers	Know	63752	8	10	64	15	-0.26	-0.22	0.46	-0.17	0.64	0.46	0.80	-0.59	60.73	no DIF	n/a
6	7	MA0322006	B	Basic Operations	Subtraction (of fractions)	Apply	63752	14	63	9	11	-0.17	0.34	-0.22	-0.08	0.63	0.34	0.51	-0.73	41.69	no DIF	n/a
7	6	MA0322007	B	Numbers & Numeration	Whole numbers (counting)	Know	63752	7	75	8	7	-0.20	0.40	-0.24	-0.13	0.75	0.40	0.73	-1.16	154.62	no DIF	n/a
8	5	MA0322008	D	Everyday Statistics	Data collection & presentation	Apply	63752	10	10	23	53	-0.23	-0.24	-0.16	0.46	0.53	0.46	0.75	-0.13	107.43	no DIF	n/a
9	9	MA0322009	B	Mensuration & Geometry	Capacity	Know	63752	7	63	8	19	-0.21	0.39	-0.21	-0.14	0.63	0.39	0.61	-0.63	73.35	no DIF	n/a
10	11	MA0322010	D	Mensuration & Geometry	Money	Know	63752	15	9	7	68	-0.27	-0.23	-0.21	0.49	0.68	0.49	0.93	-0.68	50.94	no DIF	n/a
11	10	MA0322011	A	Mensuration & Geometry	Capacity	Apply	63752	51	10	10	26	0.43	-0.22	-0.18	-0.17	0.51	0.43	0.69	-0.06	321.92	no DIF	n/a
12	12	MA0322012	C	Basic Operations	Multiplication	Know	63752	9	13	67	8	-0.24	-0.30	0.49	-0.14	0.67	0.49	0.87	-0.66	61.99	no DIF	n/a
13	15	MA0322013	A	Mensuration & Geometry	Time (calendar)	Know	63752	74	9	8	6	0.49	-0.25	-0.25	-0.22	0.74	0.49	1.02	-0.92	48.83	no DIF	n/a
14	14	MA0322014	B	Mensuration & Geometry	Time (clock)	Know	63752	8	77	6	6	-0.22	0.45	-0.25	-0.20	0.77	0.45	0.92	-1.09	160.01	no DIF	n/a
15	13	MA0322015	A	Numbers & Numeration	Whole numbers (ordering)	Reason	63752	58	9	15	15	0.38	-0.24	-0.12	-0.16	0.58	0.38	0.58	-0.40	87.04	no DIF	n/a
16	16	MA0322016	C	Mensuration & Geometry	Money	Apply	63752	11	14	60	11	-0.25	-0.23	0.46	-0.14	0.60	0.46	0.75	-0.44	71.40	no DIF	n/a
17	17	MA0322017	A	Mensuration & Geometry	Length	Apply	63752	68	11	9	9	0.46	-0.21	-0.23	-0.22	0.68	0.46	0.82	-0.73	55.81	no DIF	n/a
18	20	MA0322018	B	Numbers & Numeration	Whole numbers	Know	63752	15	60	13	9	-0.26	0.47	-0.20	-0.16	0.60	0.47	0.79	-0.42	100.37	no DIF	n/a
19	19	MA0322019	A	Numbers & Numeration	Fractions	Apply	63752	47	16	18	17	0.37	-0.18	-0.20	-0.06	0.47	0.37	0.55	0.17	134.81	no DIF	n/a
20	18	MA0322020	C	Everyday Statistics	Data collection & presentation	Apply	63752	21	24	41	11	-0.12	-0.18	0.39	-0.13	0.41	0.39	0.60	0.42	167.02	no DIF	n/a

Position		CONTENT STRUCTURE - P3 Mathematics						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav Grp
21	23	MA0322021	A	Numbers & Numeration	Whole numbers	Apply	63752	58	15	20	5	0.46	-0.24	-0.20	-0.20	0.58	0.46	0.77	-0.33	265.80	no DIF	n/a
22	22	MA0322022	A	Mensuration & Geometry	Money	Apply	63752	63	21	8	5	0.46	-0.26	-0.22	-0.17	0.63	0.46	0.78	-0.55	58.95	no DIF	n/a
23	21	MA0322023	C	Numbers & Numeration	Whole numbers	Know	63752	18	16	56	8	-0.30	-0.19	0.51	-0.18	0.56	0.51	0.90	-0.23	120.84	no DIF	n/a
24	24	MA0322024	B	Mensuration & Geometry	Money	Apply	63752	14	60	11	12	-0.19	0.48	-0.22	-0.22	0.60	0.48	0.80	-0.41	58.22	no DIF	n/a
25	26	MA0322025	C	Everyday Statistics	Data collection & presentation	Apply	63752	21	18	50	8	-0.23	-0.21	0.48	-0.15	0.50	0.48	0.78	0.01	217.23	no DIF	n/a
26	25	MA0322026	B	Mensuration & Geometry	Money	Reason	63752	22	38	23	13	-0.11	0.28	-0.07	-0.10	0.38	0.28	0.40	0.77	135.21	no DIF	n/a
27	30	MA0322027	A	Algebraic Processes	Open sentences (Find unknown)	Apply	63752	63	10	9	13	0.49	-0.22	-0.20	-0.21	0.63	0.49	0.85	-0.54	42.10	no DIF	n/a
28	28	MA0322028	B	Numbers & Numeration	Fractions	Know	63752	16	54	13	13	-0.20	0.40	-0.15	-0.13	0.54	0.40	0.59	-0.22	108.38	no DIF	n/a
29	29	MA0322029	C	Mensuration & Geometry	Weight	Reason	63752	28	13	46	8	-0.04	-0.19	0.35	-0.16	0.46	0.35	0.50	0.21	43.90	no DIF	n/a
30	27	MA0322030	A	Basic Operations	Division	Apply	63752	57	12	18	9	0.44	-0.20	-0.18	-0.19	0.57	0.44	0.68	-0.33	136.22	no DIF	n/a

Table B2. P5 Mathematics: Test map and item statistics (Forms A and B)

Position		CONTENT STRUCTURE - P5 Mathematics						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
1	3	MA0522001	D	Mensuration & Geometry	Time	Know	64630	14	9	6	70	-0.29	-0.23	-0.20	0.48	0.70	0.48	1.06	-0.73	106.27	no DIF	n/a
2	2	MA0522002	D	Mensuration & Geometry	Area	Know	64630	10	15	9	63	-0.19	-0.12	-0.14	0.31	0.63	0.31	0.49	-0.76	190.62	no DIF	n/a
3	1	MA0522003	A	Mensuration & Geometry	Money	Apply	64630	71	8	6	12	0.44	-0.19	-0.18	-0.25	0.71	0.44	0.93	-0.82	45.49	no DIF	n/a
4	7	MA0522004	C	Basic Operations	Multiplication	Apply	64630	16	10	65	8	-0.26	-0.23	0.48	-0.20	0.65	0.48	0.95	-0.57	30.71	no DIF	n/a
5	6	MA0522005	C	Mensuration & Geometry	3-Dimensional shape	Know	64630	25	22	27	23	-0.07	-0.12	0.21	0.00	0.27	0.21	0.30	2.07	101.92	no DIF	n/a
6	5	MA0522006	A	Algebraic processes	Open Sentence	Apply	64630	66	10	14	8	0.50	-0.22	-0.30	-0.20	0.66	0.50	1.03	-0.61	31.87	no DIF	n/a
7	4	MA0522007	A	Algebraic processes	Open Sentence	Apply	64630	68	9	12	9	0.50	-0.21	-0.26	-0.27	0.68	0.50	1.09	-0.66	55.65	no DIF	n/a
8	8	MA0522008	A	Basic Operations	Multiplication	Reason	64630	72	7	15	5	0.44	-0.21	-0.25	-0.22	0.72	0.44	0.86	-0.88	41.01	no DIF	n/a
9	12	MA0522009	B	Numbers and Numeration	Percentage	Reason	64630	8	70	11	8	-0.20	0.40	-0.21	-0.18	0.70	0.40	0.71	-0.93	37.32	no DIF	n/a
10	11	MA0522010	B	Algebraic Processes	Open Sentence	Reason	64630	13	71	7	7	-0.29	0.46	-0.21	-0.18	0.71	0.46	0.94	-0.84	65.98	no DIF	n/a
11	10	MA0522011	B	Algebraic processes	Open Sentence	Apply	64630	20	50	16	12	-0.14	0.35	-0.12	-0.20	0.50	0.35	0.48	-0.03	204.59	no DIF	n/a
12	9	MA0522012	B	Mensuration & Geometry	Length	Reason	64630	16	63	10	9	-0.26	0.44	-0.19	-0.17	0.63	0.44	0.75	-0.56	57.51	no DIF	n/a
13	16	MA0522013	B	Numbers and Numeration	Decimal numbers	Reason	64630	21	46	18	12	-0.10	0.35	-0.20	-0.15	0.46	0.35	0.51	0.19	58.72	no DIF	n/a
14	15	MA0522014	D	Mensuration & Geometry	Money	Know	64630	9	14	7	68	-0.26	-0.20	-0.21	0.44	0.68	0.44	0.88	-0.74	78.68	no DIF	n/a
15	14	MA0522015	B	Mensuration & Geometry	Perimeter	Know	64630	19	53	11	15	-0.23	0.42	-0.16	-0.17	0.53	0.42	0.67	-0.14	68.62	no DIF	n/a
16	13	MA0522016	B	Mensuration & Geometry	Length	Apply	64630	13	28	43	14	-0.11	0.08	0.10	-0.11	0.28	0.08	0.10	5.80	190.35	no DIF	n/a
17	17	MA0522017	D	Numbers and Numeration	Fractions/Decimals	Know	64630	45	12	8	33	-0.11	-0.17	-0.19	0.37	0.33	0.37	0.53	0.91	163.38	no DIF	n/a
18	18	MA0522018	C	Basic Operations	Multiplication	Know	64630	12	13	63	9	-0.26	-0.25	0.49	-0.18	0.63	0.49	0.89	-0.53	20.08	no DIF	n/a
19	19	MA0522019	D	Mensuration & Geometry	Time	Know	64630	12	8	9	68	-0.24	-0.19	-0.25	0.46	0.68	0.46	0.88	-0.72	61.99	no DIF	n/a
20	20	MA0522020	C	Numbers and Numeration	Quantitative reasoning	Reason	64630	16	21	42	18	-0.10	-0.15	0.26	-0.06	0.42	0.26	0.35	0.61	32.07	no DIF	n/a
21	24	MA0522021	C	Numbers and Numeration	Place value	Know	64630	15	22	52	9	-0.21	-0.29	0.51	-0.18	0.52	0.51	0.89	-0.10	50.23	no DIF	n/a

Position		CONTENT STRUCTURE - P5 Mathematics						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
22	22	MA0522022	A	Numbers and Numeration	Place value	Know	64630	57	14	22	5	0.40	-0.18	-0.21	-0.17	0.57	0.40	0.59	-0.36	32.39	no DIF	n/a
23	23	MA0522023	C	Everyday Statistics	Reading bar graph	Reason	64630	26	27	27	18	-0.04	-0.09	0.12	0.04	0.27	0.12	0.16	3.64	36.02	no DIF	n/a
24	21	MA0522024	B	Mensuration & Geometry	Capacity	Know	64630	19	40	22	17	-0.12	0.32	-0.22	-0.03	0.40	0.32	0.45	0.60	105.95	no DIF	n/a
25	26	MA0522025	C	Numbers and Numeration	Quantitative reasoning	Reason	64630	13	12	62	10	-0.23	-0.22	0.47	-0.21	0.62	0.47	0.85	-0.49	27.80	no DIF	n/a
26	25	MA0522026	A	Mensuration & Geometry	Weight	Apply	64630	50	21	17	10	0.46	-0.27	-0.15	-0.18	0.50	0.46	0.77	-0.02	112.62	no DIF	n/a
27	27	MA0522027	B	Mensuration & Geometry	Volume	Know	64630	23	53	11	11	-0.25	0.46	-0.20	-0.15	0.53	0.46	0.72	-0.13	116.32	no DIF	n/a
28		MA0522028	D	Everyday Statistics	Mode of a given data set	Reason	31213	17	21	19	40	-0.11	-0.11	-0.07	0.26	0.40	0.26	0.35	0.74	25.30	no DIF	n/a
29	28	MA0522029	D	Everyday Statistics	Mean of a given data set	Know	64630	15	21	15	46	-0.19	-0.21	-0.12	0.43	0.46	0.43	0.65	0.16	55.94	no DIF	n/a
30	30	MA0522030	A	Basic Operations	Division	Know	64630	58	16	14	10	0.42	-0.17	-0.17	-0.24	0.58	0.42	0.64	-0.36	60.28	no DIF	n/a
31	33	MA0522031	A	Numbers and Numeration	Place value	Know	64630	45	28	13	10	0.30	-0.08	-0.12	-0.15	0.45	0.30	0.39	0.33	221.73	no DIF	n/a
32		MA0522032	B	Everyday Statistics	Mode of a given data set	Reason	31213	10	57	13	16	-0.13	0.35	-0.12	-0.19	0.57	0.35	0.50	-0.37	16.74	no DIF	n/a
33	31	MA0522033	A	Mensuration & Geometry	Time	Apply	64630	51	21	10	14	0.38	-0.21	-0.18	-0.07	0.51	0.38	0.54	-0.08	174.89	no DIF	n/a
34	37	MA0522034	A	Numbers and Numeration	Prime numbers	Know	64630	37	24	19	16	0.22	-0.06	-0.07	-0.08	0.37	0.22	0.29	1.14	171.25	no DIF	n/a
35	36	MA0522035	B	Numbers and Numeration	Whole numbers	Reason	64630	26	32	13	25	-0.15	0.11	-0.11	0.18	0.32	0.11	0.44	0.62	46.19	no DIF	n/a
36	35	MA0522036	D	Everyday Statistics	Central tendency	Reason	64630	21	20	14	41	-0.21	-0.12	-0.13	0.41	0.41	0.41	0.61	0.41	26.13	no DIF	n/a
37	34	MA0522037	C	Mensuration & Geometry	Perimeter	Know	64630	30	11	31	24	-0.14	-0.19	0.27	0.07	0.31	0.27	0.37	1.40	218.49	no DIF	n/a
38	39	MA0522038	A	Numbers and Numeration	Fractions	Know	64630	37	20	12	27	0.26	-0.09	-0.13	-0.04	0.37	0.26	0.33	1.01	162.09	no DIF	n/a
39	38	MA0522039	B	Mensuration & Geometry	Triangle	Know	64630	27	33	13	24	0.01	0.16	-0.16	0.01	0.33	0.16	0.21	2.08	138.89	no DIF	n/a
40	40	MA0522040	B	Everyday Statistics	Reading bar graph	Apply	64630	43	31	10	14	0.08	0.17	-0.14	-0.14	0.31	0.17	0.23	2.19	132.32	no DIF	n/a
	29	MA0522041	A	Everyday Statistics	Mode of a given data set	Reason	33417	56	14	14	13	0.37	-0.16	-0.16	-0.18	0.56	0.37	0.59	-0.34	26.65	no DIF	n/a
	32	MA0522042	B	Everyday Statistics	Mode of a given data set	Reason	33417	14	55	14	14	-0.19	0.37	-0.10	-0.17	0.55	0.37	0.55	-0.32	13.95	no DIF	n/a

Table B3. JS2 Mathematics: Test map and item statistics (Forms A and B)

Position		CONTENT STRUCTURE - P5 Mathematics						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit		DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp	
1	4	MA0822001	B	Everyday statistics	Data presentation	Reason	21913	30	42	18	8	-0.20	0.28	-0.07	-0.04	0.42	0.28	0.39	0.54	15.59	no DIF	n/a	
2	2	MA0822002	A	Numbers and Numeration	Quantitative reasoning (whole numbers)	Reason	21913	87	7	3	3	0.19	-0.12	-0.09	-0.09	0.87	0.19	0.48	-2.63	46.33	no DIF	n/a	
3	1	MA0822003	D	Basic operations	Approximation	Reason	21913	40	22	11	24	-0.18	-0.09	-0.04	0.33	0.24	0.33	0.50	1.56	19.82	no DIF	n/a	
4	3	MA0822004	A	Numbers and Numeration	Quantitative reasoning	Reason	21913	64	22	7	5	0.31	-0.19	-0.14	-0.13	0.64	0.31	0.52	-0.79	27.36	no DIF	n/a	
5	5	MA0822005	A	Everyday statistics	Probability	Apply	21913	30	10	19	40	0.28	-0.13	-0.05	-0.14	0.30	0.28	0.41	1.32	14.78	no DIF	n/a	
6	9	MA0822006	C	Everyday statistics	Probability	Know	21913	32	24	29	13	-0.11	-0.17	0.37	-0.12	0.29	0.37	0.57	1.07	67.77	no DIF	n/a	
7	7	MA0822007	A	Everyday statistics	Mode of data set	Know	21913	74	7	7	11	0.25	-0.12	-0.14	-0.14	0.74	0.25	0.48	-1.48	22.81	no DIF	n/a	
8	8	MA0822008	B	Numbers and Numeration	Ratio	Know	21913	11	63	7	18	-0.18	0.23	-0.15	-0.03	0.63	0.23	0.37	-0.94	40.48	no DIF	n/a	
9	6	MA0822009	A	Numbers and Numeration	HCF	Know	21913	62	11	12	14	0.28	-0.14	-0.13	-0.13	0.62	0.28	0.45	-0.73	44.50	no DIF	n/a	
10	10	MA0822010	A	Mensuration & Geometry	Plane figures (Circles)	Know	21913	57	13	21	8	0.20	-0.22	0.02	-0.12	0.57	0.20	0.29	-0.57	59.92	no DIF	n/a	
11	14	MA0822011	B	Mensuration & Geometry	Plane figures (triangles)	Apply	21913	32	22	14	30	-0.01	0.07	-0.05	-0.01	0.22	0.07	0.11	6.78	6.15	no DIF	n/a	
12	13	MA0822012	D	Mensuration & Geometry	Length	Reason	21913	30	31	16	22	0.00	-0.01	-0.10	0.12	0.22	0.12	0.19	4.12	54.16	no DIF	n/a	
13	12	MA0822013	D	Basic operations	Multiple operations	Apply	21913	21	17	27	34	-0.18	-0.01	-0.04	0.20	0.34	0.20	0.27	1.52	58.53	no DIF	n/a	
14	11	MA0822014	A	Numbers and Numeration	Ratio	Apply	21913	43	17	18	21	0.35	-0.17	-0.16	-0.10	0.43	0.35	0.52	0.33	20.20	no DIF	n/a	
15	15	MA0822015	D	Mensuration & Geometry	Angles	Know	21913	28	17	23	30	-0.18	-0.09	0.12	0.14	0.30	0.14	0.20	2.50	30.19	no DIF	n/a	
16	17	MA0822016	A	Numbers and Numeration	HCF	Apply	21913	47	20	12	19	0.35	-0.18	-0.15	-0.13	0.47	0.35	0.54	0.12	29.93	no DIF	n/a	
17	16	MA0822017	B	Algebraic operations	Algebraic expressions	Know	21913	22	45	14	18	-0.15	0.37	-0.14	-0.19	0.45	0.37	0.57	0.21	11.64	no DIF	n/a	
18	18	MA0822018	B	Algebraic operations	Algebraic expressions	Reason	21913	31	41	20	6	-0.16	0.31	-0.16	-0.06	0.41	0.31	0.47	0.47	18.05	no DIF	n/a	
19	21	MA0822019	D	Algebraic operations	Algebraic expressions	Know	21913	21	18	29	31	-0.21	-0.10	-0.09	0.36	0.31	0.36	0.54	1.01	38.01	no DIF	n/a	
20	20	MA0822020	C	Algebraic operations	Simple equations	Apply	21913	25	25	35	13	-0.16	-0.15	0.36	-0.11	0.35	0.36	0.56	0.73	25.44	no DIF	n/a	
21	19	MA0822021	A	Algebraic operations	Algebraic expressions	Apply	21913	70	12	9	8	0.28	-0.18	-0.15	-0.10	0.70	0.28	0.49	-1.20	30.65	no DIF	n/a	

Position		CONTENT STRUCTURE - P5 Mathematics						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
22	24	MA0822022	A	Numbers and Numeration	Ratio	Apply	21913	40	26	23	9	0.33	-0.14	-0.14	-0.12	0.40	0.33	0.48	0.56	36.98	no DIF	n/a
23	23	MA0822023	C	Algebraic operations	Simple equations	Know	21913	21	22	49	7	-0.26	-0.25	0.47	-0.09	0.49	0.47	0.91	-0.01	60.00	no DIF	n/a
24	22	MA0822024	B	Everyday statistics	Data presentation	Know	21913	24	39	18	17	-0.15	0.31	-0.14	-0.08	0.39	0.31	0.46	0.61	7.82	no DIF	n/a
25	30	MA0822025	C	Mensuration & Geometry	Distance	Apply	21913	19	17	39	23	-0.21	-0.18	0.42	-0.11	0.39	0.42	0.68	0.45	8.33	no DIF	n/a
26	28	MA0822026	A	Mensuration & Geometry	Plane figures (timeline)	Apply	21913	31	33	19	15	0.08	0.04	-0.03	-0.12	0.31	0.08	0.11	4.24	16.98	no DIF	n/a
27	26	MA0822027	C	Mensuration & Geometry	Plane figures (Temperature scale)	Apply	21913	37	29	22	10	-0.13	0.02	0.21	-0.09	0.22	0.21	0.32	2.53	1.81	no DIF	n/a
28	27	MA0822028	C	Algebraic operations	Linear inequality	Apply	21913	22	30	33	14	-0.25	-0.17	0.35	0.06	0.33	0.35	0.54	0.89	6.54	no DIF	n/a
29	29	MA0822029	D	Mensuration & Geometry	Angles	Know	21913	23	16	23	36	-0.20	-0.20	-0.21	0.52	0.36	0.52	1.02	0.43	39.17	no DIF	n/a
30	25	MA0822030	B	Algebraic operations	Linear inequality	Apply	21913	32	30	23	14	-0.08	0.20	-0.10	-0.01	0.30	0.20	0.28	1.94	25.43	no DIF	n/a
31	31	MA0822031	A	Basic operations	Transactions (money)	Apply	21913	30	35	13	21	0.22	-0.09	-0.04	-0.09	0.30	0.22	0.31	1.68	54.47	no DIF	n/a
32	35	MA0822032	D	Basic operations	Approximation (money)	Know	21913	16	12	43	28	-0.16	-0.15	-0.02	0.28	0.28	0.28	0.41	1.48	23.14	no DIF	n/a
33	34	MA0822033	C	Mensuration & Geometry	Plane figures (Trapezoid)	Apply	21913	28	23	27	20	-0.03	-0.04	0.14	-0.07	0.27	0.14	0.21	2.97	31.73	no DIF	n/a
34	33	MA0822034	D	Numbers and Numeration	Decimals	Know	21913	15	42	15	26	-0.18	-0.15	-0.08	0.39	0.26	0.39	0.63	1.18	24.64	no DIF	n/a
35	32	MA0822035	A	Basic operations	Transaction in the home	Know	21913	39	13	16	30	0.32	-0.14	-0.14	-0.11	0.39	0.32	0.47	0.60	5.87	no DIF	n/a
36	36	MA0822036	C	Numbers and Numeration	Fractions	Know	21913	48	8	34	8	-0.29	-0.14	0.42	-0.02	0.34	0.42	0.69	0.70	7.72	no DIF	n/a
37	40	MA0822037	D	Mensuration & Geometry	Plane figures (triangles)	Apply	21913	36	16	16	31	-0.19	-0.09	-0.06	0.33	0.31	0.33	0.50	1.07	12.37	no DIF	n/a
38	39	MA0822038	C	Algebraic operations	Simple equations	Know	21913	35	20	26	16	-0.13	-0.16	0.28	0.03	0.26	0.28	0.42	1.57	20.28	no DIF	n/a
39	38	MA0822039	D	Numbers and Numeration	Whole numbers	Reason	21913	24	23	22	29	-0.12	-0.08	-0.02	0.23	0.29	0.23	0.33	1.68	37.79	no DIF	n/a
40	37	MA0822040	D	Numbers and Numeration	Whole numbers	Reason	21913	28	19	14	37	-0.16	-0.13	-0.12	0.37	0.37	0.37	0.56	0.64	13.63	no DIF	n/a

Table B4. P3 English studies: Test map and item statistics (Forms A and B)

Positions		CONTENT STRUCTURE- P3 English Studies								% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp	
1		EN0322081D15	TNEN032208	B	Reading comprehension	Comp Explicit	Know	32529	16	72	5	3	-0.27	0.44	-0.13	-0.12	0.72	0.44	0.87	-0.88	93.21	no DIF	n/a	
2		EN0322082D16	TNEN032208	B	Reading comprehension	Comp Explicit	Know	32529	20	62	9	4	-0.09	0.35	-0.20	-0.12	0.62	0.35	0.55	-0.62	35.79	no DIF	n/a	
3		EN0322083D17	TNEN032208	A	Reading comprehension	Comp Explicit	Reason	32529	65	11	12	9	0.48	-0.29	-0.22	-0.18	0.65	0.48	0.91	-0.55	21.35	no DIF	n/a	
4		EN0322084D18	TNEN032208	C	Reading comprehension	Vocab New/ Unknown	Apply	32529	25	12	50	9	-0.14	-0.26	0.45	-0.20	0.50	0.45	0.74	0.00	33.49	no DIF	n/a	
5		EN0322086D20	TNEN032208	B	Reading comprehension	Comp Implicit Summary	Apply	32529	16	53	18	10	-0.27	0.46	-0.18	-0.12	0.53	0.46	0.77	-0.10	27.73	no DIF	n/a	
6		EN0322100D41	TNEN032208	D	Reading comprehension	Vocab Known	Know	32529	11	16	15	54	-0.24	-0.19	-0.22	0.49	0.54	0.49	0.82	-0.15	39.65	no DIF	n/a	
7	7	EN0322044B11	TEEN032205	B	Reading comprehension	Comp Explicit	Know	65035	28	50	11	8	0.05	0.18	-0.18	-0.13	0.50	0.18	0.24	0.03	33.92	no DIF	n/a	
8	8	EN0322045B12	TEEN032205	D	Reading comprehension	Comp Implicit	Apply	65035	19	13	12	53	-0.14	-0.20	-0.17	0.39	0.53	0.39	0.58	-0.15	92.22	no DIF	n/a	
9	9	EN0322048B15	TEEN032205	C	Reading comprehension	Comp Implicit	Reason	65035	17	15	54	11	-0.19	-0.28	0.49	-0.17	0.54	0.49	0.81	-0.17	59.88	no DIF	n/a	
10	10	EN0322050B17	TEEN032205	A, C	Reading comprehension	Comp Explicit	Know	65035	69	12	6	10	0.46	-0.23	-0.17	-0.26	0.69	0.46	0.85	-0.79	76.99	no DIF	n/a	
11	11	EN0322051B18	TEEN032205	B	Reading comprehension	Comp Explicit	Know	65035	16	63	9	10	-0.30	0.46	-0.22	-0.10	0.63	0.46	0.78	-0.56	77.21	no DIF	n/a	
12	12	EN0322101B41	TEEN032205	D	Reading comprehension	Vocab Known	Know	65035	22	18	29	28	-0.06	-0.24	0.09	0.22	0.28	0.22	0.31	1.94	67.53	no DIF	n/a	
13		EN0322070D02	TNEN032206	A	Reading comprehension	Comp Explicit	Know	32529	59	15	13	9	0.42	-0.23	-0.17	-0.15	0.59	0.42	0.68	-0.39	1781	no DIF	n/a	
14		EN0322071D03	TNEN032206	C	Reading comprehension	Comp Explicit	Know	32529	20	20	48	9	-0.10	-0.23	0.42	-0.19	0.48	0.42	0.66	0.12	72.14	no DIF	n/a	
15		EN0322072D04	TNEN032206	B	Reading comprehension	Comp Implicit	Apply	32529	22	52	12	11	-0.24	0.48	-0.21	-0.16	0.52	0.48	0.81	-0.06	68.28	no DIF	n/a	
16		EN0322074D06	TNEN032206	B	Reading comprehension	Comp Explicit	Reason	32529	13	61	12	10	-0.23	0.47	-0.26	-0.15	0.61	0.47	0.85	-0.41	16.32	no DIF	n/a	
17		EN0322076D09	TNEN032206	D	Reading comprehension	Comp Implicit	Reason	32529	15	22	13	47	-0.24	-0.25	-0.17	0.53	0.47	0.53	0.97	0.11	60.18	no DIF	n/a	
18		EN0322099D40	TNEN032206	D	Reading comprehension	Vocab Known	Reason	32529	19	15	11	50	-0.19	-0.27	-0.21	0.51	0.50	0.51	0.90	-0.01	4786	no DIF	n/a	
19		EN0322057B29		B	Grammatical Accuracy	Verb form	Know	32529	15	54	14	14	-0.23	0.41	-0.09	-0.20	0.54	0.41	0.64	-0.16	34.75	no DIF	n/a	
20		EN0322088D29		A	Grammatical Accuracy	Verb form	Know	32529	55	14	11	17	0.41	-0.22	-0.16	-0.14	0.55	0.41	0.64	-0.21	28.32	no DIF	n/a	

Positions		CONTENT STRUCTURE- P3 English Studies							% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
21	21	EN0322059B31		A	Grammatical Accuracy	Verb form	Know	65035	59	17	13	9	0.37	-0.19	-0.17	-0.13	0.59	0.37	0.56	-0.48	117.92	no DIF	n/a
22	22	EN0322028A31		B	Grammatical Accuracy	Verb tense	Know	65035	16	64	10	7	-0.24	0.44	-0.19	-0.18	0.64	0.44	0.74	-0.62	80.35	no DIF	n/a
23		EN0322021A24		B	Grammatical Accuracy	Verb aux	Know	32529	16	58	12	11	-0.27	0.48	-0.23	-0.12	0.58	0.48	0.82	-0.29	18.80	no DIF	n/a
24		EN0322022A25		A	Grammatical Accuracy	Verb aux	Know	32529	56	13	11	17	0.47	-0.27	-0.19	-0.16	0.56	0.47	0.80	-0.25	35.42	no DIF	n/a
25	25	EN0322055B23		D	Grammatical Accuracy	Adjectives comparative	Know	65035	38	15	14	30	0.18	-0.22	-0.16	0.15	0.30	0.15	0.75	0.11	57.52	no DIF	n/a
26		EN0322029A32		C	Grammatical Accuracy	Concord (subj-vb)	Know	32529	35	15	33	14	0.01	-0.23	0.27	-0.06	0.33	0.27	0.40	1.17	53.76	no DIF	n/a
27		EN0322031A34		A	Grammatical Accuracy	Preposition time	Know	32529	51	22	10	13	0.41	-0.08	-0.23	-0.23	0.51	0.41	0.63	-0.04	28.40	no DIF	n/a
28		EN0322032A35		C	Grammatical Accuracy	Preposition time	Know	32529	18	13	52	12	-0.17	-0.23	0.47	-0.20	0.52	0.47	0.78	-0.08	46.29	no DIF	n/a
29	29	EN0322066B38		A	Grammatical Accuracy	Phonics	Know	65035	62	15	11	7	0.40	-0.17	-0.17	-0.13	0.62	0.40	0.61	-0.59	119.94	no DIF	n/a
30	30	EN0322068B40		D	Grammatical Accuracy	Phonics	Know	65035	20	18	10	47	-0.14	-0.08	-0.19	0.37	0.47	0.37	0.54	0.15	95.70	no DIF	n/a
	1	EN0322002A02	TNEN032201	B	Reading comprehension	Comp Explicit	Know	32506	14	67	12	4	-0.28	0.40	-0.13	-0.16	0.67	0.40	0.64	-0.83	28.54	no DIF	n/a
	2	EN0322003A03	TNEN032201	B	Reading comprehension	Comp Implicit	Reason	32506	17	61	14	5	-0.27	0.35	-0.09	-0.10	0.61	0.35	0.50	-0.62	36.82	no DIF	n/a
	3	EN0322004A04	TNEN032201	A	Reading comprehension	Vocab New/ Unknown	Apply	32506	42	14	17	24	0.11	-0.20	-0.12	0.18	0.42	0.11	0.13	1.53	122.02	no DIF	n/a
	4	EN0322007A07	TNEN032201	A	Reading comprehension	Comp Implicit	Reason	32506	56	13	16	12	0.48	-0.18	-0.21	-0.25	0.56	0.48	0.82	-0.28	16.55	no DIF	n/a
	5	EN0322008A08	TNEN032201	C	Reading comprehension	Comp Implicit Summary	Apply	32506	16	18	55	8	-0.21	-0.25	0.47	-0.15	0.55	0.47	0.79	-0.25	27.76	no DIF	n/a
	6	EN0322102A41	TNEN032201	D	Reading comprehension	Vocab New/ Unknown	Reason	32506	15	14	19	49	-0.16	-0.24	-0.12	0.41	0.49	0.41	0.59	0.03	50.08	no DIF	n/a
	13	EN0322035B01	TNEN032204	A	Reading comprehension	Comp Explicit	Know	32506	68	13	10	6	0.49	-0.27	-0.24	-0.18	0.68	0.49	0.93	-0.75	19.49	no DIF	n/a
	14	EN0322036B02	TNEN032204	B	Reading comprehension	Comp Implicit	Reason	32506	17	56	15	9	-0.22	0.45	-0.19	-0.19	0.56	0.45	0.76	-0.30	157.18	no DIF	n/a
	15	EN0322037B03	TNEN032204	A	Reading comprehension	Vocab New/ Unknown	Apply	32506	55	23	11	8	0.50	-0.25	-0.22	-0.20	0.55	0.50	0.89	-0.24	75.51	no DIF	n/a
	16	EN0322039B05	TNEN032204	B	Reading comprehension	Comp Implicit	Reason	32506	14	55	14	13	-0.20	0.42	-0.21	-0.13	0.55	0.42	0.63	-0.27	26.05	no DIF	n/a
	17	EN0322043B09	TNEN032204	B	Reading comprehension	Comp Explicit	Know	32506	15	53	12	16	-0.26	0.51	-0.20	-0.20	0.53	0.51	0.89	-0.17	64.01	no DIF	n/a

Positions		CONTENT STRUCTURE- P3 English Studies							% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
	18	EN0322103B42	TNEN032206	D	Reading comprehension	Vocab New/Unknown	Apply	32506	18	20	12	46	-0.22	-0.16	-0.11	0.42	0.46	0.42	0.62	0.14	74.88	no DIF	n/a
	19	EN0322089D30		D	Grammatical Accuracy	Verb form	Know	32506	15	22	10	49	-0.27	-0.17	-0.22	0.51	0.49	0.51	0.86	-0.03	31.11	no DIF	n/a
	20	EN0322023A26		D	Grammatical Accuracy	Verb form	Know	32506	34	14	8	40	-0.03	-0.26	-0.25	0.39	0.40	0.39	0.59	0.44	31.60	no DIF	n/a
	23	EN0322063B35		A	Grammatical Accuracy	Preposition time	Know	32506	42	32	13	9	0.30	0.01	-0.27	-0.13	0.42	0.30	0.42	0.46	42.49	no DIF	n/a
	24	EN032206B37		D	Grammatical Accuracy	Preposition time	Know	32506	20	16	9	52	-0.26	-0.20	-0.23	0.53	0.52	0.53	0.94	-0.13	17.68	no DIF	n/a
	26	EN032205B24		A	Grammatical Accuracy	Adverb comparison	Know	32506	48	17	14	17	0.40	-0.25	-0.22	-0.01	0.48	0.40	0.59	0.06	20.87	no DIF	n/a
	27	EN0322090D31		D	Grammatical Accuracy	Verb form	Know	32506	28	14	12	42	-0.16	-0.20	-0.23	0.49	0.42	0.49	0.80	0.28	39.59	no DIF	n/a
	28	EN0322091D32		D	Grammatical Accuracy	Verb form	Know	32506	24	14	16	41	-0.08	-0.22	-0.21	0.44	0.41	0.44	0.70	0.35	61.99	no DIF	n/a

Table B5. P5 English studies: Test map and item statistics (Forms A and B)

Positions		CONTENT STRUCTURE – P5 English Studies							% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
1		EN0522056C01	TNEN052205	D	Reading Comprehension	Explicit	Know	31884	15	9	4	69	-0.33	-0.18	-0.15	0.46	0.69	0.46	0.83	-0.79	60.00	no DIF	n/a
2		EN0522057C02	TNEN052205	C	Reading Comprehension	Vocabulary	Apply	31884	13	21	58	6	-0.11	-0.24	0.35	-0.11	0.58	0.35	0.51	-0.40	40.67	no DIF	n/a
3		EN0522058C03	TNEN052205	B	Reading Comprehension	Explicit	Know	31884	16	59	17	6	-0.29	0.45	-0.16	-0.18	0.59	0.45	0.73	-0.37	17.37	no DIF	n/a
4		EN0522060C05	TNEN052205	C	Reading Comprehension	Explicit	Know	31884	12	11	61	14	-0.26	-0.26	0.51	-0.20	0.61	0.51	0.91	-0.42	22.66	no DIF	n/a
5		EN0522061C07	TNEN052205	A	Reading Comprehension	Implicit	Reason	31884	65	10	14	8	0.49	-0.24	-0.24	-0.24	0.65	0.49	0.90	-0.60	17.83	no DIF	n/a
6		EN0522063C09	TNEN052205	C	Reading Comprehension	Vocabulary	Apply	31884	21	8	58	12	-0.25	-0.24	0.49	-0.21	0.58	0.49	0.85	-0.30	39.40	no DIF	n/a
7		EN0522064C10	TNEN052205	B	Reading Comprehension	Summary	Apply	31884	21	62	8	8	-0.13	0.33	-0.22	-0.15	0.62	0.33	0.49	-0.65	35.97	no DIF	n/a
8	8	EN0522065C14	TNEE052206	A	Reading Comprehension	Explicit	Reason	64584	73	11	7	6	0.45	-0.23	-0.25	-0.20	0.73	0.45	0.90	-0.92	68.49	no DIF	n/a
9	9	EN0522067C16	TNEE052206	B	Reading Comprehension	Implicit	Apply	64584	15	62	11	10	-0.17	0.46	-0.23	-0.23	0.62	0.46	0.78	-0.51	40.85	no DIF	n/a
10	10	EN0522068C17	TNEE052206	D	Reading Comprehension	Explicit	Know	64584	13	10	12	64	-0.21	-0.21	-0.19	0.44	0.64	0.44	0.75	-0.60	86.46	no DIF	n/a
11	11	EN0522069C18	TNEE052206	C	Reading Comprehension	Explicit	Know	64584	12	12	65	11	-0.27	-0.26	0.52	-0.21	0.65	0.52	1.00	-0.55	61.95	no DIF	n/a
12	12	EN0522070C19	TNEE052206	B	Reading Comprehension	Explicit	Know	64584	8	70	10	9	-0.25	0.46	-0.24	-0.18	0.70	0.46	0.88	-0.82	37.24	no DIF	n/a
13	13	EN0522071C20	TNEE052206	B	Reading Comprehension	Explicit	Know	64584	27	54	8	9	-0.24	0.42	-0.20	-0.11	0.54	0.42	0.64	-0.20	47.26	no DIF	n/a
14		EN0522074D03	TNEE052207	C	Reading Comprehension	Explicit	Know	31884	16	14	56	11	-0.26	-0.24	0.51	-0.19	0.56	0.51	0.89	-0.24	80.91	no DIF	n/a
15		EN0522075D04	TNEE052207	C	Reading Comprehension	Explicit	Know	31884	13	25	50	11	-0.27	-0.07	0.38	-0.18	0.50	0.38	0.55	0.02	9.50	no DIF	n/a
16		EN0522076D06	TNEE052207	A	Reading Comprehension	Explicit	Know	31884	55	19	16	8	0.39	-0.21	-0.10	-0.22	0.55	0.39	0.58	-0.24	24.13	no DIF	n/a
17		EN0522077D07	TNEE052207	A	Reading Comprehension	Explicit	Reason	31884	58	18	12	10	0.43	-0.23	-0.14	-0.20	0.58	0.43	0.67	-0.37	18.10	no DIF	n/a
18		EN0522078D08	TNEE052207	A	Reading Comprehension	Summary	Apply	31884	59	11	21	7	0.45	-0.23	-0.19	-0.23	0.59	0.45	0.73	-0.40	10.53	no DIF	n/a
19		EN0522079D09	TNEE052207	B	Reading Comprehension	Implicit	Reason	31884	16	56	16	10	-0.18	0.40	-0.16	-0.18	0.56	0.40	0.59	-0.27	42.78	no DIF	n/a
20		EN0522080D10	TNEE052207	C	Reading Comprehension	Implicit	Reason	31884	22	14	41	21	-0.18	-0.17	0.29	0.01	0.41	0.29	0.42	0.59	39.71	no DIF	n/a

Positions		CONTENT STRUCTURE – P5 English Studies							% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
21	21	EN0522020A22	N/A	D	Grammatical Accuracy	Modals/Aux	Know	64584	14	11	7	67	-0.29	-0.18	-0.20	0.46	0.67	0.46	0.82	-0.71	166.11	no DIF	n/a
22		EN0522112D25	N/A	C	Grammatical Accuracy	Conjunctions	Know	31884	13	12	67	7	-0.26	-0.31	0.54	-0.20	0.67	0.54	1.06	-0.60	21.61	no DIF	n/a
23		EN0522086C23	N/A	C	Grammatical Accuracy	Prep verb	Know	31884	14	14	64	6	-0.25	-0.27	0.52	-0.23	0.64	0.52	0.97	-0.53	32.33	no DIF	n/a
24	24	EN0522060B27	N/A	A	Grammatical Accuracy	Spelling	Know	64584	62	14	10	12	0.43	-0.22	-0.21	-0.16	0.62	0.43	0.70	-0.52	38.56	no DIF	n/a
25		EN0522116D30	N/A	C	Grammatical Accuracy	Adverbs	Know	31884	48	13	24	12	0.18	-0.23	0.15	-0.18	0.24	0.15	0.23	3.04	48.30	no DIF	n/a
26		EN0522032A36	N/A	B	Grammatical Accuracy	Coherence	Know	31884	25	49	15	8	-0.18	0.43	-0.21	-0.17	0.49	0.43	0.66	0.03	89.50	no DIF	n/a
27		EN0522056B21	N/A	C	Grammatical Accuracy	Adjectives	Know	31884	33	12	36	17	-0.17	-0.23	0.35	0.01	0.36	0.35	0.52	0.76	95.07	no DIF	n/a
28	28	EN0522085C22	N/A	B	Grammatical Accuracy	Past perfect	Know	64584	28	44	13	12	-0.02	0.33	-0.23	-0.19	0.44	0.33	0.47	0.33	130.87	no DIF	n/a
29		EN0522058B23	N/A	B	Grammatical Accuracy	Present tense	Know	31884	37	41	8	11	-0.08	0.36	-0.25	-0.15	0.41	0.36	0.53	0.48	110.11	no DIF	n/a
30		EN0522087C24	N/A	A	Grammatical Accuracy	Pronouns	Know	31884	61	14	13	9	0.42	-0.12	-0.24	-0.21	0.61	0.42	0.65	-0.49	4.42	no DIF	n/a
31		EN0522121D35	N/A	D	Reading Comprehension	Vocabulary	Know	31884	19	17	7	54	-0.25	-0.27	-0.11	0.51	0.54	0.51	0.87	-0.15	5.85	no DIF	n/a
32		EN0522027A30	N/A	A	Reading Comprehension	Vocabulary	Know	31884	58	24	10	5	0.51	-0.25	-0.25	-0.18	0.58	0.51	0.88	-0.32	36.54	no DIF	n/a
33		EN0522113D26	N/A	B	Reading Comprehension	Vocabulary	Know	31884	23	51	10	12	-0.01	0.30	-0.23	-0.13	0.51	0.30	0.41	-0.06	27.47	no DIF	n/a
34	34	EN0522061B30	N/A	C	Reading Comprehension	Vocabulary	Know	64584	12	13	62	9	-0.25	-0.27	0.52	-0.16	0.62	0.52	0.96	-0.46	15.67	no DIF	n/a
35	35	EN0522118D32	N/A	A	Reading Comprehension	Vocabulary	Know	64584	70	11	9	6	0.44	-0.21	-0.21	-0.19	0.70	0.44	0.81	-0.84	41.35	no DIF	n/a
36		EN0522062B31	N/A	C	Reading Comprehension	Vocabulary	Know	31884	12	18	59	7	-0.23	-0.27	0.53	-0.19	0.59	0.53	0.95	-0.34	31.50	no DIF	n/a
37	37	EN0522036A40	N/A	A	Grammatical Accuracy	Phonics	Know	64584	51	23	11	11	0.30	-0.07	-0.17	-0.11	0.51	0.30	0.41	-0.07	32.73	no DIF	n/a
38		EN0522125D39	N/A	C	Grammatical Accuracy	Phonics	Know	31884	24	16	36	19	0.00	-0.19	0.22	0.00	0.36	0.22	0.31	1.20	11.99	no DIF	n/a
39		EN0522034A38	N/A	C	Grammatical Accuracy	Phonics	Know	31884	18	17	46	14	-0.09	-0.08	0.22	-0.03	0.46	0.22	0.30	0.31	16.93	no DIF	n/a
40		EN0522067B40	N/A	A	Grammatical Accuracy	Phonics	Know	31884	58	13	14	11	0.43	-0.20	-0.19	-0.15	0.58	0.43	0.67	-0.37	18.12	no DIF	n/a
	1	EN0522039B03	TNEN052203	D	Reading Comprehension	Explicit	Reason	32700	23	10	11	54	-0.24	-0.20	-0.12	0.43	0.54	0.43	0.65	-0.22	24.17	no DIF	n/a

Positions		CONTENT STRUCTURE – P5 English Studies							% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit		DIF M-F	
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp	
	2	EN0522038B02	TNEN052203	C	Reading Comprehension	Vocabulary	Apply	32700	16	18	55	9	-0.10	-0.23	0.32	-0.07	0.55	0.32	0.44	-0.31	30.98	no DIF	n/a	
	3	EN0522040B04	TNEN052203	B	Reading Comprehension	Explicit	Reason	32700	34	47	11	5	0.02	0.23	-0.24	-0.14	0.47	0.23	0.29	0.23	38.50	no DIF	n/a	
	4	EN0522041B05	TNEN052203	A	Reading Comprehension	Implicit	Reason	32700	32	14	16	35	0.26	-0.19	-0.18	0.06	0.32	0.26	0.36	1.32	89.22	no DIF	n/a	
	5	EN0522042B06	TNEN052203	C	Reading Comprehension	Implicit	Apply	32700	35	11	36	15	-0.11	-0.18	0.28	-0.02	0.36	0.28	0.38	0.95	35.10	no DIF	n/a	
	6	EN0522044B08	TNEN052203	D	Reading Comprehension	Vocabulary	Apply	32700	17	12	14	53	-0.19	-0.20	-0.20	0.45	0.53	0.45	0.71	-0.17	30.36	no DIF	n/a	
	7	EN0522046B10	TNEN052203	B	Reading Comprehension	Implicit	Apply	32700	10	69	9	10	-0.22	0.40	-0.24	-0.10	0.69	0.40	0.68	-0.88	41.34	no DIF	n/a	
	14	EN0522012A12	TNEN052202	B	Reading Comprehension	Vocabulary	Apply	32700	23	48	17	10	-0.12	0.43	-0.25	-0.19	0.48	0.43	0.64	0.08	150.51	no DIF	n/a	
	15	EN0522013A13	TNEN052202	C	Reading Comprehension	Implicit	Reason	32700	23	22	41	12	-0.07	-0.14	0.30	-0.14	0.41	0.30	0.42	0.59	37.40	no DIF	n/a	
	16	EN0522015A15	TNEN052202	B	Reading Comprehension	Implicit	Apply	32700	22	35	24	16	-0.18	0.25	-0.06	-0.01	0.35	0.25	0.34	1.13	243.36	no DIF	n/a	
	17	EN0522016A16	TNEN052202	A	Reading Comprehension	Summary	Apply	32700	54	14	15	14	0.30	-0.19	-0.10	-0.08	0.54	0.30	0.41	-0.27	41.90	no DIF	n/a	
	18	EN0522017A17	TNEN052202	A	Reading Comprehension	Implicit	Reason	32700	62	12	13	11	0.40	-0.20	-0.23	-0.12	0.62	0.40	0.64	-0.56	17.40	no DIF	n/a	
	19	EN0522018A19	TNEN052202	B	Reading Comprehension	Implicit	Reason	32700	25	42	13	17	-0.14	0.31	-0.18	-0.04	0.42	0.31	0.43	0.46	75.58	no DIF	n/a	
	20	EN0522019A20	TNEN052202	A	Reading Comprehension	Implicit	Reason	32700	44	19	18	17	0.28	-0.08	-0.15	-0.10	0.44	0.28	0.38	0.38	20.86	no DIF	n/a	
	22	EN0522057B22	N/A	A	Grammatical Accuracy	Adverb	Know	32700	63	16	14	6	0.46	-0.23	-0.21	-0.22	0.63	0.46	0.79	-0.55	29.23	no DIF	n/a	
	23	EN0522059B26	N/A	B	Grammatical Accuracy	Prep verb	Know	32700	21	54	15	8	-0.19	0.47	-0.27	-0.16	0.54	0.47	0.76	-0.18	54.46	no DIF	n/a	
	25	EN0522127D41	N/A	D	Grammatical Accuracy	Adverbs	Know	32700	33	15	10	40	-0.16	-0.23	-0.18	0.47	0.40	0.47	0.76	0.39	72.74	no DIF	n/a	
	26	EN0522033A37	N/A	C	Grammatical Accuracy	Coherence	Know	32700	24	17	48	8	-0.22	-0.21	0.47	-0.17	0.48	0.47	0.76	0.04	58.60	no DIF	n/a	
	27	EN0522022A25	N/A	A	Grammatical Accuracy	Adjectives	Know	32700	52	11	24	11	0.47	-0.21	-0.21	-0.20	0.52	0.47	0.76	-0.11	125.44	no DIF	n/a	
	29	EN0522109D21	N/A	D	Grammatical Accuracy	Past tense	Know	32700	50	15	9	23	0.21	-0.26	-0.18	0.13	0.23	0.13	0.21	3.49	99.81	no DIF	n/a	
	30	EN0522023A26	N/A	C	Grammatical Accuracy	Pronouns	Know	32700	25	14	45	14	-0.10	-0.20	0.41	-0.22	0.45	0.41	0.62	0.21	78.96	no DIF	n/a	
	31	EN0522096C37	N/A	B	Reading Comprehension	Vocabulary	Know	32700	19	60	7	11	-0.30	0.51	-0.19	-0.18	0.60	0.51	0.91	-0.39	51.96	no DIF	n/a	

Positions		CONTENT STRUCTURE – P5 English Studies						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F		
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
	32	EN0522029A32	N/A	A	Reading Comprehension	Vocabulary	Know	32700	56	15	14	12	0.48	-0.28	-0.13	-0.19	0.56	0.48	0.78	-0.26	14.64	no DIF	n/a
	33	EN0522127D42	N/A	B	Reading Comprehension	Vocabulary	Know	32700	28	46	10	13	-0.09	0.30	-0.18	-0.08	0.46	0.30	0.42	0.24	16.24	no DIF	n/a
	36	EN0522091C29	N/A	B	Reading Comprehension	Vocabulary	Know	32700	30	39	17	10	0.06	0.21	-0.17	-0.11	0.39	0.21	0.28	1.00	38.94	no DIF	n/a
	38	EN0522098C39	N/A	B	Grammatical Accuracy	Phonics	Know	32700	15	53	15	13	-0.12	0.29	-0.08	-0.11	0.53	0.29	0.39	-0.20	19.99	no DIF	n/a
	39	EN0522124D38	N/A	D	Grammatical Accuracy	Phonics	Know	32700	34	13	26	23	0.00	-0.19	0.00	0.23	0.23	0.23	0.34	2.21	45.42	no DIF	n/a
	40	EN0522035A39	N/A	C	Grammatical Accuracy	Phonics	Know	32700	26	18	41	11	-0.09	-0.11	0.32	-0.15	0.41	0.32	0.45	0.51	22.29	no DIF	n/a

Table B6. JS2 English studies: Test map and item statistics (Forms A and B)

Positions		CONTENT STRUCTURE - JS2 English Studies						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit		DIF M-F	
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
1	14	EN0822001A09	TNEN082201	C	Reading Comprehension	Implicit	Reason	21837	11	7	67	14	-0.27	-0.22	0.36	-0.08	0.67	0.36	0.61	-0.86	7.42	no DIF	n/a
2	15	EN0822027A27	TNEN082201	D	Reading Comprehension	Implicit	Reason	21837	31	11	21	36	-0.18	-0.30	-0.15	0.50	0.36	0.50	0.93	0.51	67.38	no DIF	n/a
3	16	EN0822002A10	TNEN082201	D	Reading Comprehension	Vocabulary	Apply	21837	19	9	19	51	-0.26	-0.23	-0.22	0.52	0.51	0.52	0.97	-0.05	21.78	no DIF	n/a
4	17	EN0822028A28	TNEN082201	B	Reading Comprehension	Explicit	Reason	21837	25	48	22	4	-0.12	0.18	-0.01	-0.14	0.48	0.18	0.25	0.17	26.27	no DIF	n/a
5	18	EN0822003A11	TNEN082201	B	Reading Comprehension	Explicit	Know	21837	16	67	7	9	-0.34	0.50	-0.19	-0.19	0.67	0.50	1.03	-0.64	10.29	no DIF	n/a
6	19	EN0822004A12	TNEN082201	A	Reading Comprehension	Explicit	Know	21837	70	9	11	9	0.52	-0.24	-0.23	-0.30	0.70	0.52	1.15	-0.71	17.23	no DIF	n/a
7	20	EN0822005A13	TNEN082201	C	Reading Comprehension	Explicit	Know	21837	19	22	48	9	-0.18	-0.10	0.34	-0.19	0.48	0.34	0.53	0.11	2.37	no DIF	n/a
8	8	EN0822006A16	TNEN082202	B	Reading Comprehension	Explicit	Reason	21837	33	52	6	8	-0.17	0.36	-0.22	-0.17	0.52	0.36	0.54	-0.08	65.79	no DIF	n/a
9	9	EN0822008A18	TNEN082202	D	Reading Comprehension	Implicit	Reason	21837	33	12	10	43	-0.16	-0.19	-0.16	0.38	0.43	0.38	0.61	0.34	45.31	no DIF	n/a
10	10	EN0822007A17	TNEN082202	B	Reading Comprehension	Vocabulary	Know	21837	30	33	16	19	-0.14	0.25	-0.02	-0.11	0.33	0.25	0.37	1.22	95.65	no DIF	n/a
11	11	EN0822009A19	TNEN082202	A	Reading Comprehension	Explicit	Know	21837	67	11	9	12	0.34	-0.27	-0.24	-0.01	0.67	0.34	0.56	-0.88	20.70	no DIF	n/a
12	12	EN0822029A20	TNEN082202	C	Reading Comprehension	Implicit	Reason	21837	23	22	39	15	-0.22	-0.16	0.29	0.05	0.39	0.29	0.43	0.69	29.64	no DIF	n/a
13	13	EN0822030A30	TNEN082202	B	Reading Comprehension	Implicit	Reason	21837	29	61	6	3	-0.17	0.29	-0.19	-0.10	0.61	0.29	0.44	-0.68	13.90	no DIF	n/a
14	1	EN0822031A31	TEEN082203	D	Reading Comprehension	Explicit	Reason	21837	16	21	15	47	-0.29	-0.01	-0.23	0.40	0.47	0.40	0.61	0.15	7.78	no DIF	n/a
15	2	EN0822032A32	TEEN082203	B	Reading Comprehension	Explicit	Reason	21837	30	50	11	8	-0.03	0.26	-0.21	-0.17	0.50	0.26	0.36	0.02	13.41	no DIF	n/a
16	3	EN0822033A33	TEEN082203	A	Reading Comprehension	Vocabulary	Apply	21837	59	16	8	15	0.35	-0.27	-0.14	-0.08	0.59	0.35	0.52	-0.49	25.52	no DIF	n/a
17	4	EN0822034A34	TEEN082203	C	Reading Comprehension	Explicit	Reason	21837	38	22	35	4	0.04	-0.27	0.26	-0.13	0.35	0.26	0.38	1.09	44.33	no DIF	n/a
18	5	EN0822035A35	TEEN082203	A	Reading Comprehension	Explicit	Know	21837	59	22	8	9	0.37	-0.11	-0.21	-0.23	0.59	0.37	0.57	-0.47	10.97	no DIF	n/a
19	6	EN0822036A36	TEEN082203	C	Reading Comprehension	Implicit	Reason	21837	26	23	37	12	-0.25	-0.11	0.42	-0.13	0.37	0.42	0.69	0.58	104.59	no DIF	n/a
20	7	EN0822037A37	TEEN082203	A	Reading Comprehension	Explicit	Reason	21837	56	17	11	15	0.39	-0.23	-0.21	-0.11	0.56	0.39	0.61	-0.28	25.23	no DIF	n/a

Positions		CONTENT STRUCTURE - JS2 English Studies							% Choosing Option					Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	TextID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp	
21	21	EN0822038B22		A	Grammatical Accuracy	Verb	Know	21837	88	7	2	2	0.34	-0.27	-0.12	-0.14	0.88	0.34	0.95	-1.70	19.04	no DIF	n/a	
22	23	EN0822039B23		C	Grammatical Accuracy	Noun	Know	21837	21	25	47	6	-0.33	-0.01	0.37	-0.18	0.47	0.37	0.52	0.17	14.16	no DIF	n/a	
23	22	EN0822040B24		A	Grammatical Accuracy	Noun	Know	21837	45	10	26	18	0.27	-0.25	-0.01	-0.14	0.45	0.27	0.37	0.33	36.58	no DIF	n/a	
24	24	EN0822041B25		C	Grammatical Accuracy	Noun	Know	21837	11	5	77	6	-0.27	-0.23	0.47	-0.24	0.77	0.47	1.07	-1.01	19.63	no DIF	n/a	
25	26	EN0822042B26		D	Grammatical Accuracy	Noun	Know	21837	19	7	9	64	-0.31	-0.19	-0.26	0.51	0.64	0.51	1.04	-0.52	14.15	no DIF	n/a	
26	27	EN0822016A28		C	Grammatical Accuracy	Noun	Know	21837	11	7	73	8	-0.29	-0.24	0.50	-0.23	0.73	0.50	1.18	-0.84	32.20	no DIF	n/a	
27	25	EN0822043C22		D	Grammatical Accuracy	Noun	Know	21837	13	36	11	39	-0.16	-0.10	-0.20	0.35	0.39	0.35	0.51	0.59	14.88	no DIF	n/a	
28	28	EN0822044C23		C *	Grammatical Accuracy	Verb	Know	21837	29	25	24	20	-0.09	-0.07	0.17	0.02	0.24	0.17				no DIF	n/a	
29	30	EN0822045C26		A	Grammatical Accuracy	Verb	Know	21837	48	23	13	15	0.30	-0.14	-0.19	-0.05	0.48	0.30	0.42	0.13	7.97	no DIF	n/a	
30	29	EN0822044A30		B	Grammatical Accuracy	Verb	Know	21837	28	15	5	49	-0.24	0.06	-0.20	0.29	0.15	0.06	0.09	11.73	38.45	no DIF	n/a	
31	33	EN0822047D24		A	Reading Comprehension	Vocabulary	Know	21837	49	13	29	7	0.20	-0.08	-0.07	-0.11	0.49	0.20	0.26	0.09	19.30	no DIF	n/a	
32	32	EN0822048D26		B	Reading Comprehension	Vocabulary	Know	21837	34	43	14	7	-0.14	0.09	0.13	-0.04	0.43	0.09	0.12	1.44	72.47	no DIF	n/a	
33	31	EN0822046B30		C	Reading Comprehension	Vocabulary	Know	21837	15	16	53	13	-0.27	-0.28	0.37	0.09	0.53	0.37	0.55	-0.18	11.52	no DIF	n/a	
34	34	EN0822050D21		B	Reading Comprehension	Vocabulary	Know	21837	32	40	16	10	-0.18	0.35	-0.05	-0.18	0.40	0.35	0.49	0.57	112.91	no DIF	n/a	
35	35	EN0822018A31		B	Grammatical Accuracy	Phonics	Know	21837	27	44	14	12	-0.17	0.25	-0.03	-0.07	0.44	0.25	0.32	0.46	4.75	no DIF	n/a	
36	36	EN0822019A32		D	Grammatical Accuracy	Phonics	Know	21837	17	29	12	39	-0.17	-0.02	-0.10	0.26	0.39	0.26	0.32	0.87	20.04	no DIF	n/a	
37	37	EN0822020A33		D	Grammatical Accuracy	Phonics	Know	21837	32	18	19	28	-0.17	-0.04	0.02	0.23	0.28	0.23	0.32	1.82	14.77	no DIF	n/a	
38	39	EN0822049C38		C	Literary Appreciation	Figure of speech	Know	21837	21	28	41	7	-0.10	-0.05	0.25	-0.16	0.41	0.25	0.32	0.73	34.05	no DIF	n/a	
39	40	EN0822025A39		B	Literary Appreciation	Figure of speech	Know	21837	6	28	11	5	-0.13	0.19	-0.05	-0.08	0.28	0.19	0.26	2.26	1.82	no DIF	n/a	
40	38	EN0822023A36		C	Literary Appreciation	Literary devices	Know	21837	21	20	45	10	-0.01	-0.26	0.34	-0.13	0.45	0.34	0.47	0.26	4.00	no DIF	n/a	

Note: * Excluded item (no unique key)

Table B7. P5 Basic science and technology: Test map and item statistics (Forms A and B)

Positions		CONTENT STRUCTURE - P5 Basic Science and Technology					% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit		DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
1	3	SC0522001	A	Basic Science	Living & non-living	Apply	63097	59	21	8	10	0.31	-0.17	-0.16	-0.11	0.59	0.31	0.50	-0.52	59.27	no DIF	n/a
2	2	SC0522002	A	Basic Technology	You and energy	Apply	63097	30	21	34	13	0.09	-0.17	0.16	-0.11	0.30	0.09	0.12	4.25	49.72	no DIF	n/a
3	1	SC0522003	B	Physical & Health Ed	Basic movements	Know	63097	42	24	21	11	-0.07	0.04	0.05	0.00	0.24	0.04	0.06	10.98	26.38	no DIF	n/a
4	4	SC0522004	D	Basic Science	Explore our environment	Know	63097	13	14	24	47	-0.19	-0.15	-0.11	0.35	0.47	0.35	0.53	0.17	25.24	no DIF	n/a
5	7	SC0522005	B	Basic Science	Living & non-living	Know	63097	14	52	21	11	-0.20	0.35	-0.17	-0.07	0.52	0.35	0.57	-0.10	55.97	no DIF	n/a
6	6	SC0522006	C	Physical & Health Ed	Health education	Know	63097	24	12	56	5	-0.18	-0.19	0.36	-0.12	0.56	0.36	0.57	-0.33	30.74	no DIF	n/a
7	5	SC0522007	C	Basic Science	Explore our environment	Know	63097	11	19	61	7	-0.24	-0.17	0.39	-0.15	0.61	0.39	0.70	-0.51	71.23	no DIF	n/a
8	8	SC0522008	B	Basic Science	Living & non-living	Know	63097	30	45	14	9	-0.11	0.31	-0.13	-0.15	0.45	0.31	0.45	0.31	29.34	no DIF	n/a
9	9	SC0522009	C	Information Tech	Basic concepts in IT	Know	63097	13	19	53	14	-0.15	-0.17	0.39	-0.19	0.53	0.39	0.63	-0.13	43.27	no DIF	n/a
10	10	SC0522040	B	Physical & Health Ed	Athletics	Know	63097	33	47	5	14	-0.13	0.22	-0.14	-0.03	0.47	0.22	0.32	0.24	54.38	no DIF	n/a
11	11	SC0522010	C	Physical & Health Ed	Games & sports	Know	63097	13	17	51	17	-0.22	-0.13	0.22	0.06	0.51	0.22	0.31	-0.11	140.01	no DIF	n/a
12	14	SC0522011	A	Basic Science	Living & non-living	Know	63097	52	18	15	14	0.27	-0.12	-0.15	-0.08	0.52	0.27	0.38	-0.15	32.43	no DIF	n/a
13	13	SC0522012	D	Physical & Health Ed	Pathogens, diseases, prev	Know	63097	9	11	7	71	-0.20	-0.15	-0.20	0.36	0.71	0.36	0.70	-0.95	235.23	no DIF	n/a
14	12	SC0522013	A	Basic Technology	You and energy	Know	63097	70	12	9	8	0.42	-0.23	-0.21	-0.19	0.70	0.42	0.90	-0.79	113.57	no DIF	n/a
15	15	SC0522014	C	Basic Technology	You and energy	Know	63097	20	36	29	13	-0.12	0.08	0.08	-0.05	0.29	0.08	0.11	4.84	12.84	no DIF	n/a
16	17	SC0522015	A *	Basic Science	Explore our environment	Apply	63097	28	21	26	23	-0.02	-0.03	0.02	0.05	0.28	-0.02				no DIF	n/a
17	16	SC0522016	A	Basic Science	Living & non-living	Apply	63097	47	17	19	15	0.36	-0.21	-0.12	-0.11	0.47	0.36	0.56	0.15	113.28	no DIF	n/a
18	18	SC0522017	B	Basic Science	Explore our environment	Apply	63097	16	54	18	10	-0.18	0.31	-0.09	-0.15	0.54	0.31	0.46	-0.24	40.99	no DIF	n/a
19	20	SC0522018	C	Information Tech	Basic computer operations	Know	63097	26	18	34	21	-0.03	-0.21	0.25	-0.03	0.34	0.25	0.35	1.20	67.00	no DIF	n/a
20	19	SC0522019	A *	Information Tech	Basic computer operations	Apply	63097	19	24	36	20	-0.02	-0.11	0.14	-0.01	0.19	-0.02				no DIF	n/a
21	21	SC0522020	A	Physical & Health Ed	Health education	Know	63097	53	17	21	7	0.28	-0.20	-0.05	-0.13	0.53	0.28	0.39	-0.20	111.26	no DIF	n/a
22	22	SC0522021	D	Basic Technology	You and energy	Know	63097	26	23	18	31	-0.12	-0.07	-0.10	0.28	0.31	0.28	0.42	1.22	25.03	no DIF	n/a
23	23	SC0522022	A	Basic Science	Living & non-living	Reason	63097	45	26	15	12	0.30	-0.03	-0.18	-0.18	0.45	0.30	0.44	0.32	45.11	no DIF	n/a
24	24	SC0522023	C	Basic Science	Explore our environment	Know	63097	22	12	46	18	-0.16	-0.19	0.43	-0.19	0.46	0.43	0.70	0.16	96.18	no DIF	n/a
25	30	SC0522024	D	Basic Technology	You and energy	Apply	63097	25	15	17	40	-0.10	-0.14	-0.05	0.26	0.40	0.26	0.40	0.64	68.56	no DIF	n/a
26	26	SC0522025	B	Basic Technology	Understand basic technology	Know	63097	19	59	10	10	-0.20	0.41	-0.20	-0.16	0.59	0.41	0.71	-0.42	51.42	no DIF	n/a
27	25	SC0522026	A	Basic Technology	Understand basic technology	Know	63097	49	17	13	19	0.35	-0.18	-0.19	-0.08	0.49	0.35	0.54	0.03	121.11	no DIF	n/a
28	29	SC0522027	D	Information Tech	Basic concepts in IT	Apply	63097	24	19	17	37	-0.07	-0.17	-0.10	0.31	0.37	0.31	0.49	0.70	26.41	no DIF	n/a
29	28	SC0522028	A	Basic Science	Living & non-living	Apply	63097	45	17	18	18	0.29	-0.20	-0.04	-0.11	0.45	0.29	0.43	0.30	74.58	no DIF	n/a

Positions		CONTENT STRUCTURE - P5 Basic Science and Technology						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
30	27	SC0522029	A	Basic Technology	Understand basic technology	Apply	63097	39	18	19	22	0.23	-0.15	-0.12	0.01	0.39	0.23	0.32	0.89	42.61	no DIF	n/a
31	31	SC0522030	B	Basic Science	Explore our environment	Reason	63097	22	46	12	18	-0.22	0.33	-0.13	-0.05	0.46	0.33	0.48	0.23	37.85	no DIF	n/a
32	35	SC0522031	C	Physical & Health Ed	Games & sports	Apply	63097	27	25	30	15	0.04	-0.07	0.09	-0.04	0.30	0.09	0.12	4.03	15.17	no DIF	n/a
33	34	SC0522032	B	Physical & Health Ed	Athletics	Apply	63097	31	33	18	15	-0.04	0.15	-0.17	0.08	0.33	0.15	0.20	2.13	12.64	no DIF	n/a
34	33	SC0522033	C	Basic Technology	Understand basic technology	Apply	63097	26	30	25	16	-0.01	0.02	0.04	-0.03	0.25	0.04	0.07	8.82	36.91	no DIF	n/a
35	32	SC0522034	C	Basic Technology	You and energy	Reason	63097	23	17	40	17	-0.16	-0.14	0.31	-0.05	0.40	0.31	0.47	0.56	56.90	no DIF	n/a
36	36	SC0522035	C	Physical & Health Ed	Health education	Apply	63097	14	14	57	12	-0.22	-0.24	0.45	-0.14	0.57	0.45	0.78	-0.29	65.11	no DIF	n/a
37	40	SC0522036	D	Basic Technology	Understand basic technology	Reason	63097	18	25	20	33	-0.08	-0.12	-0.07	0.27	0.33	0.27	0.40	1.15	158.52	no DIF	n/a
38	38	SC0522037	C	Physical & Health Ed	Health education	Reason	63097	25	22	28	21	-0.01	-0.12	0.10	0.07	0.28	0.10	0.15	3.76	13.34	no DIF	n/a
39	39	SC0522038	A	Physical & Health Ed	Basic movements	Apply	63097	38	31	16	13	0.17	0.08	-0.14	-0.16	0.38	0.17	0.23	1.31	23.59	no DIF	n/a
40	37	SC0522039	B	Physical & Health Ed	Health education	Apply	63097	23	42	14	18	-0.06	0.23	-0.18	-0.03	0.42	0.23	0.33	0.63	15.82	no DIF	n/a

Note: * Excluded items (negative item-total correlation)

Table B8. JS2 Basic science and technology: Test map and item statistics (Forms A and B)

Positions		CONTENT STRUCTURE - JS2 Basic Science and Technology						% Choosing Option					Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp	
1	6	SC0822001	A	Information Tech	Basic knowledge of IT	Know	21344	81	5	5	8	0.21	-0.22	-0.18	0.03	0.81	0.21	0.40	-2.33	55.74	no DIF	n/a	
2	5	SC0822002	A	Basic Science	Science and development	Know	21344	57	28	6	9	0.23	-0.07	-0.19	-0.12	0.57	0.23	0.34	-0.52	7.90	no DIF	n/a	
3	4	SC0822003	C	Physical & Health Ed	Basic human movement	Know	21344	8	9	69	13	-0.17	-0.24	0.43	-0.23	0.69	0.43	0.84	-0.77	14.03	no DIF	n/a	
4	3	SC0822004	D	Basic Technology	Safety	Know	21344	11	9	12	68	-0.24	-0.23	-0.29	0.51	0.68	0.51	1.15	-0.62	25.80	no DIF	n/a	
5	2	SC0822005	B	Information Tech	Basic knowledge of IT	Know	21344	17	66	6	11	-0.22	0.41	-0.24	-0.17	0.66	0.41	0.77	-0.67	9.72	no DIF	n/a	
6	1	SC0822006	A	Basic Technology	Materials and processing	Know	21344	58	10	25	6	0.04	-0.16	0.14	-0.12	0.58	0.04	0.05	-3.55	39.75	no DIF	n/a	
7	7	SC0822007	A	Basic Technology	Tools, machines, processes	Apply	21344	54	14	24	7	0.26	-0.16	-0.08	-0.15	0.54	0.26	0.35	-0.29	8.77	no DIF	n/a	
8	8	SC0822008	C	Physical & Health Ed	Basic human movement	Know	21344	21	23	46	9	-0.16	-0.09	0.27	-0.10	0.46	0.27	0.38	0.29	8.95	no DIF	n/a	
9	15	SC0822009	A	Physical & Health Ed	Basic human movement	Know	21344	66	14	10	9	0.34	-0.11	-0.23	-0.16	0.66	0.34	0.55	-0.86	6.97	no DIF	n/a	
10	9	SC0822010	C	Basic Science	Learn about environment	Apply	21344	18	10	62	8	-0.26	-0.26	0.49	-0.18	0.62	0.49	0.99	-0.44	10.93	no DIF	n/a	
11	13	SC0822011	A	Basic Technology	Tools, machines, processes	Know	21344	58	21	13	8	0.28	-0.09	-0.18	-0.14	0.58	0.28	0.42	-0.48	15.25	no DIF	n/a	
12	12	SC0822012	A	Basic Technology	Tools, machines, processes	Know	21344	67	10	7	14	0.36	-0.17	-0.18	-0.19	0.67	0.36	0.59	-0.87	6.77	no DIF	n/a	
13	11	SC0822013	B	Physical & Health Ed	Basic human movement	Know	21344	23	63	8	5	-0.19	0.34	-0.16	-0.15	0.63	0.34	0.53	-0.71	9.69	no DIF	n/a	
14	14	SC0822014	A	Basic Technology	Drawing practice	Know	21344	38	16	19	25	0.11	-0.07	-0.07	0.00	0.38	0.11	0.14	2.07	106.38	no DIF	n/a	
15	10	SC0822015	A	Basic Technology	Tools, machines, processes	Apply	21344	67	11	10	10	0.24	-0.11	-0.11	-0.12	0.67	0.24	0.37	-1.23	22.26	no DIF	n/a	
16	16	SC0822016	C	Basic Science	You and energy	Apply	21344	23	18	50	7	-0.24	-0.17	0.40	-0.10	0.50	0.40	0.61	-0.01	58.66	no DIF	n/a	
17	19	SC0822017	C	Basic Science	You and energy	Know	21344	27	25	35	11	-0.11	-0.13	0.27	-0.07	0.35	0.27	0.36	1.08	99.76	no DIF	n/a	
18	18	SC0822018	C	Basic Technology	Drawing practice	Apply	21344	20	14	54	10	-0.11	-0.12	0.24	-0.10	0.54	0.24	0.31	-0.35	38.62	no DIF	n/a	
19	17	SC0822019	C	Information Tech	Basic computer concepts	Know	21344	13	14	60	11	-0.25	-0.26	0.52	-0.22	0.60	0.52	1.03	-0.35	42.64	no DIF	n/a	
20	20	SC0822020	A	Information Tech	Computer app packages	Apply	21344	62	15	16	7	0.27	-0.20	-0.12	-0.04	0.62	0.27	0.38	-0.81	7.25	no DIF	n/a	
21	24	SC0822021	C	Information Tech	Basic computer concepts	Apply	21344	20	16	56	8	-0.25	-0.22	0.46	-0.17	0.56	0.46	0.76	-0.24	76.20	no DIF	n/a	
22	23	SC0822022	C	Basic Technology	Safety	Apply	21344	17	10	64	8	-0.31	-0.29	0.51	-0.14	0.64	0.51	1.11	-0.51	17.07	no DIF	n/a	
23	22	SC0822023	B	Basic Science	Learn about environment	Know	21344	13	69	11	6	-0.19	0.35	-0.19	-0.13	0.69	0.35	0.62	-0.91	13.05	no DIF	n/a	
24	21	SC0822024	C	Information Tech	Basic computer concepts	Apply	21344	17	12	51	18	-0.14	-0.17	0.28	-0.08	0.51	0.28	0.40	-0.06	35.31	no DIF	n/a	
25	25	SC0822025	D	Information Tech	Basic computer concepts	Know	21344	13	12	7	66	-0.22	-0.18	-0.20	0.40	0.66	0.40	0.71	-0.72	9.63	no DIF	n/a	
26	28	SC0822026	B	Information Tech	Basic knowledge of IT	Apply	21344	21	51	16	11	-0.19	0.29	-0.12	-0.05	0.51	0.29	0.43	-0.07	8.11	no DIF	n/a	
27	30	SC0822027	C	Basic Science	Learn about environment	Reason	21344	24	24	33	18	-0.01	-0.03	0.17	-0.14	0.33	0.17	0.26	1.71	39.62	no DIF	n/a	
28	26	SC0822028	A	Basic Science	You and energy	Reason	21344	48	21	17	13	0.32	-0.16	-0.08	-0.17	0.48	0.32	0.48	0.11	8.85	no DIF	n/a	
29	29	SC0822029	B	Basic Science	Science and development	Reason	21344	12	45	31	10	-0.12	0.30	-0.16	-0.10	0.45	0.30	0.42	0.28	65.53	no DIF	n/a	
30	27	SC0822030	B	Information Tech	Basic computer concepts	Reason	21344	30	35	17	17	-0.08	0.21	-0.01	-0.14	0.35	0.21	0.33	1.22	10.46	no DIF	n/a	
31	31	SC0822031	C	Basic Technology	Materials and processing	Reason	21344	24	24	23	28	-0.12	-0.07	0.15	0.07	0.23	0.15	0.21	3.40	57.81	no DIF	n/a	
32	33	SC0822032	C	Basic Technology	Tools, machines, processes	Reason	21344	17	19	30	33	-0.08	-0.11	0.04	0.14	0.30	0.04	0.06	7.81	14.45	no DIF	n/a	
33	32	SC0822033	A *	Basic Technology	Drawing practice	Reason	21344	29	37	22	10	0.16	0.04	-0.07	-0.16	0.10	-0.16				no DIF	n/a	
34	34	SC0822034	C	Physical & Health Ed	Basic human movement	Reason	21344	25	24	33	16	-0.08	-0.05	0.13	0.01	0.33	0.13	0.19	2.35	38.02	no DIF	n/a	
35	37	SC0822035	D	Physical & Health Ed	Basic human movement	Apply	21344	24	21	17	36	-0.05	-0.16	-0.13	0.32	0.36	0.32	0.51	0.76	19.05	no DIF	n/a	
36	36	SC0822036	B	Information Tech	Basic knowledge of IT	Reason	21344	22	31	30	15	-0.05	0.03	0.08	-0.05	0.31	0.03	0.05	8.66	26.16	no DIF	n/a	
37	35	SC0822037	B	Basic Technology	Materials and processing	Apply	21344	22	39	22	15	-0.16	0.26	-0.05	-0.07	0.39	0.26	0.38	0.77	55.49	no DIF	n/a	

Positions		CONTENT STRUCTURE - JS2 Basic Science and Technology							% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp	
38	38	SC0822038	D	Physical & Health Ed	Basic human movement	Apply	21344	28	14	16	40	0.03	-0.17	-0.06	0.17	0.40	0.17	0.23	1.08	6.41	no DIF	n/a	
39	40	SC0822039	C *	Physical & Health Ed	Basic human movement	Apply	21344	26	16	41	15	-0.01	-0.15	0.18	-0.04	0.15	-0.04				no DIF	n/a	
40	39	SC0822040	C	Physical & Health Ed	Basic human movement	Reason	21344	26	34	24	14	-0.15	0.09	0.14	-0.07	0.24	0.14	0.20	3.46	97.42	no DIF	n/a	

Note: * Excluded items (negative item-total correlation)

Table B9. P5 Social Studies: Test Map and item statistics (Forms A and B)

Positions		CONTENT STRUCTURE - P5 Social Studies							% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit		DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp		
1		SS0522107D08	D	Fundamentals	How environment am	Apply	32368	52	9	7	31	-0.16	-0.17	-0.23	0.42	0.31	0.42	0.66	0.95	69.27	no DIF	n/a		
2		SS0522106D07	C	Fundamentals	How environment am	Reason	32368	9	26	46	18	-0.11	-0.33	0.47	-0.14	0.46	0.47	0.71	0.20	60.69	no DIF	n/a		
3	3	SS0522043B06	C	Fundamentals	How environment am	Apply	64611	15	16	57	9	-0.11	-0.25	0.34	-0.11	0.57	0.34	0.48	-0.43	76.10	no DIF	n/a		
4		SS0522053B20	A	Fundamentals	How environment am	Know	32368	61	12	12	14	0.38	-0.16	-0.23	-0.15	0.61	0.38	0.56	-0.54	56.07	no DIF	n/a		
5	5	SS0522045B10	B	Fundamentals	How environment am	Know	64611	17	61	11	9	-0.24	0.36	-0.13	-0.14	0.61	0.36	0.54	-0.60	17.72	no DIF	n/a		
6		SS0522102D03	C	Fundamentals	How environment am	Apply	32368	12	21	56	9	-0.18	-0.10	0.33	-0.20	0.56	0.33	0.46	-0.32	11.73	no DIF	n/a		
7	7	SS0522075C07	A	Fundamentals	How environment am	Reason	64611	55	15	10	19	0.52	-0.24	-0.24	-0.24	0.55	0.52	0.87	-0.21	25.68	no DIF	n/a		
8		SS0522076C09	C	Fundamentals	How environment am	Apply	32368	21	25	37	15	-0.09	0.09	0.05	-0.07	0.37	0.05	0.07	4.34	57.24	no DIF	n/a		
9	9	SS0522039B02	D	Family	Other people	Know	64611	12	10	7	70	-0.31	-0.18	-0.21	0.47	0.70	0.47	0.89	-0.81	331.35	no DIF	n/a		
10		SS0522070C01	B	Family	Other people	Reason	32368	13	61	10	15	-0.24	0.40	-0.25	-0.10	0.61	0.40	0.61	-0.50	16.84	no DIF	n/a		
11		SS0522002A02	C	Family	Other people	Know	32368	19	21	51	8	-0.26	-0.27	0.51	-0.14	0.51	0.51	0.81	-0.02	27.21	no DIF	n/a		
12	12	SS0522073C04	C	Family	Tolerance	Apply	64611	13	29	48	9	-0.12	-0.26	0.43	-0.16	0.48	0.43	0.64	0.10	37.89	no DIF	n/a		
13	13	SS0522013A14	D	Unity in culture	Meaning of culture	Apply	64611	12	13	9	64	-0.26	-0.24	-0.23	0.50	0.64	0.50	0.91	-0.56	292.92	no DIF	n/a		
14		SS0522011A12	A	Unity in culture	Meaning of culture	Know	32368	67	14	9	9	0.50	-0.28	-0.23	-0.22	0.67	0.50	0.90	-0.64	14.64	no DIF	n/a		
15	15	SS0522048B14	A	Unity in culture	Effects of bad parenting	Apply	64611	60	16	14	8	0.46	-0.24	-0.21	-0.20	0.60	0.46	0.75	-0.45	45.53	no DIF	n/a		
16		SS0522027A29	B	Unity in culture	Ways of promoting unity	Apply	32368	20	56	13	10	-0.20	0.43	-0.22	-0.17	0.56	0.43	0.65	-0.26	28.99	no DIF	n/a		
17		SS0522108D09	A	Unity in culture	Effects of bad parenting	Reason	32368	64	15	12	8	0.49	-0.31	-0.17	-0.23	0.64	0.49	0.84	-0.54	5.85	no DIF	n/a		
18		SS0522028A30	A	Unity in culture	Responsible parenthood	Reason	32368	54	13	23	8	0.47	-0.23	-0.21	-0.21	0.54	0.47	0.72	-0.17	37.04	no DIF	n/a		
19		SS0522012A13	D	Unity in culture	Responsible parenthood	Know	32368	15	20	10	52	-0.22	-0.27	-0.24	0.54	0.52	0.54	0.93	-0.07	15.92	no DIF	n/a		
20	21	SS0522052B19	C	Unity in culture	Things that unite Nigeria	Know	64611	22	20	35	21	-0.10	-0.16	0.31	-0.09	0.35	0.31	0.44	0.93	115.21	no DIF	n/a		
21		SS0522015A16	A	Unity in culture	Responsible parenthood	Know	32368	67	13	10	9	0.47	-0.27	-0.21	-0.22	0.67	0.47	0.82	-0.68	25.90	no DIF	n/a		
22	22	SS0522089C27	D	Unity in culture	Things that unite Nigeria	Reason	64611	20	18	15	45	-0.14	-0.24	-0.22	0.47	0.45	0.47	0.73	0.19	35.48	no DIF	n/a		
23		SS0522016A17	D	Unity in culture	Responsible parenthood	Apply	32368	12	17	29	40	-0.21	-0.21	-0.12	0.43	0.40	0.43	0.66	0.49	99.50	no DIF	n/a		
24	24	SS0522024A26	C	Unity in culture	Meaning of culture	Know	64611	10	14	66	8	-0.26	-0.27	0.49	-0.19	0.66	0.49	0.89	-0.65	34.90	no DIF	n/a		
25		SS0522066B37	D	Unity in culture	Things that unite Nigeria	Apply	32368	17	13	10	58	-0.29	-0.22	-0.24	0.53	0.58	0.53	0.94	-0.29	19.54	no DIF	n/a		
26		SS0522065B36	B	Unity in culture	Things that unite Nigeria	Apply	32368	15	47	16	21	-0.26	0.34	-0.21	0.02	0.47	0.34	0.47	0.22	24.95	no DIF	n/a		
27	26	SS0522042B05	C	Unity in culture	Meaning of culture	Apply	64611	16	18	54	10	-0.25	-0.23	0.53	-0.24	0.54	0.53	0.90	-0.17	48.13	no DIF	n/a		
28		SS0522049B15	A	Unity in culture	Meaning of culture	Know	32368	42	24	16	16	0.29	-0.09	-0.16	-0.11	0.42	0.29	0.39	0.58	12.13	no DIF	n/a		
29	29	SS0522120D21	A	Unity in culture	Meaning of culture	Reason	64611	55	15	13	14	0.44	-0.22	-0.20	-0.18	0.55	0.44	0.68	-0.25	36.45	no DIF	n/a		
30	30	SS0522083C18	D	Unity in culture	Things that unite Nigeria	Reason	64611	17	15	21	45	-0.24	-0.11	-0.18	0.43	0.45	0.43	0.64	0.24	55.70	no DIF	n/a		
31		SS0522118D19	D	Unity in culture	Meaning of culture	Know	32368	15	19	14	49	-0.25	-0.20	-0.12	0.48	0.49	0.48	0.73	0.07	23.87	no DIF	n/a		
32	32	SS0522086C23	C	Unity in culture	Meaning of culture	Apply	64611	15	14	56	11	-0.22	-0.26	0.43	-0.07	0.56	0.43	0.67	-0.27	26.27	no DIF	n/a		
33	40	SS0522059B29	D	Social & Health	Personal hygiene	Reason	64611	13	12	9	59	-0.26	-0.16	-0.21	0.50	0.59	0.50	0.88	-0.39	55.71	no DIF	n/a		
34		SS0522097C38	B	Social & Health	Personal hygiene	Reason	32368	15	54	16	12	-0.20	0.48	-0.23	-0.17	0.54	0.48	0.75	-0.14	24.02	no DIF	n/a		
35		SS0522098C39	A	Social & Health	Personal hygiene	Reason	32368	44	16	24	13	0.33	-0.21	0.00	-0.18	0.44	0.33	0.45	0.38	30.66	no DIF	n/a		
36		SS0522134D38	A	Social & Health	Personal hygiene	Apply	32368	53	19	15	10	0.48	-0.20	-0.21	-0.19	0.53	0.48	0.77	-0.12	140.23	no DIF	n/a		
37	37	SS0522093C32	B	Social & Health	Personal hygiene	Reason	64611	14	52	14	15	-0.15	0.39	-0.19	-0.12	0.52	0.39	0.58	-0.12	76.11	no DIF	n/a		

Positions		CONTENT STRUCTURE - P5 Social Studies						% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
38	38	SS0522034A37	A	Social & Health	Personal hygiene	Reason	64611	45	19	11	19	0.43	-0.26	-0.21	-0.03	0.45	0.43	0.65	0.21	26.63	no DIF	n/a
39		SS0522068B39	B	Social & Health	Personal hygiene	Reason	32368	23	51	12	10	-0.17	0.42	-0.20	-0.15	0.51	0.42	0.62	-0.05	62.16	no DIF	n/a
40		SS0522069B40	D	Social & Health	Personal hygiene	Reason	32368	17	12	18	50	-0.20	-0.17	-0.15	0.42	0.50	0.42	0.62	0.00	18.89	no DIF	n/a
	1	SS0522010A11	A	Fundamentals	How environment am	Know	32243	58	8	27	6	0.15	-0.22	0.05	-0.13	0.58	0.15	0.20	-0.95	6.73	no DIF	n/a
	2	SS0522008A09	B	Fundamentals	How environment am	Apply	32243	14	61	16	8	-0.26	0.39	-0.16	-0.14	0.61	0.39	0.58	-0.58	9.39	no DIF	n/a
	4	SS0522047B13	A	Fundamentals	How environment am	Know	32243	64	11	10	13	0.41	-0.19	-0.21	-0.19	0.64	0.41	0.67	-0.66	40.12	no DIF	n/a
	6	SS0522077C10	B	Fundamentals	How environment am	Know	32243	16	54	17	11	-0.13	0.37	-0.21	-0.16	0.54	0.37	0.55	-0.26	3.95	no DIF	n/a
	8	SS0522109D10	A	Fundamentals	How environment am	Apply	32243	34	19	23	22	0.18	-0.20	-0.06	0.06	0.34	0.18	0.23	1.71	23.46	no DIF	n/a
	10	SS0522071C02	B	Family	Other people	Reason	32243	17	59	11	11	-0.21	0.40	-0.24	-0.12	0.59	0.40	0.63	-0.48	48.75	no DIF	n/a
	11	SS0522103D04	A	Family	Other people	Know	32243	54	11	21	13	0.44	-0.23	-0.23	-0.14	0.54	0.44	0.69	-0.21	30.73	no DIF	n/a
	14	SS0522014A15	B	Unity in culture	Meaning of culture	Know	32243	23	43	13	19	-0.20	0.40	-0.20	-0.10	0.43	0.40	0.59	0.29	131.76	no DIF	n/a
	16	SS0522080C14	B	Unity in culture	Ways of promoting unity	Apply	32243	15	45	22	15	-0.20	0.24	-0.08	-0.03	0.45	0.24	0.32	0.35	45.08	no DIF	n/a
	17	SS0522025A27	A	Unity in culture	Things that unite Nigeria	Know	32243	56	15	14	12	0.22	-0.21	-0.04	-0.04	0.56	0.22	0.30	-0.55	130.65	no DIF	n/a
	18	SS0522061B31	C	Unity in culture	Effects of bad parenting	Reason	32243	17	16	49	16	-0.24	-0.20	0.43	-0.12	0.49	0.43	0.65	0.00	6.70	no DIF	n/a
	19	SS0522135D40	B	Unity in culture	Things that unite Nigeria	Know	32243	13	54	11	21	-0.23	0.48	-0.26	-0.18	0.54	0.48	0.78	-0.20	16.77	no DIF	n/a
	20	SS0522094C33	D	Unity in culture	Responsible parenthood	Know	32243	29	17	16	36	0.01	-0.18	-0.25	0.34	0.36	0.34	0.50	0.75	142.48	no DIF	n/a
	23	SS0522020A21	C	Unity in culture	Responsible parenthood	Know	32243	23	14	51	11	-0.26	-0.18	0.47	-0.17	0.51	0.47	0.75	-0.09	34.71	no DIF	n/a
	25	SS0522092C30	A	Unity in culture	Responsible parenthood	Reason	32243	43	18	14	23	0.34	-0.18	-0.14	-0.10	0.43	0.34	0.48	0.38	19.24	no DIF	n/a
	27	SS0522126D29	B	Unity in culture	Meaning of culture	Reason	32243	19	39	26	14	-0.19	0.27	-0.03	-0.09	0.39	0.27	0.36	0.73	6.75	no DIF	n/a
	28	SS0522021A22	B	Unity in culture	Meaning of culture	Know	32243	22	34	15	26	-0.17	0.32	-0.11	-0.07	0.34	0.32	0.46	0.93	43.30	no DIF	n/a
	31	SS0522113D14	B	Unity in culture	Meaning of culture	Know	32243	16	57	10	13	-0.27	0.48	-0.20	-0.15	0.57	0.48	0.81	-0.34	24.28	no DIF	n/a
	33	SS0522032A35	A	Social & Health	Personal hygiene	Know	32243	47	15	19	15	0.45	-0.14	-0.16	-0.24	0.47	0.45	0.72	0.10	16.36	no DIF	n/a
	34	SS0522067B38	C	Social & Health	Personal hygiene	Reason	32243	18	17	47	14	-0.15	-0.18	0.44	-0.20	0.47	0.44	0.70	0.10	80.04	no DIF	n/a
	35	SS0522060B30	D	Social & Health	Personal hygiene	Know	32243	23	14	10	45	-0.27	-0.22	-0.18	0.57	0.45	0.57	1.08	0.11	29.16	no DIF	n/a
	36	SS0522133D37	C	Social & Health	Personal hygiene	Know	32243	18	16	50	9	-0.28	-0.20	0.53	-0.16	0.50	0.53	0.95	-0.05	34.64	no DIF	n/a
	39	SS0522058B28	B	Social & Health	Personal hygiene	Apply	32243	15	50	11	14	-0.21	0.47	-0.18	-0.11	0.50	0.47	0.78	-0.05	37.87	no DIF	n/a

Table B10. JS2 Social studies: Test map and item statistics (Forms A and B)

Positions		CONTENT STRUCTURE - JS2 Social Studies							% Choosing Option					Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit		DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp			
1		SS0822038B02	C	Culture & Social Values	Marriage	Know	10878	11	17	63	7	-0.34	-0.15	0.45	-0.19	0.63	0.45	0.72	-0.60	13.33	no DIF	n/a			
2		SS0822077C06	B	Culture & Social Values	Marriage	Reason	10878	11	67	12	8	-0.31	0.44	-0.15	-0.20	0.67	0.44	0.72	-0.79	7.15	no DIF	n/a			
3	3	SS0822005A06	A	Culture & Social Values	Religion	Know	21807	56	11	15	17	0.31	-0.18	-0.20	-0.05	0.56	0.31	0.43	-0.39	16.89	no DIF	n/a			
4	4	SS0822072C01	A	Culture & Social Values	Religion	Reason	21807	56	7	31	5	0.45	-0.23	-0.26	-0.18	0.56	0.45	0.70	-0.27	16.81	no DIF	n/a			
5		SS0822048B14	D	Social & Health Issues	Prevention (drug abuse)	Know	10878	16	25	11	47	-0.36	0.04	-0.13	0.31	0.47	0.31	0.43	0.16	17.89	no DIF	n/a			
6		SS0822054B21	C	Social & Health Issues	Poverty	Reason	10878	10	9	72	8	-0.34	-0.30	0.55	-0.20	0.72	0.55	1.22	-0.80	2.10	no DIF	n/a			
7		SS0822084C14	C	Social & Health Issues	Corruption	Reason	10878	10	10	76	3	-0.32	-0.30	0.53	-0.20	0.76	0.53	1.20	-0.98	11.95	no DIF	n/a			
8		SS0822111D11	A	Social & Health Issues	Cultism	Know	10878	73	9	7	10	0.38	-0.28	-0.25	-0.07	0.73	0.38	0.64	-1.15	9.72	no DIF	n/a			
9	9	SS0822012A13	B	Social & Health Issues	Drug abuse	Apply	21807	13	73	6	7	-0.21	0.38	-0.19	-0.20	0.73	0.38	0.67	-1.12	24.46	no DIF	n/a			
10	10	SS0822016A17	C	Social & Health Issues	Drug abuse	Apply	21807	11	12	69	7	-0.22	-0.27	0.48	-0.25	0.69	0.48	0.91	-0.76	31.68	no DIF	n/a			
11	11	SS0822014A15	B	Social & Health Issues	Drug abuse	Apply	21807	23	50	17	9	-0.09	0.27	-0.07	-0.24	0.50	0.27	0.37	-0.01	7.59	no DIF	n/a			
12		SS0822022A23	D	Social & Health Issues	Accidents in school	Reason	10878	13	16	12	59	-0.31	-0.22	-0.23	0.53	0.59	0.53	0.93	-0.37	8.36	no DIF	n/a			
13	13	SS0822055B22	D	Social & Health Issues	Poverty	Reason	21807	19	17	17	46	-0.22	-0.16	-0.19	0.43	0.46	0.43	0.67	0.18	28.66	no DIF	n/a			
14		SS0822086C16	A	Social & Health Issues	Drug abuse	Reason	10878	67	15	11	7	0.49	-0.27	-0.28	-0.18	0.67	0.49	0.86	-0.68	47.51	no DIF	n/a			
15	15	SS0822109D09	A	Social & Health Issues	Corruption	Reason	21807	69	10	7	13	0.50	-0.27	-0.24	-0.25	0.69	0.50	0.96	-0.74	23.61	no DIF	n/a			
16	16	SS0822110D10	B	Social & Health Issues	Corruption	Apply	21807	14	57	18	10	-0.16	0.46	-0.31	-0.17	0.57	0.46	0.77	-0.31	52.88	no DIF	n/a			
17		SS0822114D15	A	Social & Health Issues	Corruption	Reason	10878	54	31	10	4	0.27	-0.01	-0.30	-0.17	0.54	0.27	0.34	-0.28	44.99	no DIF	n/a			
18		SS0822113D14	C	Social & Health Issues	Corruption	Reason	10878	16	11	62	10	-0.23	-0.26	0.54	-0.30	0.62	0.54	1.01	-0.46	8.85	no DIF	n/a			
19		SS0822108D08	B	Social & Health Issues	Corruption	Reason	10878	10	68	9	13	-0.29	0.52	-0.22	-0.27	0.68	0.52	1.01	-0.68	15.47	no DIF	n/a			
20	20	SS0822100C37	B	Social & Health Issues	Poverty	Reason	21807	10	71	10	9	-0.26	0.45	-0.22	-0.20	0.71	0.45	0.81	-0.89	41.66	no DIF	n/a			
21	21	SS0822044B09	D	Social & Health Issues	Drug abuse	Know	21807	11	8	16	65	-0.28	-0.19	-0.28	0.51	0.65	0.51	0.91	-0.59	13.81	no DIF	n/a			
22		SS0822090C21	B	Social & Health Issues	Poverty	Reason	10878	18	55	15	11	-0.20	0.43	-0.22	-0.18	0.55	0.43	0.68	-0.21	12.93	no DIF	n/a			
23		SS0822091C23	D	Science & Technology	Meaning of	Apply	10878	21	17	21	41	-0.16	-0.21	-0.04	0.33	0.41	0.33	0.50	0.52	33.59	no DIF	n/a			
24	24	SS0822122D23	A	Science & Technology	Meaning of	Know	21807	57	10	21	10	0.31	-0.22	-0.07	-0.17	0.57	0.31	0.42	-0.45	7.77	no DIF	n/a			
25		SS0822134D36	D	Science & Technology	Meaning of	Reason	10878	15	19	27	38	-0.18	-0.21	0.03	0.27	0.38	0.27	0.38	0.83	44.14	no DIF	n/a			
26		SS0822059B27	C	Science & Technology	Water supply (resources)	Reason	10878	36	20	33	9	-0.12	-0.07	0.24	-0.08	0.33	0.24	0.34	1.34	11.60	no DIF	n/a			
27		SS0822027A28	C	Science & Technology	Meaning of	Reason	10878	19	23	31	26	-0.28	-0.08	0.17	0.16	0.31	0.17	0.24	2.06	21.79	no DIF	n/a			
28	28	SS0822057B25	D	Science & Technology	Water supply (resources)	Reason	21807	10	12	18	59	-0.27	-0.17	-0.09	0.35	0.59	0.35	0.51	-0.47	18.49	no DIF	n/a			
29		SS0822035A37	A	National Economy	Savings and ways	Know	10878	58	17	12	11	0.45	-0.25	-0.24	-0.13	0.58	0.45	0.71	-0.38	3.80	no DIF	n/a			
30	30	SS0822130D32	D	National Economy	Resources	Reason	21807	46	16	17	20	0.11	-0.05	-0.22	0.12	0.20	0.12	0.19	4.35	19.62	no DIF	n/a			
31		SS0822067B35	A	National Economy	Saving money	Reason	10878	64	14	13	8	0.36	-0.20	-0.18	-0.14	0.64	0.36	0.54	-0.75	26.22	no DIF	n/a			
32		SS0822063B31	C	National Economy	Modern ways (money)	Know	10878	5	8	82	5	-0.21	-0.28	0.45	-0.22	0.82	0.45	1.01	-1.31	6.31	no DIF	n/a			
33	33	SS0822030A32	B	National Economy	Resources	Reason	21807	36	37	7	19	-0.05	0.17	-0.24	0.03	0.37	0.17	0.22	1.50	5.39	no DIF	n/a			
34	34	SS0822031A33	C	National Economy	Resources	Reason	21807	25	12	44	18	-0.04	-0.18	0.21	-0.06	0.44	0.21	0.29	0.53	4.49	no DIF	n/a			
35		SS0822140A40	D	National Economy	Resources	Reason	10878	28	23	15	33	-0.06	0.01	-0.26	0.26	0.33	0.26	0.37	1.21	5.08	no DIF	n/a			
36		SS0822092C25	C	National Economy	Resources	Apply	10878	34	17	38	11	-0.02	-0.19	0.29	-0.17	0.38	0.29	0.40	0.81	10.75	no DIF	n/a			
37	37	SS0822032A34	D	National Economy	Saving money	Know	21807	23	14	15	46	-0.15	-0.22	-0.04	0.32	0.46	0.32	0.44	0.23	34.50	no DIF	n/a			

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Positions	CONTENT STRUCTURE - JS2 Social Studies							% Choosing Option				Option-Total Correlations				CTT Parameters		IRT Parameters		IRT Fit	DIF M-F	
F-A	F-B	ItemID	Key	Theme	Sub-Theme	Cog Level	N	A	B	C	D	Apb	Bpb	Cpb	Dpb	Pval	ITcorr	Apar	Bpar	Zq1	DIF	Fav grp
38		SS0822037A39	C	National Economy	Resources	Know	10878	6	7	77	7	-0.16	-0.17	0.42	-0.18	0.77	0.42	0.79	-1.22	5.45	no DIF	n/a
39		SS0822064B32	A	National Economy	Resources	Reason	10878	39	18	15	25	0.32	-0.13	-0.24	0.08	0.39	0.32	0.44	0.68	26.30	no DIF	n/a
40		SS0822101C39	B	National Economy	Resources	Reason	10878	23	54	10	9	-0.22	0.42	-0.09	-0.14	0.54	0.42	0.63	-0.19	17.51	no DIF	n/a
	1	SS0822106D04	C	Culture & Social Values	Marriage	Know	10929	8	14	72	6	-0.29	-0.15	0.32	-0.05	0.72	0.32	0.53	-1.21	45.26	no DIF	n/a
	2	SS0822001A02	D	Culture & Social Values	Religion	Reason	10929	12	29	5	54	-0.34	-0.15	-0.16	0.43	0.54	0.43	0.69	-0.16	15.29	no DIF	n/a
	5	SS0822052B19	D	Social & Health Issues	Cultism	Apply	10929	16	13	9	61	-0.21	-0.20	-0.27	0.46	0.61	0.46	0.81	-0.44	8.17	no DIF	n/a
	6	EN0822026B20	B	Social & Health Issues	Drug abuse	Know	10929	11	57	10	22	-0.20	0.18	-0.16	0.06	0.57	0.18	0.25	-0.73	10.65	no DIF	n/a
	7	SS0822006A07	C	Social & Health Issues	Drug abuse	Reason	10929	10	16	65	9	-0.29	-0.06	0.35	-0.20	0.65	0.35	0.55	-0.76	23.10	no DIF	n/a
	8	SS0822121D22	A	Social & Health Issues	Drug abuse	Know	10929	38	30	17	13	0.17	-0.01	-0.22	0.03	0.38	0.17	0.23	1.27	7.24	no DIF	n/a
	12	SS0822116D17	A	Social & Health Issues	Corruption	Know	10929	61	16	7	15	0.34	-0.19	-0.19	-0.14	0.61	0.34	0.53	-0.59	33.01	no DIF	n/a
	14	SS0822112D13	A	Social & Health Issues	Corruption	Reason	10929	61	15	10	13	0.41	-0.29	-0.26	-0.03	0.61	0.41	0.65	-0.48	12.78	no DIF	n/a
	17	SS0822081C10	A	Social & Health Issues	Drug abuse	Reason	10929	53	16	21	9	0.26	-0.22	-0.04	-0.11	0.53	0.26	0.37	-0.17	17.27	no DIF	n/a
	18	SS0822119D20	A	Social & Health Issues	Drug abuse	Reason	10929	57	16	15	12	0.48	-0.22	-0.21	-0.26	0.57	0.48	0.86	-0.26	67.87	no DIF	n/a
	19	SS0822120D21	D	Social & Health Issues	Corruption	Apply	10929	13	39	10	36	-0.21	-0.27	-0.13	0.51	0.36	0.51	0.97	0.51	71.83	no DIF	n/a
	22	SS0822009A10	C	Social & Health Issues	Drug abuse	Know	10929	13	16	66	4	-0.25	-0.21	0.43	-0.20	0.66	0.43	0.76	-0.70	2.96	no DIF	n/a
	23	SS0822025A26	D	Science & Technology	Meaning	Know	10929	38	9	17	35	-0.19	-0.19	0.06	0.27	0.35	0.27	0.39	1.03	4.58	no DIF	n/a
	25	SS0822093C26	A	Science & Technology	Meaning	Know	10929	47	13	18	21	0.34	-0.24	-0.13	-0.09	0.47	0.34	0.49	0.16	19.23	no DIF	n/a
	26	SS0822071B40	B	Science & Technology	Meaning	Apply	10929	15	60	18	7	-0.29	0.45	-0.19	-0.15	0.60	0.45	0.75	-0.42	5.48	no DIF	n/a
	27	SS0822026B34	C	Science & Technology	Meaning	Reason	10929	27	8	54	10	-0.25	-0.21	0.46	-0.19	0.54	0.46	0.79	-0.15	15.71	no DIF	n/a
	29	SS0822062B30	B	National Economy	Modern ways (money)	Reason	10929	20	41	20	18	-0.22	0.37	-0.04	-0.19	0.41	0.37	0.56	0.46	19.70	no DIF	n/a
	31	SS0822068B36	A	National Economy	Savings	Reason	10929	57	14	18	11	0.31	-0.28	-0.05	-0.11	0.57	0.31	0.44	-0.39	14.93	no DIF	n/a
	32	SS0822060B28	C	National Economy	Resources	Know	10929	8	23	49	18	-0.18	-0.10	0.21	-0.01	0.49	0.21	0.28	0.06	4.85	no DIF	n/a
	35	SS0822102C40	A	National Economy	Resources	Reason	10929	63	15	8	14	0.36	-0.27	-0.18	-0.06	0.63	0.36	0.55	-0.64	12.64	no DIF	n/a
	36	SS0822099C34	B	National Economy	Resources	Reason	10929	31	42	16	9	-0.04	0.17	-0.09	-0.09	0.42	0.17	0.24	0.81	4.45	no DIF	n/a
	38	SS0822141C38	D	National Economy	Resources	Know	10929	16	11	18	54	-0.14	-0.11	-0.24	0.37	0.54	0.37	0.55	-0.18	2.18	no DIF	n/a
	39	SS0822098C33	C	National Economy	Resources	Reason	10929	23	14	47	14	-0.19	-0.15	0.34	-0.09	0.47	0.34	0.50	0.18	14.81	no DIF	n/a
	40	SS0822129D31	A	National Economy	Modern ways (money)	Know	10929	35	14	37	13	0.08	-0.21	0.23	-0.21	0.35	0.08	0.12	3.11	4.78	no DIF	n/a

Appendix C: Planned and actual sample size of schools and learners

Table C1. Comparison of planned versus actual sample school and learner participation numbers by state

STATES	SCHOOLS						LEARNERS					
	P3		P5		JS2		P3		P5		JS2	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
MATHEMATICS												
Abia	60	60	60	60	20	39	1,800	1,783	1,800	1,775	600	600
Adamawa	60	60	60	60	20	39	1,800	1,779	1,800	1,772	600	599
Akwa Ibom	60	59	60	59	20	38	1,800	1,772	1,800	1,729	600	599
Anambra	60	57	60	59	20	37	1,800	1,675	1,800	1,727	600	600
Bauchi	60	56	60	58	20	38	1,800	1,648	1,800	1,694	600	596
Bayelsa	60	59	60	59	20	33	1,800	1,735	1,800	1,718	600	600
Benue	60	59	60	56	20	35	1,800	1,739	1,800	1,656	600	600
Borno	60	60	60	60	20	37	1,800	1,766	1,800	1,722	600	598
Cross River	60	60	60	60	20	37	1,800	1,784	1,800	1,752	600	600
Delta	60	60	60	59	20	36	1,800	1,794	1,800	1,740	600	600
Ebonyi	60	61	60	57	20	34	1,800	1,764	1,800	971	600	600
Edo	60	60	60	60	20	36	1,800	1,785	1,800	1,772	600	600
Ekiti	60	60	60	60	20	34	1,800	1,742	1,800	1,771	600	600
Enugu	60	65	60	59	20	27	1,800	1,917	1,800	1,746	600	420
FCT	60	57	60	60	20	35	1,800	1,711	1,800	1,654	600	627
Gombe	60	58	60	61	20	32	1,800	1,730	1,800	1,634	600	549
Imo	60	60	60	60	20	33	1,800	1,776	1,800	1,769	600	600
Jigawa	60	58	60	57	20	34	1,800	1,578	1,800	1,665	600	598
Kaduna	60	60	60	59	20	38	1,800	1,749	1,800	1,767	600	600
Kano	60	60	60	60	20	38	1,800	1,775	1,800	1,800	600	600
Katsina	60	57	60	58	20	39	1,800	1,668	1,800	1,724	600	591
Kebbi	60	60	60	63	20	37	1,800	1,786	1,800	1,799	600	600
Kogi	60	59	60	72	20	35	1,800	1,694	1,800	1,755	600	569
Kwara	60	60	60	66	20	38	1,800	1,739	1,800	1,769	600	600
Lagos	60	59	60	59	20	41	1,800	1,753	1,800	1,756	600	628
Nasarawa	60	59	60	60	20	33	1,800	1,749	1,800	1,750	600	600
Niger	60	59	60	60	20	38	1,800	1,704	1,800	1,745	600	600
Ogun	60	58	60	60	20	40	1,800	1,708	1,800	1,750	600	599
Ondo	60	60	60	60	20	34	1,800	1,775	1,800	1,780	600	600
Osun	60	59	60	59	20	38	1,800	1,755	1,800	1,750	600	597
Oyo	60	54	60	55	20	40	1,800	1,591	1,800	1,620	600	600
Plateau	60	60	60	60	20	39	1,800	1,767	1,800	1,736	600	600

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STATES	SCHOOLS						LEARNERS					
	P3		P5		JS2		P3		P5		JS2	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Rivers	60	55	60	56	20	35	1,800	1,642	1,800	1,649	600	598
Sokoto	60	59	60	60	20	34	1,800	1,718	1,800	1,794	600	600
Taraba	60	58	60	67	20	37	1,800	1,696	1,800	3,048	600	600
Yobe	60	57	60	58	20	32	1,800	1,683	1,800	1,728	600	600
Zamfara	60	60	60	60	20	34	1,800	1,713	1,800	1,784	600	600
TOTALS:	2,220	2,185 (98%)	2,220	2,216 (100%)	740	736 (99%)	66,600	64,143 (96%)	66,600	64,771 (97%)	22,200	21,938 (99%)
ENGLISH STUDIES												
Abia	60	60	60	60	20	20	1,800	1,795	1,800	1,800	600	600
Adamawa	60	60	60	60	20	20	1,800	1,797	1,800	1,784	600	600
Akwa Ibom	60	59	60	60	20	20	1,800	1,730	1,800	1,800	600	585
Anambra	60	59	60	59	20	20	1,800	1,744	1,800	1,764	600	600
Bauchi	60	57	60	57	20	22	1,800	1,716	1,800	1,675	600	600
Bayelsa	60	63	60	60	20	20	1,800	1,783	1,800	1,777	600	585
Benue	60	60	60	60	20	20	1,800	1,788	1,800	1,773	600	600
Borno	60	58	60	60	20	20	1,800	1,674	1,800	1,776	600	599
Cross River	60	58	60	60	20	20	1,800	1,727	1,800	1,750	600	600
Delta	60	59	60	60	20	20	1,800	1,758	1,800	1,793	600	600
Ebonyi	60	61	60	60	20	20	1,800	1,776	1,800	1,800	600	599
Edo	60	60	60	60	20	20	1,800	1,786	1,800	1,799	600	600
Ekiti	60	58	60	60	20	20	1,800	1,720	1,800	1,795	600	600
Enugu	60	57	60	65	20	15	1,800	1,671	1,800	1,939	600	450
FCT	60	57	60	59	20	21	1,800	3,312	1,800	1,695	600	627
Gombe	60	50	60	60	20	20	1,800	1,430	1,800	1,681	600	595
Imo	60	59	60	60	20	20	1,800	1,742	1,800	1,800	600	600
Jigawa	60	56	60	58	20	20	1,800	1,620	1,800	1,698	600	597
Kaduna	60	59	60	59	20	20	1,800	1,735	1,800	1,743	600	599
Kano	60	60	60	60	20	20	1,800	1,784	1,800	1,780	600	600
Katsina	60	0	60	57	20	19	1,800	0	1,800	1,658	600	563
Kebbi	60	59	60	60	20	20	1,800	1,755	1,800	1,785	600	600
Kogi	60	59	60	61	20	19	1,800	1,718	1,800	1,721	600	570
Kwara	60	58	60	60	20	20	1,800	1,700	1,800	1,719	600	600
Lagos	60	59	60	59	20	21	1,800	1,758	1,800	1,768	600	629
Nasarawa	60	60	60	60	20	20	1,800	1,770	1,800	1,784	600	599
Niger	60	59	60	59	20	20	1,800	1,728	1,800	1,718	600	600
Ogun	60	60	60	60	20	20	1,800	1,769	1,800	1,796	600	599
Ondo	60	60	60	60	20	20	1,800	1,731	1,800	1,778	600	599
Osun	60	59	60	60	20	20	1,800	1,745	1,800	1,794	600	599

STATES	SCHOOLS						LEARNERS					
	P3		P5		JS2		P3		P5		JS2	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Oyo	60	58	60	53	20	19	1,800	1,714	1,800	1,530	600	541
Plateau	60	60	60	59	20	20	1,800	1,769	1,800	1,769	600	600
Rivers	60	54	60	57	20	20	1,800	1,641	1,800	1,675	600	600
Sokoto	60	60	60	60	20	20	1,800	1,752	1,800	1,726	600	589
Taraba	60	61	60	59	20	20	1,800	1,769	1,800	1,750	600	600
Yobe	60	58	60	60	20	20	1,800	1,701	1,800	1,740	600	593
Zamfara	60	59	60	60	20	20	1,800	1,714	1,800	1,759	600	598
TOTALS:	2,220	2,113 (95%)	2,220	2,201 (99%)	740	736 (99%)	66,600	63,822 (96%)	66,600	64,892 (97%)	22,200	21,915 (99%)
SCIENCE & TECHNOLOGY												
Abia			60	60	20	20			1,800	1793	600	600
Adamawa			60	60	20	20			1,800	1777	600	599
Akwa Ibom			60	59	20	20			1,800	1655	600	600
Anambra			60	60	20	20			1,800	1784	600	600
Bauchi			60	58	20	20			1,800	1724	600	599
Bayelsa			60	59	20	20			1,800	1734	600	600
Benue			60	61	20	20			1,800	1735	600	600
Borno			60	60	20	20			1,800	1767	600	600
Cross River			60	60	20	20			1,800	1701	600	598
Delta			60	60	20	20			1,800	1744	600	599
Ebonyi			60	60	20	20			1,800	1778	600	600
Edo			60	61	20	20			1,800	1793	600	598
Ekiti			60	60	20	20			1,800	1784	600	600
Enugu			60	63	20	14			1,800	1658	600	420
FCT			60	59	20	21			1,800	1681	600	626
Gombe			60	60	20	19			1,800	1757	600	540
Imo			60	61	20	20			1,800	1693	600	600
Jigawa			60	58	20	21			1,800	1615	600	599
Kaduna			60	59	20	21			1,800	1723	600	579
Kano			60	60	20	20			1,800	1794	600	600
Katsina			60	57	20	20			1,800	1459	600	544
Kebbi			60	60	20	20			1,800	1792	600	600
Kogi			60	60	20	20			1,800	1775	600	600
Kwara			60	60	20	20			1,800	1771	600	600
Lagos			60	59	20	21			1,800	1759	600	630
Nasarawa			60	78	20	20			1,800	1127	600	600
Niger			60	56	20	20			1,800	1646	600	600
Ogun			60	60	20	20			1,800	1748	600	600

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STATES	SCHOOLS						LEARNERS					
	P3		P5		JS2		P3		P5		JS2	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Ondo			60	60	20	20			1,800	1765	600	600
Osun			60	60	20	20			1,800	1769	600	600
Oyo			60	58	20	19			1,800	1674	600	570
Plateau			60	60	20	20			1,800	1800	600	600
Rivers			60	57	20	20			1,800	1701	600	593
Sokoto			60	60	20	20			1,800	1800	600	600
Taraba			60	54	20	14			1,800	1571	600	400
Yobe			60	58	20	23			1,800	1668	600	324
Zamfara			60	60	20	20			1,800	1717	600	566
TOTALS:			2,220	2,215 (100%)	740	733 (99%)			66,600	63,232 (95%)	22,200	21,384 (96%)
SOCIAL STUDIES												
Abia			60	62	20	20			1,800	1793	600	600
Adamawa			60	60	20	20			1,800	1799	600	598
Akwa Ibom			60	60	20	20			1,800	1770	600	600
Anambra			60	65	20	20			1,800	1794	600	599
Bauchi			60	62	20	21			1,800	1735	600	596
Bayelsa			60	61	20	21			1,800	1794	600	600
Benue			60	63	20	20			1,800	1763	600	598
Borno			60	66	20	20			1,800	1781	600	594
Cross River			60	61	20	20			1,800	1796	600	600
Delta			60	65	20	20			1,800	1797	600	600
Ebonyi			60	60	20	20			1,800	1768	600	600
Edo			60	62	20	20			1,800	1796	600	600
Ekiti			60	61	20	20			1,800	1798	600	600
Enugu			60	66	20	14			1,800	1860	600	420
FCT			60	60	20	21			1,800	1766	600	625
Gombe			60	61	20	20			1,800	1766	600	570
Imo			60	65	20	20			1,800	1796	600	599
Jigawa			60	58	20	20			1,800	1615	600	596
Kaduna			60	69	20	19			1,800	1800	600	570
Kano			60	64	20	20			1,800	1795	600	600
Katsina			60	63	20	19			1,800	1662	600	560
Kebbi			60	67	20	20			1,800	1800	600	599
Kogi			60	61	20	19			1,800	1765	600	569
Kwara			60	60	20	20			1,800	1798	600	600
Lagos			60	59	20	21			1,800	1761	600	629
Nasarawa			60	67	20	20			1,800	1794	600	600

STATES	SCHOOLS						LEARNERS					
	P3		P5		JS2		P3		P5		JS2	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Niger			60	59	20	20			1,800	1751	600	600
Ogun			60	80	20	20			1,800	1196	600	599
Ondo			60	62	20	20			1,800	1796	600	599
Osun			60	64	20	20			1,800	1798	600	600
Oyo			60	61	20	19			1,800	1737	600	569
Plateau			60	62	20	20			1,800	1797	600	600
Rivers			60	56	20	22			1,800	1649	600	599
Sokoto			60	64	20	20			1,800	1792	600	600
Taraba			60	60	20	20			1,800	1733	600	599
Yobe			60	52	20	22			1,800	1500	600	568
Zamfara			60	62	20	20			1,800	1794	600	580
TOTALS:			2,220	2,310 (104%)	740	738 (100%)			66,600	64,705 (97%)	22,200	21,835 (98%)

GRAND TOTAL NUMBER OF LEARNER CASES ACROSS ALL SUBJECTS BY GRADE LEVELS:	P3 Learners		P5 Learners		JS2 Learners	
	Planned	Actual	Planned	Actual	Planned	Actual
	133,200	127,965	266,400	257,600	88,800	87,072
Total number of learner cases across all subjects and all grade levels:	PLANNED: 488,400			ACTUAL: 472,637		

Appendix D: Participating LGAs by state

Table D1. Participating LGAs by state in NALABE 2022

#	STATE	PARTICIPATING LGEAs	NUMBER OF PARTICIPATING LGEAs	TOTAL NUMBER OF LGEAs IN STATE
1	Abia	Aba Northabia; Aba Southabia; Arochukuwabia; Bendeabia; Ikwoanoabia; Isiala Ngwa Northabia; Isiala Ngwa Southabia; Isikwuatoabia; Obioma Ngwaabia; Ohafiaabia; Osisiomaabia; Ugwunagboabia; Ukwia Eastabia; Ukwia Westabia; Umuahia Northabia; Umuahia Southabia; Umunneochiabia	17	17
2	Adamawa	Demsaadamawa; Fufreadamawa; Ganyeadamawa; Gireiadamawa; Gombiadamawa; Guyukadamawa; Hongadamawa; Jadaadamawa; Lamurdeadamawa; Madagaliadamawa; Maihaadamawa; Mayo Belwaadamawa; Michikaadamawa; Mubi Northadamawa; Mubi Southadamawa; Numanadamawa; Shellengadamawa; Songadamawa; Tuongoadamawa; Yola Northadamawa; Yola Southadamawa	21	21
3	Akwa Ibom	Abakakwa Ibom; Eastern Oboloakwa Ibom; Eketakwa Ibom; Esit Eketakwa Ibom; Essien Udimakwa Ibom; Etim Ekpoakwa Ibom; Etinanakwa Ibom; Ibenoakwa Ibom; Ibesikpo Asutanakwa Ibom; Ibiono Ibomakwa Ibom; Ikaakwa Ibom; Ikonoakwa Ibom; Ikot Abasiakwa Ibom; Ikot Ekpeneakwa Ibom; Iniakwa Ibom; Ituakwa Ibom; Mboakwa Ibom; Mkpai Eninakwa Ibom; Nsit Ataiakwa Ibom; Nsit Ibomakwa Ibom; Nsit Ubiumakwa Ibom; Obot Akaraakwa Ibom; Okoboakwa Ibom; Onnaakwa Ibom; Oronakwa Ibom; Oruk Anamakwa Ibom; Uduang Ukoakwa Ibom; Ukanafunakwa Ibom; Uruanakwa Ibom; Urue Offong Orukoakwa Ibom; Uyoakwa Ibom	31	31
4	Anambra	Agutaanaanambra; Anambra Eastanambra; Anaochaanambra; Awka Northanambra; Awka Southanambra; Ayamelumanambra; Dunukofiaanambra; Ekwusigoanambra; Idemili Northanambra; Idemili Southanambra; Ihialaanambra; Njikokaanambra; Nnewi Northanambra; Ogbaruambra; Onitsha Northanambra; Onitsha Southanambra; Orumba Northanambra; Oyiambra	18	21
5	Bauchi	Bauchibauchi; Bogorobauchi; Dambanbauchi; Darazobauchi; Dassbauchi; Gamawabauchi; Ganjuwabauchi; Giadebauchi; Itas Gadaubauchi; Jamaarebauchi; Katagunbauchi; Kirfibauchi; Misaubauchi; Ningibauchi; Shirabauchi; Tafawa Balewabauchi; Torobauchi; Warjibauchi; Zakibauchi	19	20
6	Bayelsa	Ekeremorba; Kolokuma Opokumaba; Nembeba; Ogbiaba; Sagbamba; Southern Ijawba; Yenegoaba	7	8
7	Benue	Adobenue; Agatubenue; Apabenue; Burukubenue; Gbokobenue; Gumabenue; Gwer Eastbenue; Gwer Westbenue; Katsina Alabenue; Konshishabenue; Kwandebenue; Logobenue; Makurdiubenue; Obibenue; Ogbadibobenue; Ohiminibenue; Ojubenue; Okpokwubenue; Otukpobenue; Tarkabenue; Ukumbenue; Ushongobenue; Vandeikyaubenue	23	23
8	Borno	Askira Ubaorno; Bamaborno; Bayoborno; Biuborno; Chibokborno; Damboaborno; Dikwaborno; Gwozaborno; Hawulborno; Jereborno; Kagaborno; Kondugaborno; Kwaya Kusaraborno; Mafaborno; Magumeriborno; Maiduguriborno; Mongunoborno; Nganzaiborno; Shaniborno	14	27
9	Cross River	Abicross River; Akampacross River; Akpabuyocross River; Bakassicross River; Bekwarracross River; Biassecross River; Bokicross River; Calabar Municipalcross River; Calabar Southcross River; Etungcross River; Ikomcross River; Obanlikucross River; Obubracross River; Obuducross River; Odukpanicross River; Ogojacross River; Yakurrcross River; Yalacross River	18	18
10	Delta	Aniocha Northdelta; Aniocha Southdelta; Ethiope Eastdelta; Ethiope Westdelta; Ika North Eastdelta; Ika Southdelta; Isoko Northdelta; Isoko Southdelta; Ndokwa Westdelta; Okpedelta; Oshimili Northdelta; Oshimili Southdelta; Sapeledelta; Ududelta; Ughelli Northdelta; Ughelli Southdelta; Ukwuanidelta; Uvwiedelta; Warri Northdelta; Warri Southdelta	20	25
11	Ebonyi	Abakalikebonyi; Afikpo Northebonyi; Afikpo Southebonyi; Ebonyiebonyi; Ezza Northebonyi; Ezza Southebonyi; Ikwoebonyi; Ishieluebonyi; Ivoebonyi; Izziebonyi; Ohaozaraebonyi; Onichaebonyi	12	13
12	Edo	Akoko Edoedo; Egoredodo; Esan Centraledodo; Esan North Eastdodo; Esan South Eastdodo; Esan Westdodo; Etsako Centraledodo; Etsako Eastdodo; Etsako Westdodo; Iguebenedodo; Ikpoba Okhaedodo; Oredoedo; Orhionmwonedodo; Ovia North Eastdodo; Ovia South Westdodo; Owan Eastdodo; Owan Westdodo; Uhumwonedodo	18	18

#	STATE	PARTICIPATING LGEAs	NUMBER OF PARTICIPATING LGEAs	TOTAL NUMBER OF LGEAs IN STATE
13	Ekiti	Ado Ekiti; Ekiti South Westekiti; Ekiti Westekiti; Emureekiti; Gboyinekiti; Ido Osiekiti; Ijeroekiti; Ikere Ekiti; Ikoleekiti; Irepodun Ifelodunekiti; Ise Orunekiti; Oyeekiti	12	16
14	Enugu	Aninrienugu; Awguenugu; Enugu Eastenugu; Enugu Northenugu; Enugu Southenugu; Ezeaguenugu; Igbo Etitienugu; Igbo Eze Northenugu; Igbo Eze Southenugu; Isi Uzoenugu; Nkanu Westenugu; Nsukkaenugu; Oji Riverenugu; Udenuenugu; Udienugu	15	17
15	FCT	Abajifc Abuja; Bwarifct Abuja; Gwagwaladafct Abuja; Kujefct Abuja; Kwalifct Abuja; Municipalfct Abuja	6	6
16	Gombe	Akkogombe; Balangagombe; Billirigombe; Dukkugombe; Funakayegombe; Gombegombe; Kaltungogombe; Kwamigombe; Shongomgombe; Yamaltu Debagombe	10	11
17	Imo	Aboh Mbaiseimo; Ahiazuimo; Ehime Mbanoimo; Ezinihitteimo; Ideato Northimo; Ideato Southimo; Ihitte Ubomaimo; Ikeduruimo; Isuimo; Isiala Mbanoimo; Mbaitoliimo; Ngor Okpalaimo; Njabaimo; Nkwerreimo; Nwangeleimo; Obowoimo; Ogutaimo; Ohaji Egbemaimo; Okigweimo; Onuimoimo; Orluimo; Orsuimo; Oru Eastimo; Oru Westimo; Owerri Municipalimo; Owerri Northimo; Owerri Westimo	27	27
18	Jigawa	Auyojigawa; Baburajigawa; Birnin Kudujigawa; Birniwajigawa; Bujijigawa; Dutsejigawa; Gagarawajigawa; Garkijigawa; Gumeljigawa; Gurijigawa; Gwaramjigawa; Gwiwajigawa; Hadejajigawa; Jahunjigawa; Kafin Hausajigawa; Kaugawajigawa; Kazaurejigawa; Kirikasammajigawa; Kiyawajigawa; Maigatarijigawa; Malam Madorijigawa; Migajigawa; Ringim; Ronijigawa; Sule Tankarkarjigawa; Taurajigawa; Yankwashijigawa	27	27
19	Kaduna	Chikunkaduna; Giwakaduna; Igabikaduna; Ikarakaduna; Jabakaduna; Jemaakaduna; Kachiakaduna; Kaduna Northkaduna; Kaduna Southkaduna; Kagarkokaduna; Kajurukaduna; Kaurakaduna; Kubaukaduna; Kudankaduna; Lerekaduna; Makarfikaduna; Sabon Garikaduna; Sangakaduna; Sobakaduna; Zangon Katafakaduna; Zariakaduna	21	23
20	Kano	Ajingikano; Albasukano; Bagwaikano; Bebejikano; Bichikano; Bunkurekano; Dalakano; Dambattakano; Dawakin Kudukano; Dawakin Tofakano; Faggekano; Gabasawakano; Garkokano; Garun Mallamkano; Gayakano; Gezawakano; Gwalekano; Gwarzokano; Kabokano; Kano Municipalkano; Karayekano; Kibiyakano; Kirukano; Kumbotsokano; Kunchikano; Kurakano; Madobikano; Makodakano; Mingibirkano; Nasarawakano; Ranokano; Rimin Gadokano; Shanonokano; Smailakano; Takaikano; Taraunikano; Tofakano; Tudun Wadakano, Warawakano; Wudilkano; Ungogokano	41	44
21	Katsina	Bakorikatsina; Batagarawakatsina; Baurekatsina; Bindawakatsina; Charanchikatsina; Danjakatsina; Daurakatsina; Dutsikatsina; Funtuakatsina; Kusadakatsina; Ingawakatsina; Kafurkatsina; Kaitakatsina; Kankiakatsina; Katsinakatsina; Kurfikatsina; Maiaduakatsina; Malumfashikatsina; Manikatsina; Mashikatsina; Matazukatsina; Rimikatsina; Sandamukatsina; Zangokatsina	24	34
22	Kebbi	Alierokebbi; Arewakebbi; Argungukebbi; Augiekebbi; Bagudokebbi; Birnin Kebbikebbi; Bunzakebbi; Dandikebbi; Danko Wasagukebbi; Fakaikabbi; Gwandukebbi; Jegakebbi; Koko Bessekebbi; Kalgokebbi; Maiyamakebbi; Ngaskikebbi; Sakabakebbi; Shangakebbi; Surukebbi; Yaurikebbi; Zurukebbi	21	21
23	Kogi	Adavikogi; Ajaokutakogi; Ankpakogi; Dekinakogi; Idahkogi; Igalamela Odolukogi; Ijumukogi; Kabba Bunukogi; Kogikogi; Lokojakogi; Mopa Murokogi; Ofukogi; Ogori Magongokogi; Okehekogi; Okenekogi; Olamaborokogi; Omalakogi; Yagba Eastkogi; Yagba Westkogi	19	21
24	Kwara	Asakwara; Edukwara; Ekitikwara; Ifelodunkwara; Ilorin Eastkwara; Ilorin Southkwara; Ilorin Westkwara; Irepodunkwara; Isinkwara; Morokwara; Offakwara; Oke Erokware; Oyunkwara; Patigikwara	14	16
25	Lagos	Agegelagos; Ajeromi Ifelodunlagos; Alimosholagos; Amuwo Odofinlagos; Apapalagos; Badagrylagos; Epelagos; Eti Osalagos; Ibeju Lekkilagos; Ifako Ijaiyelagos; Ikejalagos; Ikorodulagos; Kosofelagos; Lagos Islandlagos; Mainlandlagos; Mushinlagos; Ojlagos; Oshodi Isololagos; Shomolulagos; Surulerelagos	20	20
26	Nasarawa	Akwanganasarawa; Awenasarawa; Domanasarawa; Karunasarawa; Keananasarawa; Keffinasarawa; Kokonanasarawa; Konananasarawa; Lafianasarawa; Nasarawa Egonnasarawa; Obinasarawa	11	13

#	STATE	PARTICIPATING LGEAs	NUMBER OF PARTICIPATING LGEAs	TOTAL NUMBER OF LGEAs IN STATE
27	Niger	Agaieniger; Agwaraniger; Bidaniger; Borguniger; Bossoniger; Chanchaganiger; Edatiniger; Gbakoniger; Guraraniger; Katchaniger; Kontagoraniger; Lapainiger; Lavunniger; Magamaniger; Mokwaniger; Munyaniger; Paikoroniger; Riijauniger; Sulejaniger; Tafaniger; Wushishiniger	21	25
28	Ogun	Abeokuta Northogun; Abeokuta Southogun; Ado Odo Otaogun; Ewekoroogun; Ifoogun; Ijebu Eastogun; Ijebu Northogun; Ijebu North Eastogun; Ijebu Odeogun; Ikenneogun; Imeko Afonogun; Ipokiaogun; Obafemi Owodeogun; Odedaogun; Odogboluogun; Ogun Water Sideogun; Remo Northogun; Sagamuogun; St. Agbadoogun; Yewa Northogun; Yewa Southogun	21	20 ^a
29	Ondo	Akoko North Eastondo; Akoko South Westondo; Akure Northondo; Akure Southondo; Idanreondo; Ifedoreondo; Ilajeondo; Ile Oluji Okeigboondo; Ireleondo; Odigboondo; Okitipupaondo; Ondo Eastondo; Ondo Westondo; Owoondo	14	18
30	Osun	Aiyedadeosun; Atakumosa Eastosun; Atakumosa Westosun; Ayede Adeosun; Ayedireosun; Boluwaduroosun; Boripeosun; Ede Northosun; Ede Southosun; Egbedoreosun; Ejigboosun; Ife Centralosun; Ife Eastosun; Ife Northosun; Ife Southosun; Ifedayoosun; Ifelodunosun; Ilaosun; Ilesha Eastosun; Ilesha Westosun; Ileshaosun; Irepodunosun; Irewoleosun; Isokanosun; Iwoosun; Obokunosun; Odo Otinosun; Ola Oluwaosun; Oriadeosun; Osogboosun	30	30
31	Oyo	Afijiooyo; Akinyeleoyo; Atibaoyo; Atisbooyo; Egbedaoyo; Ibadan Northoyo; Ibadan North Eastoyo; Ibadan North Westoyo; Ibadan South Eastoyo; Ibadan South Westoyo; Ibarapa Eastoyo; Idooyo; Iseyinoyo; Itesiwajuoyo; Kajolaoyo; Lageluoyo; Ogbomoso Northoyo; Ogbomoso Southoyo; Ogo Oluwaoyo; Oluyoleoyo; Ona Araoyo; Oyo Eastoyo; Oyo Westoyo; Saki Eastoyo; Saki Westoyo; Surulereoyo	26	33
32	Plateau	Barkin Ladiplateau; Bassaplateau; Bokkosplateau; Jos Eastplateau; Jos Northplateau; Jos Southplateau; Kanamplateau; Kankeplateau; Langtang Northplateau; Langtang Southplateau; Manguplateau; Mikangplateau; Pankshinplateau; Qaananpanplateau; Riyomplateau; Shendamplateau; Waseplateau	17	17
33	Rivers	Abua Oduai; Ahoda West; Eleme; Emohua; Etche; Gokana; Ikwerre; Khana; Obio Akpor; Ogu Bolo; Okrika; Oyigbo; Port Harcourt	13	23
34	Sokoto	Bodingasokoto; Dange Shunisokoto; Gwadabawasokoto; Illelasokoto; Kwaresokoto; Sokoto Northsokoto; Sokoto Southsokoto; Tambuwalsokoto; Wamakosokoto; Wurnosokoto; Yabosokoto	11	23
35	Taraba	Ardo Kola; Bali; Donga; Gashaka; Gassol; Ibi; Jalingo; Karim Lamido; Lau; Sardauna; Wukari; Yorro; Zing	13	16
36	Yobe	Damaturuyobe; Fikayobe; Funeyobe; Jakuskoyobe; Nangereyobe; Potiskumyobe; Tarmuayobe	7	17
37	Zamfara	Ankazamfara; Birni Magajizamfara; Bunguduzamfara; Gusauzamfara; Kaura Namodazamfara; Maradunzamfara; Maruzamfara; Talatan Mafarazamfara; Tsafezamfara; Zurmizamfara	10	14
TOTAL			669	774

Appendix E: Proficiency level descriptors

Mathematics

Table E1. P3 Mathematics proficiency level descriptors

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P3 Mathematics			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Number and operations	Whole numbers	Identify and count in whole numbers, and identify their relative magnitude	Count, read, and write whole numbers	F1P7, F2P5; F1P18, F2P20; F1P23, F2P21	May not be able to count whole numbers up to 100	Count in whole numbers up to 100.	Count in whole numbers up to 1,000.	Count in whole numbers up to 10,000.
			Use place-value concepts	F1P21, F2P23	N/A	N/A	Use place-value concepts for tens and ones (e.g., compose or decompose a two-digit whole number using a number sentence such as $35 = 3 \text{ tens and } 5 \text{ ones}$, $35 = 30 + 5$, or using number bonds; determine the value of a digit in the tens and ones place)	Use place-value concepts for hundreds, tens, and ones (e.g., compose or decompose a three-digit whole number using a number sentence such as $254 = 2 \text{ hundreds, } 5 \text{ tens, and } 4 \text{ ones}$; $254 = 200 + 50 + 4$; determine the value of a digit in the hundreds place, etc.)
		Solve operations using whole numbers	Add and subtract whole numbers	F1P5, F2P8	Find it difficult to add and subtract within 100 (i.e., where the sum or minus does not surpass 100), without regrouping, and represent these operations with objects, pictures, or symbols (e.g., $65 + 23$; solve an addition or subtraction problem presented by images of bundles of tens and ones; use skips on a hundreds grid or a number line or multi-base arithmetic blocks to solve addition and subtraction problems)	Add and subtract within 100 (i.e., where the sum or minus does not surpass 100), without regrouping, and represent these operations with objects, pictures, or symbols (e.g., $65 + 23$; solve an addition or subtraction problem presented by images of bundles of tens and ones; use skips on a hundreds grid or a number line or multi-base arithmetic blocks to solve addition and subtraction problems)	Find it difficult to add and subtract within 100 (i.e., where the sum or minus does not surpass 100), without regrouping, and represent these operations with objects, pictures, or symbols (e.g., $65 + 23$; solve an addition or subtraction problem presented by images of bundles of tens and ones; use skips on a hundreds grid or a number line or multi-base arithmetic blocks to solve addition and subtraction problems)	Add and subtract within 1,000 (i.e., where the sum or minus does not surpass 1,000), with and without regrouping, and represent these operations with objects, pictures, or symbols (e.g., $550 + 250$; $457 - 129$; use hundreds grids, number lines, or multi-base arithmetic blocks to reason through or solve addition and subtraction problems)

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P3 Mathematics			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
			F1P15, F2P13; F1P26, E6:E8F2P25	F1P12, F2P12; F1P20, F2P18	May not be able to multiply and divide within 25 (i.e., up to 5×5 and $25 \div 5$, no remainder), and represent these operations with objects, pictures, or symbols (e.g., $15 \div 3$; 3×4 ; solve multiplication problems by using a rectangular array or by repeating groups of the same number of objects; solve division problems by dividing a group of objects into a given number of equal groupings)	Multiply and divide within 25 (i.e., up to 5×5 and $25 \div 5$, no remainder), and represent these operations with objects, pictures, or symbols (e.g., $15 \div 3$; 3×4 ; solve multiplication problems by using a rectangular array or by repeating groups of the same number of objects; solve division problems by dividing a group of objects into a given number of equal groupings)	Multiply and divide within 100 (i.e., up to 10×10 and $100 \div 10$, without a remainder), and represent these operations with objects, pictures, or symbols (e.g., $72 \div 8$; 6×9 ; solve multiplication problems by using a rectangular array or by repeating groups of the same number of objects; solve division problems by dividing a group of objects into a given number of equal groupings)	Multiply and divide within 144 (i.e., up to 12×12 and $144 \div 12$, without a remainder), and represent these operations with objects, pictures or symbols (e.g., $120 \div 10$; 6×12 ; solve multiplication problems by using a rectangular array or by repeating groups of the same number of objects; solve division problems by dividing a group of objects into a given number of equal groupings)
			Perform calculations involving two or more operations on whole numbers	F1P15, F2P13; F1P26, F2P25	May not be able to perform calculations involving two or more operations, within the limits for partially meets expectations described above, when order of operations is not a factor (e.g., $5 \times 3 + 62 = _$; $4 \times 4 \div 2 = _$)	Perform calculations involving two or more operations, within the limits for partially meets expectations described above, when order of operations is not a factor (e.g., $5 \times 3 + 62 = _$; $4 \times 4 \div 2 = _$)	Perform calculations involving two or more operations, within the limits for meets expectations described above, when order of operations is not a factor (e.g., $6 \times 7 + 19 = _$; $6 \times 4 \div 8 = _$)	Perform calculations involving two or more operations, within the limits for exceeds expectations described above, when order of operations is not a factor (e.g., $452 + 369 + 78 = _$; $64 \div 8 \div 2 = _$)
		Solve real-world problems involving whole numbers	Solve real-world problems involving the addition and subtraction of whole numbers, including with measurement and currency units	F1P16, F2P16; F1P22; F2P22; F1P24, F2P24	May not be able to solve simple real-world problems involving either addition or subtraction of whole numbers within 30 (i.e., where the sum or minus does not surpass 30), including problems involving measurement and currency units, without regrouping (e.g., There are 15 sheep in a field. 12 more sheep come into the field. How many sheep are in the field now? There are 24 sheep in a field. 12 go to the stable. How many sheep are left in the field?)	Solve simple real-world problems involving addition and subtraction of whole numbers within 30 (i.e., where the sum or minus does not surpass 30), including problems involving measurement and currency units, without regrouping (e.g., There are 15 sheep in a field. 12 more sheep come into the field. How many sheep are in the field now? There are 24 sheep in a field. 12 go to the stable. How many sheep are left in the field?)	Solve simple real-world problems involving addition and subtraction of whole numbers within 100 (i.e., where the sum or minus does not surpass 100) without regrouping, including problems involving measurement and currency units (e.g., There are 33 sheep in a field. 25 more sheep come into the field. How many sheep are in the field now?; There are 54 children in total in grade 3. 13 are absent today. How many grade-3 children are at school today?)	Solve simple real-world problems involving addition and subtraction of whole numbers within 100 (i.e., where the sum or minus does not surpass 100) with and without regrouping, including problems involving measurement and currency units (e.g., There are 33 sheep in a field. 28 more sheep come into the field. How many sheep are in the field now?; There are 81 children in total in grade 3. 13 are absent today. How many grade-3 children are at school today?)

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
	Fractions	Identify and represent fractions using objects, pictures, and symbols, and identify relative magnitude	Express a visual representation of a fraction (picture, objects) in fractional notation	F1P28, F2P28
Measurement	Length, weight, capacity, volume, area, and perimeter	Use non-standard and standard units to measure, compare, and order	Use non-standard units to estimate, measure, and compare length, weight, volume, and capacity	F1P9, F9P9; F1P29, F2P29
			Use standard units to estimate, measure, and compare the length, weight, capacity, and volume of two objects	F1P11, F2P10; F1P17, F2P17
	Time	Solve problems involving time	Tell time using an analog clock	F1P14, F2P14
			Solve problems involving the calendar	F1P13, F2P15
	Currency	Use different currency units to create amounts	Count or create combinations of currency denominations	F1P10, F2P11

MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P3 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Identify everyday unit fractions (e.g., 1/2; 1/3; 1/4) and may not represent objects or pictures (as part of a whole or part of a set) in fractional notation (e.g., shade half of this shape; indicate 1/4 of these objects)	Identify everyday unit fractions (e.g., 1/2; 1/3; 1/4) represented as objects or pictures (as part of a whole or part of a set) in fractional notation (e.g., shade half of this shape; indicate 1/4 of these objects)	Identify unit fractions with denominators up to 12 (e.g., 1/5; 1/7; 1/8; 1/10) represented as objects or pictures (as part of a whole or part of a set) in fractional notation (e.g., shade 1/5 of this shape; indicate 1/6 of these objects when arranged in a 3 x 6 array)	Identify non-unit fractions with denominators up to 12 (e.g., 2/5; 4/7; 3/8; 5/10) represented as objects or pictures (as part of a whole or part of a set) in fractional notation (e.g., shade 2/3 of this shape)
May not be able to use non-standard units to measure or estimate and compare the length of two objects (e.g., identify that the red pencil is 4 paper clips long, and the black pencil is 6 paper clips long)	Use non-standard units to measure or estimate and compare the length of two objects (e.g., identify that the red pencil is 4 paper clips long, and the black pencil is 6 paper clips long)	Use non-standard units to estimate or measure volume/capacity (e.g., identify which container would hold the most sand or which box would hold the most balls given pictures of these items)	N/A
N/A	N/A	Use standard units to compare length and weight when provided the unit of measurement (e.g., identify that the pencil is one centimeter longer than the crayon)	Select and use appropriate standard units to estimate, measure, and compare length and weight (e.g., choose centimeters instead of meters to measure a pencil; estimate the weight of the apple when given the following choices: a) 5g b) 200g c) 1kg d) 5kg)
Find it difficult Tell time using an analog clock to the nearest hour	Tell time using an analog clock to the nearest hour	Tell time using an analog clock to the nearest half hour	Tell time using an analog clock to the nearest minute
Find it difficult to solve problems, including real-world problems, using a calendar (e.g., given a calendar, answer the question: March 2 falls on what day of the week?)	Solve problems, including real-world problems, using a calendar (e.g., given a calendar, answer the question: March 2 falls on what day of the week?)	N/A	N/A
Find it difficult to count combinations of commonly used currency denominations	Count combinations of commonly used currency denominations	N/A	N/A

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Geometry	Position and direction	Describe the position and direction of objects in space	Solve problems involving data displays (i.e., tally charts, bar graphs, or pictographs) with single-unit scales and up to four categories of data	F1P8, F2P5
Algebra	Patterns	Demonstrate an understanding of equivalency	Create numerical expressions to model addition, subtraction, multiplication, or division situations	F1P2, F2P2; F1P27, F2P30
			Represent real-world problems by number sentences, with a symbol or blank to represent the missing value	F1P3, F2P3; F1P24, F2P26; F1P30, F2P27

MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P3 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
May not be able to compare between categories of a tally chart, bar graph, or pictograph with up to four categories and a single-unit scale, using terms such as more than or less than (e.g., Which color was chosen less often than green on this bar graph?) 	Compare between categories of a tally chart, bar graph, or pictograph with up to four categories and a single-unit scale, using terms such as more than or less than (e.g., Which color was chosen less often than green on this bar graph?) 	Solve a problem involving the sum of or difference between two specified categories of a tally chart, bar graph, or pictograph with a single-unit scale (e.g., How many children like red and blue in this bar graph?) 	Solve a problem involving more than two pieces of information from a tally chart, bar graph, or pictograph with a single-unit scale (e.g., How many children were asked about their favorite color in this bar graph?) 
N/A	N/A	Create a numerical expression using + or - to model a situation (e.g., represent the following in a number sentence: 3 people are on a bus, and 4 more get on)	Create a numerical expression using x or ÷ to model a situation (e.g., represent the following in a number sentence: 3 people get on the bus at each of 4 stops)
N/A	N/A	N/A	Represent real-world addition and subtraction problems within 20 using a number sentence with a symbol or blank to represent the missing value (e.g., 13 people are on a bus. More people get on. There are now 17 people on the bus. How many people got on the bus? Represent this situation with an addition or a subtraction sentence with a symbol or blank to represent the missing value)

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
			Find the missing value in a number sentence	F1P1, F2P3

MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P3 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
N/A	N/A	Find a missing value in real-world addition and subtraction problems within 20 (e.g., 3 people are on a bus. More people get on. There are now 7 people on the bus. How many people got on the bus?)	Find a missing value in a number sentence using addition and subtraction of numbers within 100 (e.g., $23 + __ = 59$)

Table E2. P5 Mathematics proficiency level descriptors

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 Mathematics			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Number and operations	Whole numbers	Identify and count in whole numbers, and identify their relative magnitude	Count, read, and write whole numbers	F1P22, F2P22	May not be able to count in whole numbers up to 10,000 and read and write whole numbers up to 10,000 in words and numerals	Count in whole numbers up to 10,000.; Read and write whole numbers up to 10,000 in words and numerals	Count in whole numbers up to any whole number.; Read and write whole numbers greater than 10,000 in words and numerals	N/A
			Compare and order whole numbers	F134, F237	May not be able to compare and order whole numbers up to 10,000	Compare and order whole numbers up to 10,000	Compare and order whole numbers up to 100,000	Compare and order whole numbers greater than 100,000
		Represent whole numbers in equivalent ways	Use place-value concepts	F121, F2P24; F131, F233	May be able to use place-value concepts for tens and ones (e.g., compose or decompose a two-digit whole number using a number sentence such as $54 = 5 \text{ tens, and } 4 \text{ ones}$; $54 = 50 + 4$; determine the value of a digit in the hundreds place)	Use place-value concepts for hundreds, tens, and ones (e.g., compose or decompose a three-digit whole number using a number sentence such as $254 = 2 \text{ hundreds, } 5 \text{ tens, and } 4 \text{ ones}$; $254 = 200 + 50 + 4$; determine the value of a digit in the hundreds place)	Use place-value concepts for thousands, hundreds, tens, and ones (e.g., compose or decompose a four-digit whole number using a number sentence such as $1,383 = 1 \text{ thousand, } 3 \text{ hundreds, } 8 \text{ tens, and } 3 \text{ ones}$; $1383 = 1,000 + 300 + 80 + 3$; determine the value of a digit in the thousands place)	Use place-value concepts beyond the thousands (e.g., compose or decompose a 7-digit whole number using a number sentence such as $1,383,547 = 1 \text{ million, } 3 \text{ hundred thousands, } 8 \text{ ten thousands, } 3 \text{ thousands, } 5 \text{ hundreds, } 4 \text{ tens and } 7 \text{ ones}$; $1,383,547 = 1,000,000 + 300,000 + 80,000 + 3000 + 500 + 40 + 7$; determine the value of a digit in the millions place)
					Solve operations using whole numbers	Add and subtract whole numbers	F1P10, F2P11	May be able to add and subtract within 1,000 (i.e., where the sum or minus does not surpass 1,000), with and without regrouping, but may not be able to represent these operations with objects, pictures, or symbols

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
			Multiply and divide whole numbers	F1P11, F2P10, F1P12, F2P9; F1P18, F2P18, F1P25, F2P26; F1P30, F230
			Perform calculations involving two or more operations on whole numbers	F1P7, F2P4
		Solve real-world problems involving whole numbers	Solve real-world problems involving the addition and subtraction of whole numbers, including with measurement and currency units	FIP3, F2P1

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
May be able to multiply, with and without regrouping but unable to divide, with no remainder, a two-digit number by a one-digit number (e.g., $42 \times 4 = \underline{\quad}$; $42 \times 6 = \underline{\quad}$; $80 \div 5 = \underline{\quad}$)	Multiply, with and without regrouping, and divide, with no remainder, a two-digit number by a one-digit number (e.g., $42 \times 4 = \underline{\quad}$; $42 \times 6 = \underline{\quad}$; $80 \div 5 = \underline{\quad}$)	Multiply, with and without regrouping, and divide, with no remainder, any number by a one-digit number and multiply two, 2-digit numbers, with and without regrouping (e.g., $342 \times 4 = \underline{\quad}$; $42 \times 34 = \underline{\quad}$; $1380 \div 5 = \underline{\quad}$)	Multiply any number by a two-digit number, with and without regrouping, and divide any number by a one-digit number, with remainder (e.g., 3427×68 ; $1380 \div 6 = \underline{\quad}$)
May not be able to perform calculations involving two or more operations, within the limits for partially meets expectations described above, respecting the order of operations (e.g., $6 + 7 \times 57 = \underline{\quad}$; $996 - 440 \div 8 = \underline{\quad}$)	Perform calculations involving two or more operations, within the limits for partially meets expectations described above, respecting the order of operations (e.g., $6 + 7 \times 57 = \underline{\quad}$; $996 - 440 \div 8 = \underline{\quad}$)	Perform calculations involving two or more operations, within the limits for meets expectations described above, respecting the order of operations (e.g., $1754 + 53 \times 53 = \underline{\quad}$; $4 \times 9 \times 8 = \underline{\quad}$)	Perform calculations involving two or more operations, within the limits for exceeds expectations described above, respecting the order of operations (e.g., $6584 + 2187 \times 38 = \underline{\quad}$; $675 \div 9 \times 652 = \underline{\quad}$)
May not be able to solve simple real-world problems involving addition and subtraction of whole numbers within 100 (i.e., where the sum or minus does not surpass 100) with regrouping, including problems involving measurement and currency units	Solve simple real-world problems involving addition and subtraction of whole numbers within 100 (i.e., where the sum or minuend does not surpass 100) with regrouping, including problems involving measurement and currency units (e.g., There are 34 sheep in a field. 29 more sheep come into the field. How many sheep are in the field now?; There are 54 children in total in grade 5. 7 are absent today. How many grade 5 children are at school today?)	Solve simple real-world problems involving addition and subtraction of whole numbers within 1,000 (i.e., where the sum or minuend does not surpass 1,000) with and without regrouping, including problems involving measurement and currency units (e.g., There were 740 people living in a town. 83 more people come to live in the town. What is the total number of people living in the town now?; There are 750 people living in a town. Only 327 of them were born in the town. How many were born outside the town?)	Solve real-world problems involving combinations of any two or more of the four operations, including problems involving measurement and currency units and: * the addition and subtraction of whole numbers beyond 1,000, with and without regrouping * the multiplication and division of any number by a one-digit number, with and without regrouping (multiplication), and with and without a remainder (division) * the multiplication of two, 2-digit numbers

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
			Solve real-world problems involving the multiplication and division of whole numbers, including with measurement and currency units	F1P8, F2P8; F1P26, F2P25
	Fractions and decimals	Compare and order fractions and mixed numbers	Compare and order fractions and mixed numbers, including when they are positive and negative	F1P38, F2P39
			Express fractions as decimals and vice versa	F1P9, F2P12. F1P17, F2P17
		Solve operations using decimals	Add and subtract decimals, including positive and negative decimals	F1P13, F2P16

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
May not be able to solve simple real-world problems involving the multiplication of 2 whole numbers to 5, and associated division facts	Solve simple real-world problems involving the multiplication of 2 whole numbers to 5, and associated division facts (e.g., Amina is putting fruit into bags. Each bag will contain 4 pieces of fruit. How many bags will Amina need for 20 pieces of fruit?; Amina has 5 bags. Each bag contains 4 pieces of fruit. How many pieces of fruit are there in total?)	Solve simple real-world problems involving the multiplication of two whole numbers to 10, and associated division facts (e.g., Amina is putting fruit into bags. Each bag will contain 7 pieces of fruit. How many bags will Amina need for 28 pieces of fruit?; Amina has 4 bags. Each bag contains 7 pieces of fruit. How many pieces of fruit are there in total?)	N/A
May not be able to compare and order everyday unit fractions (e.g., $\frac{1}{4}$; $\frac{1}{3}$; $\frac{1}{2}$)	Compare and order everyday unit fractions (e.g., $\frac{1}{4}$; $\frac{1}{3}$; $\frac{1}{2}$)	Compare and order fractions with different but related denominators up to 12 (e.g., $\frac{2}{3}$ and $\frac{5}{6}$)	Compare and order proper fractions with different denominators (e.g., $\frac{1}{4}$; $\frac{7}{10}$; $\frac{5}{6}$)
N/A	N/A	Identify and express fractions with denominators of 10 using decimal notation (e.g., $\frac{7}{10} = 0.7$)	Identify and express fractions with denominators of 100 and everyday fractions, using decimal notation, and represent fractions with denominators of 100 as percentages (e.g., $\frac{3}{4} = 0.75$; $\frac{72}{100} = 0.72 = 72\%$)
N/A	N/A	Add and subtract decimal numbers up to the tenths place. Create or identify concrete or picture models to represent such additions (e.g., $0.5 + 0.2$)	Add and subtract decimal numbers up to the hundredths place. Create or identify concrete or picture models to represent such additions (e.g., $3.41 + 5.3$)

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Measurement	Length, weight, capacity, volume, area, and perimeter	Use non-standard and standard units to measure, compare, and order	Use standard units to estimate, measure, and compare the length, weight, capacity, and volume of two objects	F1P24, F2P21; F1P27, F2P27
		Solve problems involving measurement	Solve problems involving the perimeter of polygons	F1P15, F2P14, F1P37, F234
			Solve problems involving conversions of time: 12-hour and 24-hour time, time zones, and different units of time	F1P1, F2P3; F1P19, F2P19; F133F231
Geometry	Angles	Recognize angles and estimate their size	Recognize angles and estimate their size	F1P39, F2P38

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
May not be able to select and use appropriate standard units to estimate, measure, and compare length and weight when measurements involve whole numbers only	Select and use appropriate standard units to estimate, measure, and compare length and weight when measurements involve whole numbers only (e.g., choose centimeters instead of meters to measure a pencil; estimate the weight of the apple when given the following choices: a) 5g b) 200g c) 1kg d) 5kg). Select and use appropriate standard units to measure and compare capacity/volume when measurements involve whole numbers only (e.g., identify that the measuring cups contain 200 ml of water and 100 ml of oil)	N/A	N/A
May not be able to calculate the perimeter of a polygon	Calculate the perimeter of a polygon	Solve problems, including real-world problems, involving the perimeter of a polygon	Solve problems, including real-world problems, involving comparing the perimeters of polygons
N/A	N/A	Solve problems, including real-world problems, involving the number of days in a week, months in a year, hours in a day, minutes in an hour, and seconds in a minute	N/A
N/A	N/A	Recognize types of angles by their magnitude (e.g., right, straight, acute, obtuse)	N/A

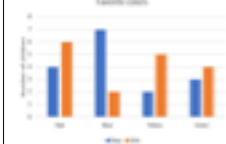
THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 Mathematics			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Statistics and Probability	Data management	Retrieve and interpret data presented in displays	Solve problems involving data displays (i.e., tally charts, bar graphs, or pictographs) with single-unit scales and up to four categories of data	F1P23, F2P23; F1P40, F2P40	May not be able to solve a problem involving more than two pieces of information from a tally chart, bar graph, or pictograph with a single-unit scale	Solve a problem involving more than two pieces of information from a tally chart, bar graph, or pictograph with a single-unit scale (e.g., How many children were asked about their favorite color in this bar graph?) 	N/A	N/A
			Retrieve information from, or solve problems involving, data displays with single- or multi-unit scales and categories and sub-categories of data	F132, F232; F1P35, F2P36; F1P36, F2P35	May not be able to retrieve information from a tally chart, bar graph, or pictograph with a multi-unit scale	Retrieve information from a tally chart, bar graph, or pictograph with a multi-unit scale	N/A	Retrieve information from data displays that arrange data into categories and sub-categories with a single- or multi-unit scale (e.g., How many girls liked green in this bar chart?) 
Algebraic processes	Open sentences	Open sentences	Find the missing value in a number sentence	F1P20, F2P20	May not be able to find a missing value in a number sentence using addition and subtraction of numbers within 100 (e.g., $23 + \underline{\quad} = 59$)	Find a missing value in a number sentence using addition and subtraction of numbers within 100 (e.g., $23 + \underline{\quad} = 59$)	Find a missing value in a number sentence using multiplication and division within 100 (e.g., $7 \times \underline{\quad} = 35$)	Find a missing value in a number sentence using any one of the four operations (e.g., $3 \times \underline{\quad} = 18$)

Table E3. JS2 Mathematics proficiency level descriptors

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Mathematics			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Number and operations	Integers	Solve operations using integers	Multiply and divide integers	F1P4	May not be able to multiply any two positive integers, with and without regrouping, and divide any integer by a two-digit number, with and without a remainder (e.g., 2342×1478 ; $3388 \div 15 = \underline{\quad}$)	Multiply any two positive integers, with and without regrouping, and divide any integer by a two-digit number, with and without a remainder (e.g., 2342×1478 ; $3388 \div 15 = \underline{\quad}$)	NA	NA
Number and operations	Integers	Compare and order integers	Identify and represent integers using objects, pictures, or symbols, and identify relative magnitude	F1P2	NA	NA	Compare and order integers (e.g., order the following from smallest to largest: -4, 6, -9, 2)	NA
Number and operations	Integers	Solve operations using integers	Identify factors and multiples, including common factors and common multiples, of whole numbers	F1P9	May not be able to identify factors of whole numbers beyond 100 and multiples of whole numbers beyond 20 (e.g., find factors of 125 or find multiples of 25)	Identify factors of whole numbers beyond 100 and multiples of whole numbers beyond 20 (e.g., find factors of 125 or find multiples of 25)	Identify common factors and common multiples of two numbers (e.g., find the lowest common multiple and the greatest common factor of 12 and 16)	NA
Number and operations	Integers	Solve real-world problems involving integers	Solve real-world problems involving the addition, subtraction, multiplication, and division of integers	F1P13; F1P14; F1P27	Find it difficult to solve real-world problems involving combinations of any two or more of the four operations, including problems involving measurement and currency units and: * addition and subtraction of any integers * multiplication of any positive integers * division of any positive integers by a positive two-digit number with or without a remainder (e.g., The temperature last night was -3 C. This morning it was +2 C. What was the change in temperature between last night and this morning?)	Solve real-world problems involving combinations of any two or more of the four operations, including problems involving measurement and currency units and: * addition and subtraction of any integers * multiplication of any positive integers * division of any positive integers by a positive two-digit number with or without a remainder (e.g., The temperature last night was -3 C. This morning it was +2 C. What was the change in temperature between last night and this morning?)	Solve real-world problems involving the multiplication or division of two integers, including at least one negative integer (e.g., It is -8 degrees Celsius on Tuesday. On Wednesday, it is three times colder. What is the temperature on Wednesday?)	NA

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Geometry	Properties of shapes and figures	Recognize and describe shapes and figures	Recognize angles and estimate their size	F1P15; F1P29
Geometry	Spatial visualizations	Compose and decompose shapes and figures	Identify the net of familiar, three-dimensional shapes or particular sides represented in a net	F1P10
Geometry	Position and direction	Describe the position and direction of objects in space	Use a Cartesian coordinate system to locate and plot points, describe or calculate distances between locations, and draw shapes	F1P12
Statistics and probability	Data management (S1)	Retrieve and interpret data presented in displays	Retrieve information from or construct pie charts and Venn diagrams (for categorical data) and line graphs and dot plots (for bivariate data) to represent data	F1P1

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Unable to estimate the size of angles by comparing to reference/benchmark angles (e.g., estimate the size of a given angle with reference to the fact that it is smaller than a right angle and larger than 45°)	Estimate the size of angles by comparing to reference/benchmark angles (e.g., estimate the size of a given angle with reference to the fact that it is smaller than a right angle and larger than 45°)	NA	NA
NA	NA	Identify the net of a familiar three-dimensional figure (i.e., prism, cylinder, cone, or pyramid) (e.g., fold or unfold mentally to answer the question, “What figure does this make when folded?”; “What figure does this make when unfolded?”).	NA
Unable to locate and plot points on a plane in all four quadrants of a Cartesian coordinate system	Locate and plot points on a plane in all four quadrants of a Cartesian coordinate system	Draw shapes in all four quadrants of a Cartesian coordinate system, and find missing points (e.g., If (1,2), (-3,2), and (-3,-2) are three corners of a square, what is the fourth corner?)	NA
Find it difficult to retrieve categorical data from pie charts and Venn diagrams and bivariate data from line graphs and dot plots	Retrieve categorical data from pie charts and Venn diagrams and bivariate data from line graphs and dot plots	Organize data and construct pie charts and Venn diagrams (categorical data), and line graphs and dot plots (bivariate data) when some support is provided (e.g., construct a line graph when given labeled horizontal and/or vertical axes, or match a table to the correct pie chart given a range of pie chart options)	NA

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Statistics and probability	Data management	Calculate and interpret central tendency	Solve problems involving means, medians, and modes, including the effect of outliers on means and medians	F1P7
Statistics and probability	Chance and probability	Describe the likelihood of events in different ways	Identify or calculate the probability of specific outcomes of simple or compound events, experimentally or otherwise	F1P5; F1P6
Algebra	Expressions	Evaluate, model, and compute with expressions	Use expressions to represent problem situations with single or multiple variables	F1P21

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Unable to solve problems, including real-word problems, involving calculation of the mean, median, or mode of a set of data	Solve problems, including real-word problems, involving calculation of the mean, median, or mode of a set of data	Describe the effect of adding or removing a specific data value on the mean, median, or mode of a set of data (e.g., “What would be the effect of removing a score of 20 from the scores 20, 80, 70, and 75 on the mean?” with the possible answers being: a) it would increase, b) it would decrease, c) it would stay the same. The same question can be asked about the effect on the median and the mode. Another example is: Juanita plays hockey and aims to achieve a mean of 3 goals per game by the end of the season. Her goals for the first four games are shown: 2, 4, 1, 3. She has one more game to play this season. How many goals must she score in this game to achieve her aim?)	Determine and compare the mean, median, and mode for different sets of data and choose which is most appropriate in a given context (e.g., determine why the median is more appropriate than the mean as a representation of house prices in a given area)
NA	NA	Find the expected number of occurrences of a specific independent outcome when a probability experiment is repeated many times (e.g., calculate the expected number of heads with 50 flips of a fair coin)	Calculate probabilities of different outcomes for compound events containing two simple events when they can be listed as a discrete sample space (e.g., calculate the chance of rolling a sum of 7 when rolling two standard number dice)
Unable to use linear expressions to represent problem situations with a single variable (e.g., The cost of buying cinema tickets online is N12 per ticket plus a N 2 booking fee. Write this as an expression where x is the number of tickets purchased)	Use linear expressions to represent problem situations with a single variable (e.g., The cost of buying cinema tickets online is N 12 per ticket plus a N 2 booking fee. Write this as an expression where x is the number of tickets purchased)	Use expressions to represent problem situations with multiple variables (e.g., Akeelah bought 4 blouses for x naira and a wristwatch for y naira. Represent this as an expression)	NA

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Algebra	Expressions	Evaluate, model, and compute with expressions	Add and subtract linear expressions	F1P23; F1P26; F1P28; F1P30
Algebra	Expressions	Evaluate, model, and compute with expressions	Multiply, divide, simplify, and factor linear expressions	F1P17; F1P19; F1P20
Algebra	Expressions	Evaluate, model, and compute with expressions	Evaluate, simplify, and factor exponential expressions	F1P16
Algebra	Relations and Functions	Solve problems involving variation (ratio, proportion, and percentage)	Reason proportionally to solve problems involving ratio, when the ratio is expressed informally or formally	F1P8
Algebra	Relations and Functions	Solve problems involving variation (ratio, proportion, and percentage)	Solve problems involving equal ratios	F1P22

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Find it difficult to add and subtract linear expressions (e.g., $(3x + 4y) - (2x + 5y)$)	Add and subtract linear expressions (e.g., $(3x + 4y) - (2x + 5y)$)	NA	NA
NA	NA	Multiply and divide linear monomials, and simplify linear expressions by using the distributive property (e.g., multiply $(3x)(5y)$; simplify $2x(3x + 4)$)	Multiply two binomial linear expressions (e.g., multiply $(3x + 4y)(2x + 5y)$)
NA	NA	Evaluate and simplify exponential expressions using the Laws of Exponents (e.g., evaluate 2×3 when $x = 7$; simplify $(2 \times 3)^2$)	Factor linear and exponential expressions using the greatest common factor (e.g., factor $4x^2 + 8xy - 6x$ to $2x(2x + 4y - 3)$)
Unable to reason proportionally to answer real-world problems involving a ratio (e.g., Purple paint is made from 2 parts blue paint to 3 parts red paint. I have 10 parts of blue paint. How many parts of red paint do I need? The ratio of teachers to students on a school trip must be 1:9. How many teachers are needed if there are 36 students?)	Reason proportionally to answer real-world problems involving a ratio (e.g., Purple paint is made from 2 parts blue paint to 3 parts red paint. I have 10 parts of blue paint. How many parts of red paint do I need? The ratio of teachers to students on a school trip must be 1:9. How many teachers are needed if there are 36 students?)	NA	NA
NA	NA	Solve proportions written as two equal ratios (e.g., solve $\frac{2}{3} = \frac{10}{x}$)	Write a proportion as two equal ratios to model a proportional relationship (e.g., write $\frac{2}{3} = \frac{10}{x}$ to represent a problem that says, "Purple paint is made from 2 parts blue paint to 3 parts red paint. If I have 10 parts of blue paint. How many parts of red paint do I need?")

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Algebra	Relations and Functions	Solve problems involving variation (ratio, proportion, and percentage)	Solve problems involving percentages	F1P3
Algebra	Relations and Functions	Solve equations and inequalities	Represent and solve real-world problems involving equations	F1P25
Number and operations	Integers	Solve operations using integers	Solve problems involving percentages	F1P31

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Unable to solve problems, including real-world problems, involving finding the percentages of a known quantity (e.g., 20% of 70 = $\square$; A stadium holds 3,200 people. If the stadium is 80% full, how many people are in the stadium?)	Solve problems, including real-world problems, involving finding the percentages of a known quantity (e.g., 20% of 70 = $\square$; A stadium holds 3,200 people. If the stadium is 80% full, how many people are in the stadium?)	Solve problems, including real-world problems, involving percent increase or decrease (e.g., A shirt that normally costs 25 euros is on sale for 10% off. How much does it cost now?; A shirt cost 25 euros in November and then 20 euros in December. What is the percent decrease in cost?)	Solve problems, including real-world problems, involving percentages where the percentage and final quantity are known, but the initial quantity is not (e.g., Ana paid \$8 for a belt that was on sale. The price had been reduced by 20%. What was the original price of the belt?)
Unable to represent and solve problems, including real-world problems, using a two-step equation with any of the four operations (e.g., solve $3x + 4 = 22$; Some people got on a bus, doubling the number of passengers. At the next stop, 8 people got off, leaving 16 people on the bus. Represent as an equation, and solve to find the number of people on the bus originally)	Represent and solve problems, including real-world problems, using a two-step equation with any of the four operations (e.g., solve $3x + 4 = 22$; Some people got on a bus, doubling the number of passengers. At the next stop, 8 people got off, leaving 16 people on the bus. Represent as an equation, and solve to find the number of people on the bus originally)	Represent and solve problems, including real-world problems, using more than two steps, including those that involve the distributive property, combining like terms, etc. (e.g., solve $3x + 4(x + 2) = 22$; The older children get two more cookies than the younger children. If there are three younger children and four older children and 22 cookies were distributed, how many cookies did the younger children get?; Represent as $3x + 4(x + 2) = 22$ and solve)	NA
Unable to solve problems, including real-world problems, involving finding the percentages of a known quantity (e.g., 20% of 70 = $\square$; A stadium holds 3,200 people. If the stadium is 80% full, how many people are in the stadium?)	Solve problems, including real-world problems, involving finding the percentages of a known quantity (e.g., 20% of 70 = $\square$; A stadium holds 3,200 people. If the stadium is 80% full, how many people are in the stadium?)	Solve problems, including real-world problems, involving percent increase or decrease (e.g., A shirt that normally costs 25 euros is on sale for 10% off. How much does it cost now?; A shirt cost 25 euros in November and then 20 euros in December. What is the percent decrease in cost?)	Solve problems, including real-world problems, involving percentages where the percentage and final quantity are known, but the initial quantity is not (e.g., Ana paid \$8 for a belt that was on sale. The price had been reduced by 20%. What was the original price of the belt?)

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Number and operations	Integers	Solve operations using integers	Perform calculations involving two or more operations with integers	F1P37
Number and operations	Decimals	Solve operations using decimals	Add and subtract decimals, including positive and negative decimals	F1P32
Measurement	Length, weight, capacity, volume, area, and perimeter	Solve problems involving measurement	Solve problems involving the perimeter of polygons	F1P33
Number and operations	Decimals	Represent decimals in equivalent ways (including fractions and percentages)	Round decimal numbers	F1P34

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Find it difficult to perform calculations involving two or more operations with positive integers, within the limits for meets expectations described above, respecting the order of operations (e.g., $(6584 + 2187) \times 318 = \underline{\hspace{1cm}}$; $(9675 - 823) \div 19 = \underline{\hspace{1cm}}$)	Perform calculations involving two or more operations with positive integers, within the limits for meets expectations described above, respecting the order of operations (e.g., $(6584 + 2187) \times 318 = \underline{\hspace{1cm}}$; $(9675 - 823) \div 19 = \underline{\hspace{1cm}}$)	NA	NA
Unable to add and subtract any positive and negative decimal numbers	Add and subtract any positive and negative decimal numbers	NA	NA
Find it difficult to solve problems, including real-world problems, involving perimeter in which the unknown is a length (e.g., identify the fifth length in a picture of an irregular pentagon with four sides labeled with length and a given perimeter)	Solve problems, including real-world problems, involving perimeter in which the unknown is a length (e.g., identify the fifth length in a picture of an irregular pentagon with four sides labeled with length and a given perimeter)	NA	NA
Unable to round decimal numbers to any place value beyond the hundredths place (e.g., round 3.45619 to 3.4562)	Round decimal numbers to any place value beyond the hundredths place (e.g., round 3.45619 to 3.4562)	NA	NA

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Number and operations	Decimals	Solve real-world problems involving decimals	Solve real-world problems involving the addition, subtraction, multiplication, and division of decimals, including currency or money problems	F1P35
Number and operations	Exponents and roots (N5)	Identify and represent quantities using exponents and roots, and identify the relative magnitude	Identify and represent numbers using scientific notation and exponents	F1P36
Algebra	Expressions	Evaluate, model, and compute with expressions (A2.1)	Evaluate, simplify, and factor exponential expressions (A2.1.4)	F1P38
Number and operations	Integers	Solve operations using integers	Perform calculations involving two or more operations with integers	F1P39
Number and operations	Integers	Solve operations using integers	Multiply and divide integers	F1P40

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Mathematics			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Unable to solve real-world problems involving addition and subtraction of decimals beyond the tenths place (e.g., Aria has a height of 1.55 meters. Her mother has a height of 1.63 meters. How much taller than Aria is her mother? Adwoa has 1.64 meters of roof sheeting and another 1.4 meters. How many meters of roof sheeting does she have?)	Solve real-world problems involving addition and subtraction of decimals beyond the tenths place (e.g., Aria has a height of 1.55 meters. Her mother has a height of 1.63 meters. How much taller than Aria is her mother? Adwoa has 1.64 meters of roof sheeting and another 1.4 meters. How many meters of roof sheeting does she have?)	NA	NA
NA	NA	Identify and represent very large whole numbers using scientific notation and positive exponents (e.g., $600 = 6 \times 10^2$)	Identify and represent very small numbers using scientific notation and negative exponents (e.g., 0.065 is 6.5×10^{-2})
NA	NA	Evaluate and simplify exponential expressions using the Laws of Exponents (e.g., evaluate 2×3 when $x = 7$; simplify $(2 \times 3)^2$)	Factor linear and exponential expressions using the greatest common factor (e.g., factor $4x^2 + 8xy - 6x$ to $2x(2x + 4y - 3)$)
Unable to perform calculations involving two or more operations with positive integers, within the limits for meets expectations described above, respecting the order of operations (e.g., $(6584 + 2187) \times 318 = \underline{\hspace{1cm}}$; $(9675 - 823) \div 19 = \underline{\hspace{1cm}}$)	Perform calculations involving two or more operations with positive integers, within the limits for meets expectations described above, respecting the order of operations (e.g., $(6584 + 2187) \times 318 = \underline{\hspace{1cm}}$; $(9675 - 823) \div 19 = \underline{\hspace{1cm}}$)	NA	NA
Find it difficult to multiply any two positive integers, with and without regrouping, and divide any integer by a two-digit number, with and without a remainder (e.g., 2342×1478 ; $3388 \div 15 = \underline{\hspace{1cm}}$)	Multiply any two positive integers, with and without regrouping, and divide any integer by a two-digit number, with and without a remainder (e.g., 2342×1478 ; $3388 \div 15 = \underline{\hspace{1cm}}$)	NA	NA

English studies

Table E4. P3 English studies proficiency level descriptors

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P3 English Studies			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Reading comprehension	Retrieve information	R1.1. Recognize the meaning of common grade-level words	Recognize the meaning of common grade-level words.	10A/B, 16A/3B,	Recognize a few very common grade 8-level words	Recognize the meaning of very <u>common grade 8-level words</u> (e.g., match a given word to an illustration or synonym or brief definition).	Recognize the meaning of <u>common grade 8-level words</u> (e.g., match a given word to an illustration or synonym or brief definition).	Recognize the meaning of less <u>common grade 8-level words</u> (e.g., match a given word to an illustration, synonym, or brief definition).
		R1.2 Retrieve explicit information in a grade-level text by direct or close word matching.	Retrieve a single piece of explicit information from a grade-level continuous text by direct or close word matching when the information required is nearby but not adjacent to the matched word and there is a limited competing information.	4A, 17B, 5A, 18B, 6A, 19B, 7A, 20B, 11A/Bb 14A/1B, 15A/2B, 17A/4B, 18A/5B, 20A/7B	Retrieve a single piece of prominent, explicit information with direct word matching	Retrieve a single piece of <u>prominent, explicit information</u> from a <u>grade 8-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is adjacent to the matched word and there is limited <u>competing information</u> .	Retrieve a single piece of <u>explicit information</u> from a <u>grade 8-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is nearby but not adjacent to the matched word and there is <u>competing information</u> .	Retrieve multiple pieces of <u>explicit information</u> from a <u>grade 8-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is not <u>prominent</u> or there is a lot of <u>competing information</u> .
		R1.3 Retrieve explicit information in a grade-level text by synonymous word-matching.	Retrieve a single piece of explicit information from a grade-level continuous text by synonymous word matching when the information required is not prominent and there is competing information.	8A/B, 9A/B	Cannot identify unknown words	Identify the meaning of <u>unknown words</u> (including <u>familiar words used in unfamiliar ways</u>) in a <u>grade 8-level text</u> when there are multiple <u>prominent</u> clues (e.g., use language-specific morphological clues or contextual clues to identify the meaning of unknown words).	Identify the meaning of <u>unknown words</u> (including <u>familiar words used in unfamiliar ways</u>) in a <u>grade 8-level text</u> when there are multiple clues (e.g., use language-specific morphological clues or contextual clues to identify the meaning of unknown words).	Identify the meaning of <u>unknown words</u> (including <u>familiar words used in unfamiliar ways</u>) in a <u>grade 8-level text</u> when there are limited clues (e.g., use language-specific morphological clues or contextual clues to identify the meaning of unknown words).

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
	Interpret information	R2.1 Identify the meaning of unknown words and expressions in a grade-level text	Identify the meaning of unknown words (including familiar words used in unfamiliar ways) in a grade-level text when there are prominent clues	3A, 16B
		R2.2 Make inferences in a grade-level text.	Identify prominent evidence in a grade level text to support or explain an idea, action or statement in the text when the relationship is not explicit.	1A, 14B, 2A, 15B, 13A/B, 19A/6B
			Draw a basic conclusion from a grade level text by synthesizing prominent information from one or more paragraphs and/or sections when the conclusion is clearly implied but not explicitly stated.	12A/B
Grammar	Adverbs	Adverbs of manner	Identify correct use of adverb of manner in sentence context	21A/B
	Adjectives	Adjectives of quantity	Identify correct use of adjective of quantity in sentence context	22A/23B
		Comparative adjectives	Identify correct use of comparative form of adjective in sentence context	23A/22B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P3 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Cannot identify implicit information	Recognize a basic <u>conclusion</u> from a <u>grade 8-level text</u> when the <u>conclusion</u> is explicitly stated.	Draw a basic <u>conclusion</u> from a <u>grade 8-level text</u> by synthesizing <u>prominent</u> information from one or more paragraphs and/or sections when the <u>conclusion</u> is clearly implied but not explicitly stated.	Draw a <u>conclusion</u> from a <u>grade 8-level text</u> by synthesizing <u>prominent</u> and detailed or less <u>prominent</u> information from one or more paragraphs and/or sections when the <u>conclusion</u> is clearly implied but not explicitly stated.
Cannot identify implicit information	Identify evidence in a <u>grade 8-level text</u> to support or explain an idea, action, or statement in the text when the relationship is explicit.	Identify <u>prominent</u> evidence in a <u>grade 8-level text</u> to support or explain an idea, action, or statement in the text when the relationship is not explicit.	Identify <u>prominent</u> and detailed or less <u>prominent</u> evidence in a <u>grade 8-level text</u> to support or explain an idea, action, or statement in a text when the relationship is not explicit.
Cannot identify implicit information	Recognize a basic <u>conclusion</u> from a <u>grade 8-level text</u> when the <u>conclusion</u> is explicitly stated.	Draw a basic <u>conclusion</u> from a <u>grade 8-level text</u> by synthesizing <u>prominent</u> information from one or more paragraphs and/or sections when the <u>conclusion</u> is clearly implied but not explicitly stated.	Draw a <u>conclusion</u> from a <u>grade 8-level text</u> by synthesizing <u>prominent</u> and detailed or less <u>prominent</u> information from one or more paragraphs and/or sections when the <u>conclusion</u> is clearly implied but not explicitly stated.
Cannot identify adverbs of manner	Identify high frequency adverbs of manner in simple sentence context	Identify most common and some less common adverbs of manner in sentence context	Identify most less common adverbs of manner in complex text
Cannot identify adjectives of quantity	Identify some common adjectives of quantity in simple sentence context	Identify most common adjectives of quantity in sentence context	Identify most less common adjectives of quantity in complex text
Cannot identify comparative forms of adjective	Identify some common comparative adjectives in sentence context	Identify most common comparative adjectives in sentence context	Identify most less common comparative adjectives in complex text

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
	Pronoun	Reflexive pronouns	Identify correct use of reflexive pronoun in sentence context	24A/B
		Personal subject pronouns	Identify correct use of subjective case pronoun in a sentence	25A/26B
	Preposition	Preposition of location	Identify correct use of preposition of location in a sentence context	26A/27B
	Nouns	Possessive case of personal nouns	Identify correct use of possessive apostrophe in sentence context	27A/25B
	Verbs	Modal auxiliaries	Identify correct use of modal verbs in sentence context	28.A/B
	Questions	Question tags	Identify correct use of question tags in sentence context	29A/30B
	Conjunctions	Correlative conjunctions	Identify correct use of conjunction in sentence context	30A/29B
Vocabulary	Synonyms	Synonyms of adjectives	Identify the word that is the nearest adjective in meaning to the one in the sentence	31A/33B, 32A/B
		Synonyms of verbs	Identify the word that is the nearest verb in meaning to the one in the sentence	33A/31B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P3 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Cannot identify reflexive pronouns	Identify some common reflexive pronouns in sentence context	Identify most common reflexive pronouns in sentence context	Identify most less common reflexive pronouns in complex text
Cannot identify subject pronouns	Identify some common subject pronouns in sentence context	Identify most common subject pronouns in sentence context	Identify all subject pronouns in complex text
Cannot identify prepositions of location	Identify some common prepositions of location in sentence context	Identify most common prepositions in sentence context	Identify less common prepositions in complex text
Cannot identify possessive forms of nouns	Identify some common possessive forms of nouns in sentence context	Identify most common possessive forms of nouns in sentence context	Identify most or all possessive forms of nouns in complex text
Cannot identify modal verbs	Identify some common modal verbs in sentence context	Identify most common modal verbs in sentence context	Identify less common modal verbs in complex text
Cannot identify question tags	Identify some commonly used question tags in sentence context	Identify most commonly used question tags in sentence context	Identify all question tags in complex text
Cannot identify conjunctions	Identify some common conjunctions in sentence context	Identify most common conjunctions in sentence context	Identify less-common conjunctions in complex text
Cannot identify the concept of synonym	Identify simple adjective synonyms in sentence context	Identify more complex adjective synonyms used in sentence context	Identify complex adjective synonyms used in complex text
Cannot identify the concept of synonym	Identify simple verb synonyms in sentence context	Identify more complex verb synonyms used in sentence context	Identify complex verb synonyms used in complex text

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
		Synonyms of nouns	Identify the word that is the nearest noun in meaning to the one in the sentence	34A/B
Phonics	Vowel sounds	Long vowel sounds	Identify vowel sound in a word that contains the symbol	35A/B
	Consonant sounds	Voiceless consonants	Identify voiceless consonant symbol in an isolated word	36A/B
		Voiced consonants	Identify voiced consonant symbol in an isolated word	37A/B
Literature	Literary devices	Figurative devices	Identify the figurative device of personification represented in a sentence	38A/39B
			Identify the figurative device of simile represented in a sentence	39A/40B
			Identify the figurative device of repetition represented in a sentence	40A/38B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P3 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Cannot identify the concept of synonym	Identify simple noun synonyms in sentence context	Identify more complex noun synonyms used in sentence context	Identify complex noun synonyms used in complex text
Cannot identify phonetic symbols representing sounds	Identify a few short vowel sounds	Identify diphthongs in word context	Identify mono-thongs and diphthongs in word context
Cannot identify phonetic symbols representing sounds	Identify a few voiceless consonant sounds in word context	Identify some of voiceless consonants in word context	Identify complex voiceless consonants in word context
Cannot identify phonetic symbols representing sounds	Identify a few voiced consonants in word context	Identify some voiced consonant sounds in word context	Identify most complex voiced consonants in word context
Cannot identify any figurative device	Identify the figurative device of personification exemplified in a simple sentence	Identify the figurative device of personification exemplified in a simple or complex sentence	Identify the figurative device of personification exemplified in a simple or complex sentence
Cannot identify any figurative device	Identify the figurative device of simile exemplified in a simple sentence	Identify the figurative device of simile exemplified in a simple or complex sentence	Identify the figurative device of simile exemplified in a simple or complex sentence
Cannot identify any figurative device	Identify the figurative device of repetition exemplified in a simple sentence	Identify the figurative device of repetition exemplified in a simple or complex sentence	Identify the figurative device of repetition exemplified in a simple or complex sentence

Table E5. P5 English studies proficiency level descriptors

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 English Studies			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Reading comprehension	Retrieve information at word level R1	Recognize the meaning of common grade-level words (R1.1)	Recognize the meaning of very common grade 5-level words (R1.1.1)	2A, 6A, 2B, 19A	Recognize the meaning of very few common grade 5-level words.	Recognize the meaning of very <u>common grade 5-level words</u> (e.g., <u>match a given word to an illustration, synonym, or brief definition</u>).	Recognize the meaning of <u>common grade 5-level words</u> (e.g., <u>match a given word to an illustration, synonym, or brief definition</u>).	Recognize the meaning of <u>less common grade 5-level words</u> (e.g., <u>match a given word to an illustration, synonym, or brief definition</u>).
		Retrieve explicit information in a grade-level text by direct- or close-word matching (R1.2)	Retrieve a single piece of <u>prominent, explicit information</u> from a <u>grade 5-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is adjacent to the matched word and there is no <u>competing information</u> . (R1.2.2)	1A, 3A, 4A, 12A, 1B, 3B, 4B	Retrieve very few single piece of <u>prominent, explicit information</u> from a <u>grade 5-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is adjacent to the matched word and there is no <u>competing information</u> .	Retrieve a single piece of <u>prominent, explicit information</u> from a <u>grade 5-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is adjacent to the matched word and there is no <u>competing information</u> .	Retrieve a single piece of <u>explicit information</u> from a <u>grade 5-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is nearby but not adjacent to the matched word and there is limited <u>competing information</u> .	Retrieve multiple pieces of <u>explicit information</u> from a <u>grade 5-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is not <u>prominent</u> and/or there is a lot of <u>competing information</u> .
		Retrieve explicit information in a grade-level text by synonymous word matching (R1.3)	Retrieve a single piece of <u>prominent, explicit information</u> from a <u>grade 5-level continuous text</u> by <u>synonymous word matching</u> when there is no <u>competing information</u> . R1.3.2	6B	Retrieve a few single piece of <u>prominent, explicit information</u> from a <u>grade 5-level continuous text</u> by <u>synonymous word matching</u> when there is no <u>competing information</u> . R1.3.2	Retrieve a single piece of <u>prominent, explicit information</u> from a <u>grade 5-level continuous text</u> by <u>synonymous word matching</u> when there is no <u>competing information</u> . R1.3.2	Retrieve a single piece of <u>explicit information</u> from a <u>grade 5-level continuous text</u> by <u>synonymous word matching</u> when the information required is not <u>prominent</u> and there is limited <u>competing information</u> .	Retrieve multiple pieces of <u>explicit information</u> from a <u>grade 5-level continuous text</u> by <u>synonymous word matching</u> when the information required is not <u>prominent</u> or there is a lot of <u>competing information</u> .

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
		Identify the meaning of unknown words and expressions in a grade-level text (R2.1)	Identify the meaning of unknown words (including familiar words used in unfamiliar ways) in a grade 5-level text when there are multiple prominent clues (e.g., use language-specific morphological clues or contextual clues to identify the meaning of unknown words). R2.1.1a	14B
			Make inferences in a grade 5-level continuous text by relating two or more pieces of explicit and/or implicit information (e.g., causal relationship or comparisons) from a paragraph but not in consecutive sentences, when there is limited competing information (R2.2.2)	5A, 8A, 9A, 10A, 11A, 11B, 12B, 16B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Identify the meaning of few unknown words (including familiar words used in unfamiliar ways) in a grade 5-level text when there are multiple prominent clues R2.1.1a	Identify the meaning of unknown words (including familiar words used in unfamiliar ways) in a grade 5-level text when there are multiple prominent clues (e.g., use language-specific morphological clues or contextual clues to identify the meaning of unknown words). R2.1.1a	Identify the meaning of <u>unknown words</u> (including <u>familiar words used in unfamiliar ways</u>) in a <u>grade 5-level text</u> when there are limited clues (e.g., <i>use language-specific morphological clues or contextual clues to identify the meaning of unknown words</i>).	Identify the meaning of <u>unknown words</u> (including <u>familiar words used in unfamiliar ways</u>) in a <u>grade 5-level text</u> when there are limited clues (e.g., <i>use language-specific morphological clues or contextual clues to identify the meaning of unknown words</i>).
Make inferences in a few grade 5-level continuous text by relating two or more pieces of explicit and/or implicit information (e.g., causal relationship or comparisons) from a paragraph but not in consecutive sentences, when there is limited competing information	Make inferences in a grade 5-level continuous text by relating two or more pieces of explicit and/or implicit information (e.g., causal relationship or comparisons) from a paragraph but not in consecutive sentences, when there is limited competing information (R2.2.2)	Make <u>inferences</u> in a <u>grade 5-level continuous text</u> by relating two or more pieces of <u>explicit and/or implicit information</u> (e.g., causal relationship or comparisons) from a paragraph but not in consecutive sentences, when there is limited <u>competing information</u> .	Make <u>inferences</u> in a <u>grade 5-level continuous text</u> by relating two pieces of <u>explicit and/or implicit information</u> from one or more paragraphs when there is more distance <u>between the pieces of information</u> and/or a lot of <u>competing information</u> .

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
			Identify a point of view (e.g., of a group, character, or the author) in a <u>grade 5-level text</u> when there is limited <u>competing information</u> and when the point of view is explicitly stated. R2.2.5	18A, 20A, 16B, 19B, 20B
			Identify the <u>main idea</u> in a <u>grade 5-level text</u> when it is <u>prominent</u> but not <u>explicitly stated</u> . R2.3.1	11B, 12B
		Identify the purpose and audience of a text (R3.1)	Identify the purpose of a grade 5-level text when there are prominent clues and the purpose is not explicitly stated.	14A, 15A, 16A, 3B
		Evaluate a text with justification (R3.2)	Give an <u>opinion</u> (that is relevant to the text) about a <u>grade 5-level text</u> without providing evidence.	7A, 13A, 13B, 17B
Grammar	Verbs	Modal Auxiliary	Identify the correct modal auxiliary verb in grade 5 sentence context.	21A/B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Identify a few point of view (e.g., of a group, character, or the author) in a <u>grade 5-level text</u> when there is limited <u>competing information</u> and when the point of view is explicitly stated. R2.2.5	Identify a point of view (e.g., of a group, character, or the author) in a <u>grade 5-level text</u> when there is limited <u>competing information</u> and when the point of view is explicitly stated. R2.2.5	Identify a point of view (e.g., of a group, character, or the author) in a <u>grade 5-level text</u> when there is limited <u>competing information</u> and when the point of view is <u>prominent</u> but not explicitly stated.	Identify a point of view (e.g., of a group, character, or the author) in a <u>grade 5-level text</u> when there is a lot of <u>competing information</u> and when the point of view is less <u>prominent</u> and not explicitly stated.
Inability to identify the <u>main idea</u> in a <u>grade 5-level text</u> when it is <u>prominent</u> but not <u>explicitly stated</u> .	Identify the <u>main idea</u> in a <u>grade 5-level text</u> when it is <u>prominent</u> but not <u>explicitly stated</u> .	Identify the <u>main idea</u> in a <u>grade 5-level text</u> when it is not <u>explicitly stated</u> .	NA
Inability to identify the purpose of a grade 5-level text when there are prominent clues and the purpose is not explicitly stated.	Identify the purpose of a grade 5-level text when there are prominent clues and the purpose is not explicitly stated.	Identify the <u>purpose</u> of a <u>grade 5-level text</u> when there are <u>prominent</u> clues and the <u>purpose</u> is not explicitly stated.	Identify the <u>purpose</u> of a <u>grade 5-level text</u> when there are <u>prominent</u> clues and the <u>purpose</u> is not explicitly stated.
Inability to give an <u>opinion</u> (that is relevant to the text) about a <u>grade 5-level text</u> without providing evidence.	Give an <u>opinion</u> (that is relevant to the text) about a <u>grade 5-level text</u> without providing evidence.	Give an <u>opinion</u> (when different perspectives are valid) about a <u>grade 5-level text</u> and use <u>prominent</u> evidence from the text to justify that <u>opinion</u> .	Give an <u>opinion</u> (when different perspectives are valid) about a <u>grade 5-level text</u> and use comprehensive evidence from the text and previous knowledge to justify that <u>opinion</u> .
Identify few correct modal auxiliary verbs in grade 5 level sentence context.	Identify the correct modal auxiliary verb in grade 5 level sentence context.	Identify the correct modal auxiliary verb in a common grade 5 sentence context.	Identify the correct modal auxiliary verb in a less common grade 5 sentence context.

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
		Preposition and Prepositional Verbs	Identify the correct 'preposition and prepositional verbs in a grade 5 sentence context.	23A/B
	Conjunctions	Conjunction	Identify the correct conjunction in a grade 5 sentence context.	22A/B, 33A/B
	Adverbs	Adverbs	Use the correct 'adverbs' in a grade 5 sentence context.	22B
		Adverb comparatives	Use the correct comparative adverb in a grade 5 sentence context.	25A/B
	Spelling	Spelling	Identify the correct 'spelling in a grade 5 sentence context.	24A/B
	Coherence	Coherence	Identify the first and last events/actions/steps in a sequence in a grade 5-level text.	26A/B
	Adjectives	Comparative Adjectives	Identify the correct comparative adjective' in a grade 5 sentence context.	27A/B
	Tense	Present perfect concord	Identify the correct Present perfect concord in a grade 5 level sentence context.	28A/ B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Identify few correct 'preposition and prepositional verbs in a grade 5 level sentence context.	Identify the correct 'preposition and prepositional verbs in a sentence context.	Identify the correct 'preposition and prepositional verbs in a common grade 5 sentence context.	Identify the correct 'preposition and prepositional verbs in a less common grade 5 sentence context.
Identify a few correct conjunctions in a grade 5 level sentence context.	Identify the correct conjunctions in a grade 5 sentence context.	Identify the correct conjunctions in a grade 5 sentence context when there are many options.	Identify the correct conjunctions in a grade 5 sentence context when there are competing options.
Inability to use the correct 'adverb' in a grade 5 level sentence context.	Use the correct 'adverb' in a grade 5 level sentence context.	Use the correct 'adverb' in a grade 5 level sentence context when there are other options.	Use the correct 'adverb' in a grade 5 level sentence context when there are many similar options.
Inability to use the correct adverb comparatives in a grade 5 level sentence context.	Use the correct adverb comparatives in a grade 5 level sentence context.	Use the correct adverb comparatives in a grade 5 level sentence context when there are other options.	Use the correct adverb comparatives in a grade 5 level sentence context when there are similar options.
Identify few correct spellings in a grade 5 level sentence context.	Identify the correct spelling in a grade 5 level sentence context.	Identify the correct spelling in a grade 5 level sentence context when there are other options.	Identify the correct spelling in a grade 5 level sentence context when there are conflicting options.
Inability to arrange activity in a sequence in a grade 5-level text.	Identify the first and last activity in a sequence in a grade 5-level text.	Identify the sequence of up to four prominent events/actions/steps in a grade 5-level text.	Identify the sequence of up to four events/actions/steps, including some less prominent ones, in a grade 5-level text.
Not able to identify the correct comparative adjective in a grade 5-level text	Identify proper use of comparative adjective in a grade 5-level text.	Identify proper use of comparative adjective in a simple grade 5 level sentence.	Identify proper use of comparative adjective in a complex grade 5 level sentence context.
Inability to identify the correct present perfect concord in a sentence context.	Identify the correct 'Present perfect concord in a sentence context.	Identify the correct present perfect concord in a simple grade 5 level sentence.	Identify the correct present perfect concord in a complex in grade 5 level sentence context.

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
		Present tense	Identify correct Present tense in a grade 5 level sentence context.	29A
		Past tense	Identify the correct 'past tense' in a grade 5 level sentence context.	29B
	Pronouns	Indefinite Pronouns	Identify the correct 'Indefinite Pronouns in a sentence context.	30B
		Definite Pronouns	Identify the correct definite Pronouns in a sentence context.	30A
Vocabulary	Vocabulary	Vocabulary	Identify appropriate vocabulary in a sentence context.	31A/B, 32A/B
	Synonyms	Synonyms	Replace with the correct "nearest in meaning"	34A/B, 35A/B, 36A/B
Phonics	Long vowels	Long vowels	Identify vowels with " /a:/ " in words in a grade level word context.	37A/B, 39B
	Consonant sounds	Consonant sounds	Identify "consonant /d, s, b, f/ " in words context.	38A, 39A, 40A, 30B, 40B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – P5 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Not able to identify correct present tense in a grade 5 sentence context.	Identify correct Present tense in a grade 5 sentence context.	Identify correct Present tense in a simple grade 5 level sentence context.	Identify correct Present tense in a complex grade 5 level sentence context.
Inability to identify the correct 'past tense' in a grade 5 level sentence context.	Identify the correct 'past tense' in a grade 5 level sentence context.	Identify the correct 'past tense' in a simple grade 5 level sentence context.	Identify the correct 'past tense' in a grade 5 level complex sentence context.
Unable to identify the correct 'Indefinite Pronouns in a grade 5 level sentence context.	Identify the correct 'Indefinite Pronouns in a grade 5 level sentence context.	Identify the correct 'Indefinite Pronouns in a simple grade 5 level sentence context.	Identify the correct 'Indefinite Pronouns in a complex grade 5 level sentence context.
Inability to identify the correct definite Pronouns in a grade 5 level sentence context.	Identify the correct definite Pronouns in a grade 5 level sentence context.	Identify the correct definite Pronouns in a simple grade 5 level sentence context.	Identify the correct definite Pronouns in a complex grade 5 level sentence context.
Identify a few appropriate vocabulary items in a grade 5 level sentence context.	Identify appropriate vocabulary in a grade 5 level sentence context.	Identify appropriate vocabulary in a common grade 5 sentence context.	Identify a few appropriate vocabulary items in a less common grade 5 sentence context.
Replace few words with the correct "nearest in meaning" in a grade 5 level sentence context.	Replace words with the correct "nearest in meaning" in a grade 5 level sentence context.	Replace words with the correct "nearest in meaning" in a common grade 5 level sentence context.	Replace words with the correct "nearest in meaning" in a less common grade 5 level sentence context.
Identify few vowels with " /a:/ " in words in a grade level word context.	Identify vowels with " /a:/ " in words in a grade level word context.	Identify vowels with " /a:/ " in words in a common grade level word context.	Identify vowels with " /a:/ " in words in a less common grade level word context.
Identify few "consonant /d, s, b, f/ " in a grade 5 level words context.	Identify "consonant /d, s, b, f/ " in grade 5 level words context.	Identify "consonant /d, s, b, f/ " in a simple grade 5 level words context.	Identify "consonant /d, s, b, f/ " in a complex grade 5 level words context.

Table E6. JS2 English studies proficiency level descriptors

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 English Studies			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Reading comprehension	Retrieve information	R1.1. Recognize the meaning of common grade-level words	Recognize the meaning of common grade-level words.	10A/B, 16A/3B,	Recognize a few very common grade 8-level words	Recognize the meaning of very <u>common grade 8-level words</u> (e.g., <u>match a given word to an illustration or synonym or brief definition</u>).	Recognize the meaning of <u>common grade 8-level words</u> (e.g., <u>match a given word to an illustration or synonym or brief definition</u>).	Recognize the meaning of <u>less common grade 8-level words</u> (e.g., <u>match a given word to an illustration, synonym, or brief definition</u>).
		R1.2 Retrieve explicit information in a grade-level text by direct or close word matching.	Retrieve a single piece of explicit information from a grade-level continuous text by direct or close word matching when the information required is nearby but not adjacent to the matched word and there is a limited competing information.	4A, 17B, 5A, 18B, 6A, 19B, 7A, 20B, 11A/Bb 14A/1B, 15A/2B, 17A/4B, 18A/5B 20A/7B	Retrieve a single piece of prominent, explicit information with direct word matching	Retrieve a single piece of <u>prominent, explicit information</u> from a <u>grade 8-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is adjacent to the matched word and there is limited <u>competing information</u> .	Retrieve a single piece of <u>explicit information</u> from a <u>grade 8-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is nearby but not adjacent to the matched word and there is <u>competing information</u> .	Retrieve multiple pieces of <u>explicit information</u> from a <u>grade 8-level continuous text</u> by <u>direct- or close-word matching</u> when the information required is not <u>prominent</u> or there is a lot of <u>competing information</u> .
		R1.3 Retrieve explicit information in a grade-level text by synonymous word-matching.	Retrieve a single piece of explicit information from a grade-level continuous text by synonymous word matching when the information required is not prominent and there is competing information.	8A/B, 9A/B	Cannot identify unknown words	Identify the meaning of <u>unknown words</u> (including <u>familiar words used in unfamiliar ways</u>) in a <u>grade 8-level text</u> when there are multiple <u>prominent</u> clues (e.g., <u>use language-specific morphological clues or contextual clues to identify the meaning of unknown words</u>).	Identify the meaning of <u>unknown words</u> (including <u>familiar words used in unfamiliar ways</u>) in a <u>grade 8-level text</u> when there are multiple clues (e.g., <u>use language-specific morphological clues or contextual clues to identify the meaning of unknown words</u>).	Identify the meaning of <u>unknown words</u> (including <u>familiar words used in unfamiliar ways</u>) in a <u>grade 8-level text</u> when there are limited clues (e.g., <u>use language-specific morphological clues or contextual clues to identify the meaning of unknown words</u>).

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 English Studies			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
	Interpret information	R2.1 Identify the meaning of unknown words and expressions in a grade-level text	Identify the meaning of unknown words (including familiar words used in unfamiliar ways) in a grade-level text when there are prominent clues	3A, 16B	Cannot identify implicit information	Recognize a basic <u>conclusion</u> from a <u>grade 8-level text</u> when the <u>conclusion</u> is explicitly stated.	Draw a basic <u>conclusion</u> from a <u>grade 8-level text</u> by synthesizing <u>prominent</u> information from one or more paragraphs and/or sections when the <u>conclusion</u> is clearly implied but not explicitly stated.	Draw a <u>conclusion</u> from a <u>grade 8-level text</u> by synthesizing <u>prominent</u> and detailed or less <u>prominent</u> information from one or more paragraphs and/or sections when the <u>conclusion</u> is clearly implied but not explicitly stated.
		R2.2 Make inferences in a grade-level text.	Identify prominent evidence in a grade level text to support or explain an idea, action, or statement in the text when the relationship is not explicit.	1A, 14B, 2A, 15B, 13A/B, 19A/6B	Cannot identify implicit information	Identify evidence in a <u>grade 8-level text</u> to support or explain an idea, action, or statement in the text when the relationship is explicit.	Identify <u>prominent</u> evidence in a <u>grade 8-level text</u> to support or explain an idea, action, or statement in the text when the relationship is not explicit.	Identify <u>prominent</u> and detailed or less <u>prominent</u> evidence in a <u>grade 8-level text</u> to support or explain an idea, action, or statement in a text when the relationship is not explicit.
			Draw a basic conclusion from a grade level text by synthesizing prominent information from one or more paragraphs and/or sections when the conclusion is clearly implied but not explicitly stated.	12A/B	Cannot identify implicit information	Recognize a basic <u>conclusion</u> from a <u>grade 8-level text</u> when the <u>conclusion</u> is explicitly stated.	Draw a basic <u>conclusion</u> from a <u>grade 8-level text</u> by synthesizing <u>prominent</u> information from one or more paragraphs and/or sections when the <u>conclusion</u> is clearly implied but not explicitly stated.	Draw a <u>conclusion</u> from a <u>grade 8-level text</u> by synthesizing <u>prominent</u> and detailed or less <u>prominent</u> information from one or more paragraphs and/or sections when the <u>conclusion</u> is clearly implied but not explicitly stated.
Grammar	Adverbs	Adverbs of manner	Identify correct use of adverb of manner in sentence context	21A/B	Cannot identify adverbs of manner	Identify high frequency adverbs of manner in simple sentence context	Identify most common and some less common adverbs of manner in sentence context	Identify most less common adverbs of manner in complex text
	Adjectives	Adjectives of quantity	Identify correct use of adjective of quantity in sentence context	22A/23B	Cannot identify adjectives of quantity	Identify some common adjectives of quantity in simple sentence context	Identify most common adjectives of quantity in sentence context	Identify most less common adjectives of quantity in complex text

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
		Comparative adjectives	Identify correct use of comparative form of adjective in sentence context	23A/22B
	Pronoun	Reflexive pronouns	Identify correct use of reflexive pronoun in sentence context	24A/B
		Personal subject pronouns	Identify correct use of subjective case pronoun in a sentence	25A/26B
	Preposition	Preposition of location	Identify correct use of preposition of location in a sentence context	26A/27B
	Nouns	Possessive case of personal nouns	Identify correct use of possessive apostrophe in sentence context	27A/25B
	Verbs	Modal auxiliaries	Identify correct use of modal verbs in sentence context	28.A/B
	Questions	Question tags	Identify correct use of question tags in sentence context	29A/30B
	Conjunctions	Correlative conjunctions	Identify correct use of conjunction in sentence context	30A/29B
Vocabulary	Synonyms	Synonyms of adjectives	Identify the word that is the nearest adjective in meaning to the one in the sentence	31A/33B, 32A/B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Cannot identify comparative forms of adjective	Identify some common comparative adjectives in sentence context	Identify most common comparative adjectives in sentence context	Identify most less common comparative adjectives in complex text
Cannot identify reflexive pronouns	Identify some common reflexive pronouns in sentence context	Identify most common reflexive pronouns in sentence context	Identify most less common reflexive pronouns in complex text
Cannot identify subject pronouns	Identify some common subject pronouns in sentence context	Identify most common subject pronouns in sentence context	Identify all subject pronouns in complex text
Cannot identify prepositions of location	Identify some common prepositions of location in sentence context	Identify most common prepositions in sentence context	Identify less-common prepositions in complex text
Cannot identify possessive forms of nouns	Identify some common possessive forms of nouns in sentence context	Identify most common possessive forms of nouns in sentence context	Identify most or all possessive forms of nouns in complex text
Cannot identify modal verbs	Identify some common modal verbs in sentence context	Identify most common modal verbs in sentence context	Identify less common modal verbs in complex text
Cannot identify question tags	Identify some commonly used question tags in sentence context	Identify most commonly used question tags in sentence context	Identify all question tags in complex text
Cannot identify conjunctions	Identify some common conjunctions in sentence context	Identify most common conjunctions in sentence context	Identify less common conjunctions in complex text
Cannot identify the concept of synonym	Identify simple adjective synonyms in sentence context	Identify more complex adjective synonyms used in sentence context	Identify complex adjective synonyms used in complex text

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
		Synonyms of verbs	Identify the word that is the nearest verb in meaning to the one in the sentence	33A/31B
		Synonyms of nouns	Identify the word that is the nearest noun in meaning to the one in the sentence	34A/B
Phonics	Vowel sounds	Long vowel sounds	Identify vowel sound in a word that contains the symbol	35A/B
	Consonant sounds	Voiceless consonants	Identify voiceless consonant symbol in an isolated word	36A/B
		Voiced consonants	Identify voiced consonant symbol in an isolated word	37A/B
Literature	Literary devices	Figurative devices	Identify the figurative device of personification represented in a sentence	38A/39B
			Identify the figurative device of simile represented in a sentence	39A/40B
			Identify the figurative device of repetition represented in a sentence	40A/38B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 English Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Cannot identify the concept of synonym	Identify simple verb synonyms in sentence context	Identify more complex verb synonyms used in sentence context	Identify complex verb synonyms used in complex text
Cannot identify the concept of synonym	Identify simple noun synonyms in sentence context	Identify more complex noun synonyms used in sentence context	Identify complex noun synonyms used in complex text
Cannot identify phonetic symbols representing sounds	Identify a few short vowel sounds	Identify diphthongs in word context	Identify mono-thongs and diphthongs in word context
Cannot identify phonetic symbols representing sounds	Identify a few voiceless consonant sounds in word context	Identify some of voiceless consonants in word context	Identify complex voiceless consonants in word context
Cannot identify phonetic symbols representing sounds	Identify a few voiced consonants in word context	Identify some voiced consonant sounds in word context	Identify most complex voiced consonants in word context
Cannot identify any figurative device	Identify the figurative device of personification exemplified in a simple sentence	Identify the figurative device of personification exemplified in a simple or complex sentence	Identify the figurative device of personification exemplified in a simple or complex sentence
Cannot identify any figurative device	Identify the figurative device of simile exemplified in a simple sentence	Identify the figurative device of simile exemplified in a simple or complex sentence	Identify the figurative device of simile exemplified in a simple or complex sentence
Cannot identify any figurative device	Identify the figurative device of repetition exemplified in a simple sentence	Identify the figurative device of repetition exemplified in a simple or complex sentence	Identify the figurative device of repetition exemplified in a simple or complex sentence

Basic science and technology

Table E7. P5 Basic science and technology proficiency level descriptors

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P5 Basic Science & Technology			
Theme	Construct	Sub construct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Basic Science	Living and Non-living things	Acids and Bases	Identify the local materials used in making soap	A1, B3	Recognize local materials used in making soap	Provide examples of local materials used in making soap	Classify local materials used in making soap	N/A
			List some physical properties of acids and bases	A5, B7	Provide incomplete definitions of acids and bases	Provide complete definitions of acids and bases	Provide complete definitions of acids and bases and list physical characteristics of acids and bases	Provide examples of acids and bases with different properties and distinguish different properties of acids and bases
		The human body (the skeleton)	Identify the major joints in the body	A8, B8;	Define joint	Identify location of some major joint in the human body	Identify location of the major joints in the human body	Classify joints based on location and type and provide examples of joints of different types
		Reproduction in plants	Identify types of reproduction in plants	A23, B23; A12, B14	Name any type of reproduction in plants	List all types of reproduction in plants	Identify and describe types of reproduction in plants	Explain different types of reproduction in plants and give examples
		Animals	Group animals according to their common features	A17, B16; A24, B24	N/A	Classify animals based on observable characteristics	Classify animals into hierarchical categories and based on observable characteristics	Describe various hierarchical categories of animals and explain difference among animals belonging to different hierarchical categories
		The human body (respiratory system)	State the functions of respiratory organs	A29, B28	Name any organ associated with respiration	Name functions of the main organs of respiratory system	Describe the functions of various organs of respiratory system	Explain relationships among various organs of respiratory system
	Learning about our environment	Waste and waste disposal	Define ecosystem and its components	A4, B4	Define ecosystem and list any component of ecosystem	Identify and describe components of the ecosystems	Identify interaction among the components of ecosystems	Illustrate the interaction among higher and lower components of ecosystems
		Environmental changes	Define pollution and list some water and air pollutants	A7, B5	Define pollution	Define pollution and name some air and water pollutants	Define and recognize pollution, describe effects of major air and water pollutants	Explain pollution in terms of causes and effects, explain difference among effects of various air and water pollution
			Identify, discuss and implement simple strategies for controlling erosion	A31, B31	N/A	Name simple strategies for controlling erosion	Describe simple strategies for controlling erosion	Explain implementation of simple strategies for controlling erosion

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Sub construct	Knowledge or skill	
Basic Technology	You and energy		Describe erosion and the causes of erosion	A16 B17; A18, B18
		Energy conversion	Name and explain forms of energy conversions and heat transfer	A2, B2; A22, B22; A35, B32; A30, B27
		Heat and temperature	Identify and name different types of thermometers	A14, B12
		Magnetism	State the properties of magnets	A15, B15
		Basic electricity	Identify types of electricity	A25, B30
		Forms of energy	Identify different forms of energy	A37, B40
	Basic movements	Creative rhythmic activities	Identify materials used in technology and state what these materials are used for	A27, B25; A34, B33; A26, B26
			Identify physical activities for measuring endurance, strength, speed; rhythmic activities	A39, B39; A3, B1

MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P5 Basic Science & Technology			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Define erosion	Define erosion, list common sign of erosion	Recognize erosion based on its signs, describe some causes of erosion, describe some consequences of erosion	Recognize erosion based on its implications, explain relationships among causes and effects of erosion
Name some forms of energy conversion and heat transfer	Name and identify the forms of energy conversion and heat transfer	Provide examples of a particular form of energy conversion and heat transfer	Explain different forms of energy conversion and heat transfer
Name any type of thermometer	Name different types of thermometers	Name different types of thermometers and explain their uses	N/A
N/A	Identify magnet	Describe the properties of magnets	Explain different properties of magnet and provide examples of different properties of magnet
N/A	List different types of electricity	Describe types of electricity	Explain different types of electricity and provide examples of different types of electricity
Define energy	Identify different forms of energy	Describe different forms of energy	Explain different forms of energy and provide examples of different forms of energy
Identify materials commonly used in technology workshops	Identify materials commonly used in technology workshops and list some of their properties	Identify materials based on physical properties and usage	Describe physical properties as related to the materials.
Recognise rhythmic activities and physical activities for measuring endurance, strength, and speed	Name rhythmic activities and physical activities for measuring endurance, strength, and speed	Describe rhythmic activities and physical activities for measuring endurance, strength, and speed	Distinguish between physical activities for measuring endurance, strength, and speed; distinguish various types of rhythmic activities

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Sub construct	Knowledge or skill	
Physical and Health Education	Health Education	Nutrition	Mention sources of food nutrients	A6, B6; A21, B21; A20, B19
			Describe the characteristics of nutritional deficient persons	A38, B38; A13, B13
		Diseases+D21:D23	Distinguish between communicable and non-communicable diseases	A36, B36
		Personal hygiene	Describe ways of taking care of human parts	A40, B37
	Athletics	Field events	Mention the basic skills of long and high jumps	A9, B9; A33, B34
		Ball games	State the facilities and equipment used to play volleyball, basketball, football, hockey, and tennis	A32, B35; A11, B11

MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P5 Basic Science & Technology			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
N/A	Name sources of food nutrients	Associate particular foods with the nutrients they provide	Explain relationships among food types, nutrients they provide and importance the nutrients for human health
N/A	Recognise nutritional deficient persons	Describe physical appearance of nutritional deficient persons	Describe some signs of different diseases associated with food deficiency
Mention different types of diseases	Differentiate between communicable and non-communicable diseases in term of mode of transmission	Describe communicable and non-communicable diseases and give examples of each	Name some ways to prevent communicable and non-communicable diseases, suggest and explain ways of preventing them
N/A	Describe measures to maintain good hygiene	Describe measures to maintain good hygiene and name some consequences of poor hygiene	Explain the importance of good hygiene and consequences of poor hygiene in terms of cause - effect relationships
N/A	List some skills in long jump and list some skills in high jump	Describe basic skills for long jump and describe basic skills for high jump	N/A
Name facilities and equipment used to play any of the following: volleyball, basketball, football, hockey, and tennis	List facilities and equipment used to play some of the following: volleyball, basketball, football, hockey, and tennis	List the facilities and equipment used to play volleyball, basketball, football, hockey, and tennis	N/A

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Sub construct	Knowledge or skill	
Information Technology	Basic Concepts of Information Technology	Internet	Define the Internet	A10, B10
		Common IT gadgets	Operate common IT gadgets	A28, B29
	Basic Computer operations and Concepts	Computer Hardware	List the hardware components of a computer	A19, B20

MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P5 Basic Science & Technology			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
N/A	Define the Internet	Describe the global communication network; list benefits in use of the internet	Explain the meaning of global communication network; recognize the benefits and abuses of the use of internet in specified context
N/A	List some basic operations needed to accomplish specified tasks using computer and GSM phone	Describes basic operations needed to accomplish specified tasks using computer and GSM phone	Solve practical problems related to use of common IT gadgets and problems associated with IT gadgets
N/A	List the hardware components of a computer	Define the hardware components of a computer	Describe the connection among the components of a computer

Table E8. JS2 Basic science and technology proficiency level descriptors

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Basic Science & Technology			
Theme	Construct	Sub construct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Basic Science	Science and Development	Environmental changes	Identify simple strategies to reduce pollution	29A, 29B	Recall the meaning of pollution	List some activities that can reduce pollution	Name and describe activities that can reduce pollution	Explain pollution and strategies to reduce pollution in terms of cause-and-effect relationship, and solve real-life problems associated with pollution
	Learning about our environment	Living things	Identifying the different habitat of living things and mechanism of adaptation of living things	10A, 9B; 27A, 30B	Recall the meaning of habitat	List different types of habitats	Relate organisms with their habitat	Explain the characteristics of organisms that allows them to adapt to a particular habitat
			Demonstrate understanding of ecosystem, give examples of components of ecosystem	23A, 22B	Identify and describe components and types of ecosystems	Identify interaction among the components of ecosystem	Illustrate the interaction among higher and lower components of ecosystem	Explain the meaning of ecosystem in terms of its functions and functional components
		Chemicals	Explain effect of various factors on different chemical processes	31A, 31B	Recall the meaning of chemical processes	Name factors that affect some chemical processes	Illustrate effect of some factors on chemical processes	Explain the effect of some factors on chemical processes
	You and Energy	Types of energy	Defining, explaining, illustrating work, energy, and power; and identifying relationship between the three concepts (work, energy, and power)	16A, 16B; 17A, 19B; 28A, 26B	Define any of at most two of work, energy, and power	Define work, energy, and power	Illustrate work, energy and power and identify relationships among the three components	Illustrate and explain work, energy and power and relationships among them
		Work energy and power	Discussing how energy is transferred when work is done	15A, 10B	Recall the concept of energy	List different forms of energy	Provide examples of how energy is transferred when work is done	Explain how and why energy is transferred
	Safety	First aids	Exhibiting the components of a first aid box and explaining their uses	4A, 3B	Identify first aid box	Recall the use of first aid box	List basic contents of first aid box	Explain how the contents of first aid box are used

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Sub construct	Knowledge or skill	
Basic Technology		Rescue operations	Explaining the meaning of rescue operation and identifying different aspects of rescue operations	22A, 23B
		Materials and Processing	Recognize and discuss common materials used in the technology workshop (e.g., wood, metals, brass, bronze, ceramic, rubber, plastics) and differentiate between each of them	2A, 5B, 37A, 35B, 6A, 1B
	Tools, Machine and Processes	Gears	Determine gear ratios and construct gears with paper or cardboard	7A, 7B
		Hydraulic and pneumatic machines	Identify hydraulic and pneumatic machines, their components and the scientific working principles behind each of them	11A, 13B; 32A, 33B; 12A, 12B
	Drawing Practice	Geometric construction: Circle	Identify parts of a circle (e.g., diameter, radius, chord, sector, quadrant, circumferences)	14A, 14B
			Use a pair of compasses, set square and tee square to draw a circle and divide a circle into equal parts (e.g., 4 parts, 8 parts and 12 parts)	18A, 18B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Basic Science & Technology			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Name situations in which life is at risk	State the purpose of rescue operation	Give examples of rescue operation	Identify actions needed to perform rescue operation depending on the context
Identify materials commonly used in technology workshops and list some of the properties of the materials	Identify materials based on physical properties, how they are used and describe physical properties of materials and ways to apply them	Explain how the physical properties affect the way materials are used	N/A
Define gear ratio	Provide formula for calculating gear ratio	Given number of drive gear and load gear the students can calculate gear ratio	Construct gears with different number of teeth and describe the relationship between gear ratio and speed of rotation
Name some hydraulic, pneumatic and woodwork machines	Categorize machines as hydraulic, pneumatic and woodwork machines	Specify the components of hydraulic, pneumatic and woodwork machines	Describe the scientific working principles involved in the use of the hydraulic, pneumatic and woodwork machines
Identify a circle	Define a circle	Identify various parts of the circle	Describe the relationship among the different parts of a circle
Recognize instruments used to draw a circle	Name instruments that are used to draw a circle and divide a circle into parts	Apply instruments to draw a circle and divide a circle into equal parts	Draw a circle when given the radius/diameter of a circle and specify the principle involved in dividing it into equal parts

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Sub construct	Knowledge or skill	
Physical and Health Education	Basic Human Movement	Plane figures	Identify regular plane figures (triangles, rectangles, squares of equal and unequal areas)	33A, 32B
		First aid and safety education	Identify first aid treatment for injuries and measures of preventing injuries (e.g., sport injuries; domestic injuries; road traffic accidents)	3A, 4B
			Recognise safety measures to be taken at home, on sport ground and on the roads	5A, 2B
		Issues and challenges in physical and health education	Explain the meaning of human trafficking and relate the knowledge to reasons for human trafficking	9A, 15B; 8A, 8B
			Identify various issues and challenges associated to physical and health education	40A, 39B
		The striking games and tennis	Apply the rules and regulations governing striking games	13A, 11B; 34A, 34B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Basic Science & Technology			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
N/A	Name plane figures	Identify regular plane figures	Differentiate among regular plane figures
List different types of injuries	List different types of first aid and measures	Associate injuries, the first aid provided and measures to prevent their occurrence	Explain appropriate first aid that can be used when injuries occur and measures to prevent specific injuries
List safety measures	Associate safety measures with the risk at home, on sport ground and on the roads	Explain the relationship between the risk and safety measures	N/A
N/A	List factors that cause human trafficking and identify situations in which human trafficking happens	Define and explain how and why different factors can cause human trafficking	Build an argument regarding meaning, causes and consequences of human trafficking when context is given
N/A	List concepts that can be promoted through the study of physical and health education	Identify various issues and challenges associated with physical and health education in particular context	Build an argument regarding how issues and challenges in physical and health education can be handled
List some rules guiding striking games	Understand and apply the rules and regulations governing striking games	Identify when there are infringements in striking games	N/A

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Sub construct	Knowledge or skill	
		Non-Communicable diseases and their prevention	Identify non-communicable diseases (e.g., sickle cell, obesity, asthma, anemia, kwashiorkor, etc.) and explain preventive measures against them	35A, 37B; 38A, 38B
		Posture and postural defects	Explain the meaning of posture, its kinds (e.g., sitting, walking, lifting, etc.) and postural defects (e.g., scoliosis; kyphosis; sunken chest; genu varum (K- leg); lordosis; abdominal ptosis; flat foot and genu varum)	39A, 40B
	Basic Knowledge of Information Technology	IT as a transformational tool	Identify IT gadgets and relate their functions to their advantages and disadvantages	1A, 6B; 26A, 28B; 36A, 36B
			Recognise the Information Technology (IT) and give examples (e.g., computers, GSM telephones; cellular network; satellite communication; television; internet; etc.)	19A, 17B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Basic Science & Technology			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
List some common non-communicable diseases	List some symptoms of common non-communicable diseases; list preventive measures	Recognize and describe observable symptoms of most common non-communicable disease; identify and describe preventive measures for most common non-communicable diseases	Explain relationship between symptoms and causes of the non-communicable diseases; relationship between preventive measures and causes of the diseases
N/A	List different postures and most common postural defects	Recognize the most common defects of postures in sitting, standing and walking	Explain relationship between posture and postural defects
Name some IT gadgets	State the advantages and disadvantages of IT gadgets	Relate the functions to their advantages and disadvantages	N/A
Name some forms of IT	Identify different forms of IT in use	Relate forms of IT use to their different features	N/A

THEME	SUB-THEME	TOPICS	EXPECTATION	Items on NALABE test forms
Theme	Construct	Sub construct	Knowledge or skill	
Information Technology	Basic Computer operations and Concepts	Internet	Analyse the benefit of internet (e.g., information exchange; e-learning; e-entertainment; faster and cheaper means of communication; etc.)	20A, 20B
		Unit of storage to computer	Identify various units of storage and their values (nibble; byte; kilobyte; megabyte; gigabyte; etc.)	21A, 24B; 24A, 21B
		Safety measures	Recognize safety measures to be taken when using computer (e.g., positioning of the monitor base; illuminating the computer room; maintaining a dust-free environment; keeping liquid away from computers)	25A, 25B
		Operating system	Recognise the function of an operating system (e.g., resource allocation; monitoring; utilities)	30A, 27B

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Basic Science & Technology			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
N/A	List benefits in use of the internet	Recognize the benefits and abuses of the use of internet in specified context	Build and argument regarding how the internet could be abused and why it is abused
List units of storage	Explain the relationship among the different units of storage	Convert one unit to another unit of storage	N/A
List common problems associated with the use of the computer	List safety measures to be taken when using the computer and list consequences of not taking the safety measures	Explain relationship between not taking safety measures and problems with the computer	Solve practical problems related to not taking safety measures and problems associated with the computer
N/A	Give examples of operating systems	State functions of an operating system	Describe considerations that must be made in purchasing a computer

Social studies

Table E9. P5 Social studies proficiency level descriptors

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P5 Social Studies			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partially meets	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Fundamentals of Social Studies	How environment affects man	Environment and man	Identify types of environments and how the environment affects man	A1, A2, A6, A8, B1, B8, A3/B3	Identifies the social environment but has problems identifying the physical environment but has difficulty identifying ways in which the environment affects man	Identifies the two types of environments (physical and social) and some ways in which the environment affects man	Identifies the two types of environments (physical and social) and many ways in which the environment affects man	Identifies the two types of environments (physical and social) and the detailed ways in which the environment affects man
			Recognize different examples of non-material and material cultural environments and their attributes	A4, B6, A5, B5	Recognizes some basic material environments and their attributes but has difficulties identifying non-material environments and their attributes	Recognizes some basic material and non-material environments and their attributes	Recognizes basic material and non-material environments and their attributes	Has a clear understanding of different material and non-material environments and their attributes
	How man affects his environment	Man and his environment	Demonstrate understanding of how man affects his environment	A7, B2, B4, B7	Demonstrates little understanding of how man affects his environment	Demonstrates some basic understanding of how man affects his environment	Demonstrates general understanding of how man affects his environment	Demonstrates detailed understanding of diverse ways in which man affects his environment
Family	Other people in the family and how they relate to each other	Other people in the family	Identify the obligations of different members of the family	A9, A10, A11, B9, B10, B11,	Identifies primary obligations of different key members of the family (e.g., mother and father)	Identifies some of the primary and secondary obligations of different key members of the family	Identifies most primary and secondary obligations of different members of the family	Demonstrates detailed understanding of the primary and secondary obligations of different members family
	Tolerance of other people in the family	Tolerance	Identify reasons why members of the family should tolerate each other	A12, B12	May identify a reason members of the family should tolerate one another	Identifies some of the basic reasons members of the family should tolerate one another	Identifies the reasons members of the family should tolerate one another	Identifies the detailed reasons members of the family should tolerate each other

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Unity in cultural diversity	Meaning of culture	Culture	Identify the meanings of culture, unity, and cultural diversity	A16, A28, A29, B27, B28, A22, B22
			Identify types of cultural expression	A13 A14, A24, A27, A32, B11, B13, B24, B26, B31, B32
			Recognise the importance of tribal unity in diversity	B14, A26, B17
	Responsible parenthood	Parenthood	Identify examples of good and bad parenting and their effects on the children and the family	A15, A17, A18, A19, A21, A23, B15, B18, B20, B23, B25,
	Unity in Cultural Diversity	What unites Nigeria as one	Demonstrate understanding of the things that unite Nigeria as one	A20, A25, A30, A31, B16, B19, B21, B29, B30
Social and Health Issues	Personal Hygiene and Physical Development	Personal Hygiene	Identify the Importance of care of the body	A33, A34, B33, B40
			Differentiate between what promotes healthy living and what does not promote healthy living	A35, A39, B34, B39, A40,
		Physical Development	Demonstrate understanding of how to achieve physical development	A36, A37, A38, B35, B37, B38,
			Identify the challenges of physical development	B36

MINIMUM PROFICIENCY LEVEL DESCRIPTORS - P5 Social Studies			
1. Below partially meets	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Identifies the meaning of culture but has difficulties understanding the meanings of unity and cultural diversity	Identifies some of the meanings of culture and unity but has difficulties understanding the meaning of cultural diversity	Identifies many of the meanings of culture, unity, and diversity	Identifies detailed meanings of culture, unity, and diversity
May identify one or two of the basic types of cultural expression	Identifies some of the basic types of cultural expression	Identifies many types of cultural expression	Demonstrates understanding of different types of cultural expression
Identifies one or two aspects of the importance of tribal unity in diversity	Demonstrates basic understanding of the importance of tribal unity in diversity	Identifies many examples of good and bad parenting and their effects on children and the family	Demonstrates detailed understanding of the importance of tribal unity in diversity
May identify one or two examples of good parenting but cannot identify examples of bad parenting and their effects on the family	Demonstrates basic understanding of good and bad parenting and some of their effects especially on the children	Demonstrates general understanding of good and bad parenting and their effects on children and the family	Demonstrates detailed understanding of good and bad parenting and their effects on children and the family
Identifies one or two things that unite Nigeria as one	Demonstrates basic understanding of some of the things that unite Nigeria as one	Demonstrates understanding of many of the things that unite Nigeria as one	Demonstrates detailed understanding of many of the things that unite Nigeria as one
May identify one or two of the reasons why care of the body is important for our health	Identifies some of the reasons why care of the body is important for our health	Identifies many of the basic reasons why care of the body is important for our health	Identifies many of the detailed reasons why care of the body is important for our health
Has problems distinguishing between what promotes healthy living and what promotes unhealthy living	Understands some of the basic differences between what promotes healthy living and what promotes unhealthy living	Understands the basic differences between what promotes healthy living and what promotes unhealthy living	Understands the detailed differences between what promotes healthy living and what promotes unhealthy living
Demonstrates little understanding of how to achieve physical development	Demonstrates some understanding of how to achieve physical development	Demonstrates high level understanding of how to achieve physical development	Demonstrates exceptional understanding of how to achieve physical development
Identifies one or two challenges of physical development	Identifies some challenges of physical development	Identifies basic challenges of physical development	Identifies most challenges of physical development

Table E10. JS2 Social studies proficiency level descriptors

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms	MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Social Studies			
Theme	Construct	Subconstruct	Knowledge or skill		1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Culture and social values	Marriage	Marriage definition and attributes	Identify definitions and attributes of marriage	A1, A2, B1	Identifies one or two aspects of the meanings of marriage but lacks knowledge of its attributes	Identifies a few of the common aspects of the definition of marriage and its common attributes	Identifies many of the key aspects of the definition of marriage and its attributes	Identifies many of the key aspects of a definition of marriage and many of its complex attributes
	Religion	Moral values	Identify forms and functions of moral values	A3, A4, B2, B3, B4	Identifies one or two forms of moral values but lacks proper understanding of their functions	Identifies some forms of moral values and their familiar functions	Identifies many forms of moral values and some of their functions	Identifies most forms of moral values and their broad functions
Social and health issues	Drug abuse	Meaning and types of drug abuse	Identify different ways of defining drug abuse	A5, A9, A14, A21, B6, B7, B9, B18, B21, B22	Identifies one or two aspects of the meaning of drug abuse	Identifies some of the aspects of the meaning and types of drug abuse	Identifies many of the aspects of the meaning and types of drug abuse	Identifies most aspects of the meaning and types of drug abuse.
		Drug abuse consequences and prevention	Demonstrate understanding of the consequences of drug abuse and ways of prevention drug abuse	A10, B8, B10, A11, B11, B17	Has problem identifying consequences of drug abuse and lacks adequate knowledge of its prevention	Identifies some of the simple consequences of drug abuse and common means of its prevention	Identifies many of the consequences of drug abuse and means of prevention	Demonstrates detailed understanding of the consequences of drug abuse and in-depth knowledge of its prevention
	Poverty	Poverty definition and features	Identify definitions and other features of poverty	A6, A13, A20, A22, B13, B20,	Identifies some aspects of the definition of poverty but lacks knowledge of its features	Identifies some basic aspects of the definition of poverty and demonstrates basic knowledge of its features	Identifies pivotal aspects of the definition of poverty and demonstrate adequate knowledge of its features	Identifies detailed aspects of the definition of poverty and demonstrate complete mastery of its features
	Corruption	Corruption definition and traits	Identify definitions and traits of corruption	A7, A15, A16, A17, A18, A19, B12, B15 B16, B19	Recognizes very few aspects of the definition of corruption and lacks knowledge of its traits	Recognizes parts of the definitions of corruption and a few of its traits	Demonstrates a fundamental grasp of the definition of corruption and its of traits	Demonstrates detailed understanding of definitions of corruption and of its traits
	Cultism	Cultism meaning	Identify the meaning of cultism and its traits	A8, B5	Identifies one or two common meanings of cultism but lacks knowledge of its traits	Identifies a few common meanings of cultism and one or two common traits	Identifies all common meanings of cultism and its common traits	Identifies common and uncommon meanings of cultism and many of its traits
	Accidents	Accidents in the School	Identify consequences of poor management of accidents	A12	Identifies a few rudimentary consequences of poor management of accidents mostly limited to the context of the home	Identifies some rudimentary consequences of poor management of accidents in the school and home	Identifies several rudimentary consequences of poor management of accidents in the school and home	Demonstrates detailed understanding of the consequences of poor management of accidents in diverse locations

THEME	SUB-THEME	TOPIC	EXPECTATION	Items on NALABE test forms
Theme	Construct	Subconstruct	Knowledge or skill	
Science and Technology Development	Meaning and importance of Science and Technology development	Meaning, types and importance of Science and Technology development	Deduce the definition and other components of Science and Technology development	A23, A24 A25, A26, A27, A28, B23, B24, B25, B26, B27, B28,
National Economy	Saving and ways of saving	Saving and ways of saving	Identify savings and its forms	A29, A31, A32, A35, A37, A38, B29, B31, B37, B40
	Resources	Resource types and indices	Identify national resources and other major indices of the National Economy	A30, A33, A34, A36, A39, A40 B30, B32, B33, B34, B35, B38, B39
		Meaning and means of transportation	Outline strategy in improving the transportation system in Nigeria	B36

MINIMUM PROFICIENCY LEVEL DESCRIPTORS – JS2 Social Studies			
1. Below partial	2. Partially meets minimum proficiency	3. Meets minimum proficiency	4. Exceeds minimum proficiency
Deduces a simple definition of Science and Technology Development but, lacks knowledge of its components	Deduces fundamental definitions of Science and Technology Development and demonstrates common knowledge of its components	Deduces essential definitions and crucial components of Science and Technology Development	Deduces elaborate definition of Science and Technology Development and comprehensive knowledge of its components
Demonstrates little understanding of savings and lacks knowledge of its forms	Demonstrates fundamental understanding of savings and little knowledge of its forms	Demonstrates detailed understanding of savings and all its forms	Demonstrates more detailed understanding of savings and accurate knowledge of all its forms
Identifies one or two national resources but cannot identify indices of the National Economy	demonstrates familiar knowledge of national resources and one or two indices of the National Economy	Identifies salient national resources and some major indices of the National Economy	Identifies outstanding national resources and all major indices of the National Economy
Demonstrates little basic knowledge of strategies to improve transportation system in Nigeria	Identifies basic strategies in improving the transportation system in Nigeria	Identifies prominent strategies in improving the transportation system in Nigeria	Identifies composite strategies in improving the transportation system in Nigeria



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