SOUTH AFRICAN SYSTEMIC EVALUATION 2022

VOLUME 1

Technical Report



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Department:
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REPUBLIC OF SOUTH AFRICA

Centre for Evaluation & Assessment

Read to Lead
A Reading Nation is a Leading Nation

2030 NDP

30 YEARS OF FREEDOM

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Foreword

Foreword

"What gets measured gets improved" Peter Drucker

Systemic evaluations aim to measure the effectiveness of existing education systems and identify areas for improvement and growth. The growth and maturity of an advancing system is its ability to "learn, unlearn and re-learn". Underscoring this focus is the need for robust, dynamic, and innovative evaluation models that generate credible and valuable evidence within a learning system. Within a young democracy, the measurement of learning will mirror the education margins of a developmental state: constrained success, recovery of learning, developmental opportunities, and green shoots. Systemic evaluations done with the right rigour, size, and measure become a complete and extensive account of enabling and constraining conditions of learning.

The 2022 South African Systemic Evaluation aims to ensure the measurement of education relevance and accountability, promote evidence-led decision-making in the sector, and prioritising important next steps for delivering quality education. By evaluating learners and schools holistically, the system can pinpoint weaknesses and establish targeted diagnostics on policy, teaching and learning, learning and teaching support materials, institutional development, and learning outcomes.

Against the backdrop of contested global standards and a willingness in the education sector to establish more localised standards, focusing more on homegrown designs, South Africa spent many years gathering key role players together to design and develop a national systemic evaluation model. The outcome was a congruence of innovative ideas between policymakers and labour. The model looks critically at an expansion of standards beyond learner achievement and looks at the whole system as the unit of analysis. The Department has phrased the intended outcome of the national systemic evaluation as: "evaluate aspects and components of the Basic Education eco-system to provide data on learning in the context of in-school and out-of-school factors".

Having concluded its baseline study in 2022, the Department is in a position to provide its most comprehensive account of local standards reached by learners and reduce an over-reliance on externally crafted standards of the global north. The current Systemic Evaluation model assesses learners at key stages: Grades 3, 6, and 9 in significant gateway domains of Mathematics and Reading Literacy. The results provide an analysis of targets outlined in the Medium-Term Development Plan (MTDP) and the National Development Plan (NDP). It also examines the impact of school conditions and the level of support provided by district offices on learning. The diagnostics are packaged for maximum utility on performance levels, proficiency, and school effectiveness within frameworks that provide a handle on the complexity of interacting activity systems and the profiling of learners within developmental ecosystems.

The findings of this study revealed significant observations on learner performance, with learners adapting better the longer they stay in school. In both Mathematics and language, learners surpassed minimum proficiency thresholds, above 400 points in Grade 3 and above 500 points in Grade 6 and Grade 9.

The Systemic Evaluation study is comprehensively reported in three volumes, each focusing on distinct aspects of a learning diagnostic:

Volume 1 provides a detailed technical analysis of the systemic evaluation processes, outcomes, and findings. It includes key insights and recommendations on performance levels, background information about the system, and a thorough description of the research methodology. This report discusses the systemic evaluation's overall significance, guiding future decision-making and interventions.

Volume 2 focuses on the proficiency of learners in the South African education system, both nationally and provincially. It presents the results of reading literacy and mathematics assessments for Grades 3, 6, and 9, disaggregated by province, gender, school quintile, and language. The report also details findings on each content domain, a summary of key insights, and a proposed path forward on pedagogical support and remediation.

Volume 3 addresses the evaluation of schools through the Whole-School Evaluation methodology. It extends its analysis to include the evaluation of support provided at the district, as the first line of policy mediation to schools, offering a comprehensive view of the effectiveness of education support structures.

This report focusses on Volume 1.

The three volumes of the Systemic Evaluation study provide a crucial diagnostic of learning outcomes for the South African public. It is with a proud sense of accomplishment that the baseline study results of the first South African Systemic Evaluation are released for public consumption and attention. Broader society is emboldened to join hands with the education sector to chart and realise anticipated growth and success of future cycles. I thank the parents, teachers, principals, teacher unions, communities, education officials, and specifically the thousands of learners who participated in the study. I, therefore, invite all education stakeholders and broader society to view the results with a sense of ownership and involvement and to support the projects, programmes, and efforts of the Department in its mission to deliver and assure quality basic education to all learners.

"Systemic evaluation is crucial for understanding the strengths and weaknesses of an education system. By assessing outcomes and processes, we can ensure that every child, regardless of background, receives the quality education they deserve." – Andreas Schleicher



MS S GWARUBE, MP
Minister of Basic Education
Date: 18/11/2024

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- Provincial Assessment Coordinators who led in managing the study at provincial level
- The DBE National Assessment Directorate responsible for co-ordinating the entire SASE study.
- The University of Pretoria Centre for Evaluation and Assessment team who were responsible for co-ordinating writing of the report and logistics for editing and formatting the report.
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List of Acronyms and Abbreviations

ACER	Australian Council for Educational Research
ACER-GEM	ACER's Global Education Monitoring Centre
DBE	Department of Basic Education, South Africa
MPL	Minimum Proficiency Levels
PED	Provincial Education Department
PIRLS	Progress in International Reading Literacy Study
SASE	South African Systemic Evaluation
SD	Standard Deviation
SE	Standard Error
SES	Socio-economic status
TIMSS	Trends in International Mathematics and Science Study

Terminology and conventions

Effect size

This document uses effect sizes to illustrate differences in Reading and Mathematics achievement between groups in relation to a range of contextual factors (Section 0). We have used effect-size benchmarks suggested by Hattie (2008), with 0.2 as a small effect, 0.4 as a medium effect, and 0.6 as a large effect on outcomes.

Rounding

All statistics, including their totals and differences, are rounded for reporting purposes. Because of rounding, some figures in some tables may appear inconsistent. Where a value of 0 is reported it means that the value is less than 0.5.

Statistical significance

Statistical significance shows that the differences identified are likely to be reflected in the population, rather than being the result of the random nature of the data. The 95% confidence level is used throughout this report to compute confidence intervals and statistical significance.

Statistics representing low numbers of learners and/or schools

No statistics that represent fewer than 30 learners and/or fewer than 5 schools have been reported.

Executive Summary

Executive summary

In 2022, the first cycle of the South African Systemic Evaluation (SASE) was administered in thousands of schools across South Africa. The academic assessment component of SASE was designed to measure learner achievement in the domains of Reading and Mathematics. This was done via the administration of a series of standardised tests to learners at critical time points in their schooling, namely Grade 3, Grade 6, and Grade 9.

The primary purpose of SASE is to 'gain insight into the factors that facilitate learning and teaching and those that act as barriers. These data can then inform education policy and intervention' (ACER-GEM & DBE, 2020, p. 3). Therefore, while SASE seeks to measure learner achievement in Reading and Mathematics, it is also focused on identifying and investigating the contextual factors that influence this achievement.

Learner achievement in SASE is primarily described through proficiency bands. To create proficiency bands, all assessment items from Grades 3, 6, and 9 are placed on one scale in terms of their difficulty. Then, all learners are given scale scores based on how well they performed on the assessment items. We thus have a reporting scale for each domain that can provide rich descriptions of what learners know and can do. As a final step, this reporting scale is divided into discrete sections called proficiency bands. Dividing the continuous scale into sections, or 'bands,' allows us to summarise the skills contained within each band and better understand the skills demonstrated by a learner who performs at each band. For further explanation of this process, see Section 0.

Findings

Findings from the assessment illustrate that in both Reading and Mathematics, learners show a wide range of abilities within each grade. By placing all learners on one scale as described above, we see that the abilities of learners are not bound by their grade level. For example, there are substantial numbers of Grade 6 learners performing above the Grade 9 average, and substantial numbers of Grade 9 learners performing below the Grade 6 average in both Reading and Mathematics. See Section 0 for more details.

Grade 3

In Reading, the Reading proficiency band with the largest proportion of Grade 3 learners (26.6 percent) is Reading proficiency band 5. At band 5, learners can typically locate information that is

prominent and explicitly stated within a few short sentences when there is limited, or no competing information. See Section 4.1 for more details.

In Mathematics, Mathematics proficiency band 3 contains the highest proportion of Grade 3 learners (32.5 percent). At band 3, examples of what learners can typically do include: count forward by 2, 5, and 10, and compare counts in simple pictographs or tally charts. See Section 4.2 for more details.

Grade 6

In Reading, the Reading proficiency band with the largest proportion of Grade 6 learners (25.7 percent) is Reading proficiency band 7. At band 7, examples of what learners can typically do include: locate information in short, simple texts that is not in an obvious or prominent position in the text and that is closely related to the word(s) from the question, and make very simple inferences by recognising highly predictable ideas when there are multiple, prominent clues and minimal competing information. See Section 4.1 for more details.

In Mathematics, the Mathematics proficiency band with the largest proportion of Grade 6 learners (36.1 percent) is Mathematics proficiency band 5. At band 5, examples of what learners can typically do include: solve missing number equations with a single addition or subtraction, and display data as a pictograph, column graph or table, amongst other skills. See Section 4.2 for more details.

Grade 9

In Reading, the Reading proficiency band with the largest proportion of Grade 9 learners (26.6 percent) is Reading proficiency band 9. At band 9, examples of what learners can typically do include: make inferences in familiar, straightforward texts when there are some clues and a range of competing information, and summarise a main idea or make a generalisation when there are clear clues. See Section 4.1 for more details.

In Mathematics, the Mathematics proficiency band with the largest proportion of Grade 9 learners (39.2 percent) is Mathematics proficiency band 6. At band 6, examples of what learners can typically do include: understand and use Pythagoras' Theorem, and find the mean, median, mode, range and interquartile range of ungrouped data. See Section 4.2 for more details.

By province, assessment language, gender and quintile.

Across all grades in both Reading and Mathematics, Western Cape and Gauteng always performed statistically significantly above the national mean, while Limpopo always performed statistically significantly below. See Section 0 for more details.

Learners sitting the assessment in Afrikaans are generally performing above their peers in both Reading and Mathematics, except in Reading in Grade 3, where learners taking the test in English are performing the highest. See Section 0 for more details.

Girls tended to perform better than boys across all grades in both Reading and Mathematics. Differences in achievement in Reading and Mathematics were greatest in Grade 3 and tended to decrease as learners progressed in their schooling. See Section 0 for more details.

Across all grades in both Reading and Mathematics, learners from schools classified as Quintile 5 are performing far above their peers in lower quintile schools. The difference tends to be smallest in Grade 9. See Section 0 for more details.

Contextual factors

Differences in Reading and Mathematics achievement between groups in relation to a range of contextual factors were analysed using effect sizes. See Section 0 for more details. Highlights include:

Learners who are more wealthy tend to perform better in both Reading and Mathematics across all grades. The relationship between wealth and performance is stronger in Grades 6 and 9.

Learners in Grade 9 who have more engaged parents displayed lower achievement in both Reading and Mathematics. The relationship is considered small. A possible explanation for this could be that by Grade 9, those parents who are reading to their child may be parents of low-performing children.

Learners in Grade 3 who report having more positive educational environments (at home and school) and took the test in an African language, displayed higher achievement in both Reading and Mathematics. The relationship was small to medium depending on the language.

Across all provinces, learners with more positive attitudes towards Mathematics displayed higher achievement in Mathematics. The relationship is considered medium to large.

Introduction

1. Introduction

In 2022, the first cycle of the South Africa Systemic Evaluation (SASE) was administered in thousands of schools across South Africa. The academic assessment component of SASE was designed to measure learner achievement in the domains of Reading and Mathematics. This was done via the administration of a series of standardised tests to learners at critical time points in their schooling, namely Grade 3, Grade 6, and Grade 9. These time points are at stages similar to South African learners' participation in TIMSS (Grades 5 and 9) and PIRLS (Grade 4) and offer an opportunity to compare and verify learner achievement in national and international assessments.

As outlined in its assessment and contextual frameworks, SASE considers the quality of education at a systemic level to be indexed to multiple contextual factors, not just learner achievement. So, while SASE seeks to measure learner achievement in Reading and Mathematics, it is also focused on identifying and investigating the contextual factors that influence this achievement.

Through its focus on identifying and assessing the influence of country-specific contextual factors on learner performance, SASE:

> …….[provides] a source of rich, national data in line with a focus on *assessment for learning*; that is, assessment that collects information about learning and teaching, which can be used to improve educational processes and outcomes from the classroom through to the broader education system. The emphasis on contextual influences also allows for SASE to evaluate the performance of the education system against key social justice principles that underlie the national education agenda.
> (ACER-GEM & DBE, 2020, p. 3)

This focus on *assessment for learning* is in line with the broader South African approach to all levels of assessment. This approach aims to use all types of assessment data, from diagnostic, to summative, to systemic, to improve learning outcomes for all learners.

One important contextual factor that influenced schools and learners all over the country was the COVID-19 pandemic. SASE was conducted in early 2022, when the emergency had subsided, but its impact was still being felt across educational settings. Principals whose schools participated in SASE responded to a number of COVID-19-related questions in the Principal Questionnaire.

Table 1, Table 2, and Table 3 below describe the proportions of schools affected by certain factors during the pandemic. Table 1 shows that over three-quarters of the principals reported that learner non-attendance, poor curriculum coverage, and learning loss, moderately or strongly impacted their schools during the pandemic. Table **2** shows that most schools (around two-thirds) were moderately

to strongly impacted by teachers' inexperience with and access to digital technology. Table 3 shows that a large proportion of learners (over two-thirds) were strongly impacted by a lack of access to digital technology and a lack of engagement and support for remote learning. This figure rises to above 80 percent when we also consider those moderately impacted.

As is clear from these figures, the impact of COVID-19 on schools was significant. As such, the results from the first implementation of the SASE assessment can also be considered a baseline against which recovery from the pandemic can be measured in the future.

Table 1: *Proportion of schools impacted by certain factors during the COVID-19 pandemic*

Factor	Did not impact	Impacted a little	Moderately impacted	Strongly impacted	Invalid or Missing
Learner non-attendance	5.80%	17.18%	28.28%	48.73%	1.95%
Teacher non-attendance	25.57%	27.89%	29.62%	16.92%	2.26%
Poor curriculum coverage	7.02%	16.37%	28.36%	48.25%	1.89%
Learning losses as indicated by poorer results on assessment tasks	5.20%	17.53%	32.94%	44.33%	2.07%
A lack of Personal Protection Equipment	41.43%	25.72%	23.16%	9.69%	1.73%
Poor implementation of the Health and Safety Measures	41.77%	28.07%	21.83%	8.32%	1.79%

Table 2: *Proportion of schools whose capacity to provide digital remote teaching was impacted by teacher and resource-related factors*

Item	Did not impact	Impacted a little	Moderately impacted	Strongly impacted	Invalid or Missing
Teachers' lack of experience using digital devices	12.31%	19.59%	32.54%	35.57%	1.79%
Teachers' lack of experience teaching with digital technology	11.21%	19.65%	30.16%	38.98%	1.63%
Teachers being unable to access digital devices	14.29%	19.18%	26.96%	39.57%	1.82%
Teachers with no internet access	16.89%	17.65%	25.22%	40.24%	2.22%
Teachers with poor internet connectivity	13.33%	20.38%	24.49%	41.79%	2.26%

Table 3: *Proportion of schools whose capacity to provide digital remote teaching was impacted by learner-related factors*

Item	Did not impact	Impacted a little	Moderately impacted	Strongly impacted	Invalid or Missing
Learners unable to access digital devices	8.33%	10.31%	14.78%	66.58%	1.85%
Learners with no internet access	7.86%	8.56%	12.45%	71.12%	1.60%
Learners with poor internet connectivity	7.61%	9.43%	13.49%	69.47%	2.01%
Learner disengagement with remote learning	8.57%	10.14%	16.37%	64.92%	2.04%
Lack of parental support for remote learning	7.83%	9.62%	17.22%	65.34%	1.94%

1.1 Background

In 2015, a review of the Annual National Assessment (ANA) in South Africa was conducted. As a result of this review, a need to revise both the methods for monitoring learner achievement in critical learning domains and the methods for evaluating the performance of the South African education system was noted (ACER-GEM & DBE, 2020).

After the review, an extensive consultation process was facilitated by the National Curriculum and Assessment Task Team (NCATT). The consultation process involved officials from Labour, Provincial Education Departments (PEDs) and the Department of Basic Education (DBE). This led to the development of the South Africa Systemic Evaluation (SASE) in 2018, the purpose of which was to evaluate and improve the South African education system. This would be done by:

1. Measuring learners' performance in Reading and Mathematics in the General Education and Training (GET) band (i.e., schooling up to and including Grade 9); and
2. Identifying and examining the contextual factors that influence learners' achievement.

From its inception, SASE was intended to demonstrate progress towards promoting the importance of the early years of schooling and using internationally recognised standards for literacy and numeracy to provide high quality school education.

The original agreement between DBE, NCATT and PEDs regarding SASE involved assessment of learning in Mathematics and Language. However, the methodological and measurement difficulties associated with comparing language development across the many languages in the South African context were deemed to be problematic, particularly for the first cycle of the assessment. For this reason, Reading was chosen as a domain that, as a key component of language development,

present fewer methodological challenges for the first cycle of SASE. Once a reliable measurement of this specific component of language development has been established, future cycles of SASE can extend to a broader assessment of language development[1] in South African learners.

1.2 Objectives

As outlined in the SASE Contextual Framework (ACER-GEM & DBE, 2020), the primary purpose of SASE is to 'gain insight into the factors that facilitate learning and teaching and those that act as barriers. These data can then inform education policy and intervention' (ACER-GEM & DBE, 2020, p. 3).

At a broad level, the objectives of SASE are to:

- monitor system-level performance trends in local and national contexts
- evaluate the implementation and impact of policies and programmes
- inform educational policies and programmes
- identify any areas and factors that enable or constrain learner performance
- obtain information about the education system and school contexts.

In terms of assessing learner achievement in particular, SASE aims to:

- measure achievement in Reading and Mathematics using contemporary objective measurement techniques
- diagnose learners' achievement level in the domains of Reading and Mathematics
- evaluate learners' achievement of performance standards
- monitor learners' progression in their learning, including growth between grades and over time.

With respect to identifying and examining the contextual factors that influence learner achievement in South Africa, the purpose of SASE is to:

- gain information about the contexts in which learning takes place
- understand the associations between contextual factors and learner performance
- investigate the impact of education policies and programmes, how they are implemented, and how they are mediated by various agents within the system (e.g., by the school and teacher, and by District and Province representatives)

[1] This may include the addition of listening comprehension and writing tasks in future cycles, for example.

- identify support factors for successful policy and programme implementation at the national, province and district levels, and their impact on learner performance
- track progress of the education system towards meeting or achieving identified targets on social justice principles.

Note that not all of these factors are explored in this report.

1.3 Structure of this report

This report is structured in the following way:

- Section 2, Method, describes the technical aspects and data collection methods undertaken in SASE. It summarises the main activities involved in designing the test and questionnaire instruments, designing and drawing the sample, and the methods employed in collecting and analysing the data.
- Section 3, Defining proficiency, describes the technical aspects of placing all Reading items and all Mathematics items on one reporting scale for each domain, of placing learners upon that scale, of dividing the scales into proficiency bands, and how to interpret those proficiency bands.
- Section 4, Learner proficiency in SASE, presents the main findings from the assessment, describing the skills learners in South Africa display in Reading and Mathematics.
- Section 5, Growth between Grades 3, 6, and 9, presents the findings when examined by grade.
- Section 6, Learner achievement by province, presents the findings when examined by province.
- Section 7, Learner achievement by language, presents the findings when examined by language.
- Section 8, Learner achievement of boys and girls, presents the findings when examined by gender, and includes an examination of the Mathematics substrands.
- Section 9, Learner achievement by quintile, presents the findings when examined by quintile.
- Section 10, Learner achievement by district, is for DBE and PED use only.
- Section 11, Contextual factors of learner achievement, presents the results of the analysis into the relationship between learner performance and certain contextual factors. These include: student wealth, parental engagement, positive educational environments, attitudes towards Language and Mathematics, and classroom practices in Language and Mathematics.
- Appendix 1, Learner achievement by district, presents tables with the mean achievement by district. This section is for DBE and PED use only.
- Appendix 2, Supplementary tables, provides relevant data tables not included within the main body of the report.

Methods

2. Method

This chapter describes the technical aspects and data collection methods undertaken in SASE. It summarises the main activities involved in designing the test and questionnaire instruments, designing and drawing the sample, and the methods employed in collecting and analysing the data.

2.1 Test and questionnaire design

2.1.1 Assessment Framework

The academic assessment component of SASE was designed to measure learner achievement in the domains of Reading and Mathematics. To do this, the DBE developed a series of test questions (items) for both domains for learners in Grade 3, Grade 6, and Grade 9. This test development work was informed by the SASE Assessment Framework, which provided an outline of what the assessment intended to measure and how the assessment would be structured.

At a broad level, assessment frameworks outline the basic design of an assessment and help to guide the development of assessment and reporting foci. An assessment framework helps to ensure continuity and consistency of measurement between different testing cycles whilst also providing transparency and accountability for stakeholders.

As outlined in the SASE Assessment Framework (DBE, 2020), the term 'systemic evaluation' refers to the 'determination of the extent to which the education system achieves set social, economic and transformational goals through the measurement of learner performance as well as the context in which the learners experience learning and teaching' (DBE, 2020, p. 4).

In terms of specific outcomes, it was intended that SASE:

> ….. provide a scale score and allow described levels of proficiency (to be completed post analysis for the 1st cycle) to be constructed for Mathematics and Reading and will provide evidence of what learners know and can do in both Mathematics and Reading. (DBE, 2020, p. 5)

The described proficiency levels that were developed after the SASE cycle 1 data collection are described in detail in later sections of this report. With regard to the test design and item content coverage of the SASE assessment instrument, these details are provided in the section below.

2.1.2 Test design

For Mathematics, SASE incorporated assessment content across five mathematical content strands. The approximate distribution of items by strand for each grade are provided in Table 4.

Table 4: *Mathematics content strand distribution*

Content strand	Weighting percentage per grade		
	Grade 3	Grade 6	Grade 9
Numbers, Operations and Relationships (NOR)	50%	40%	20%
Patterns, Functions and Algebra (PFA)	10%	10%	30%
Space and Shape (SS): Geometry	15%	20%	20%
Measurement (M)	15%	20%	15%
Data Handling (DH)	10%	10%	15%

For Reading, tasks were generally associated with a context type. The Reading context is the situation within which the text is likely to be read, the purposes for which it is likely to be used, and the situation in which it is set. For SASE, the contexts used were broadly categorised as either personal or public, whereby:

1 **Personal contexts** have an individual focus such as personal health, personal transport or travel. It is the intrapersonal environment that shapes an individual's experience. Reading tasks fitting a personal context include those that are primarily for personal enjoyment or development, such as reading a story or a TV guide (ACER-GEM, 2016).

2 **Public contexts** focus on broader society, official purposes, public events, and education. Reading texts reflecting a public context include a school timetable, a town map, a newspaper report, advertisements, or a historical description (ACER-GEM, 2016).

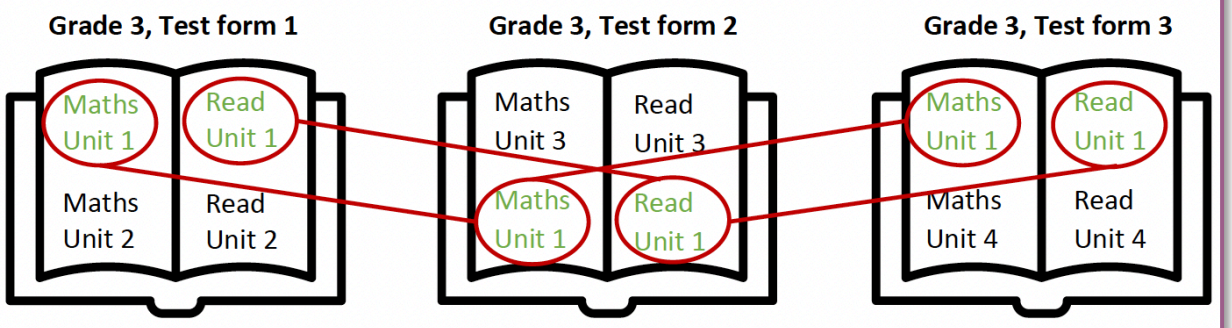
For SASE, these Reading contexts were presented to learners using the content text types of narrative, informative, persuasive and instructional texts. The approximate distribution of Reading items by context text type for each grade are presented in Table 5.

Table 5: *Reading content text type distribution*

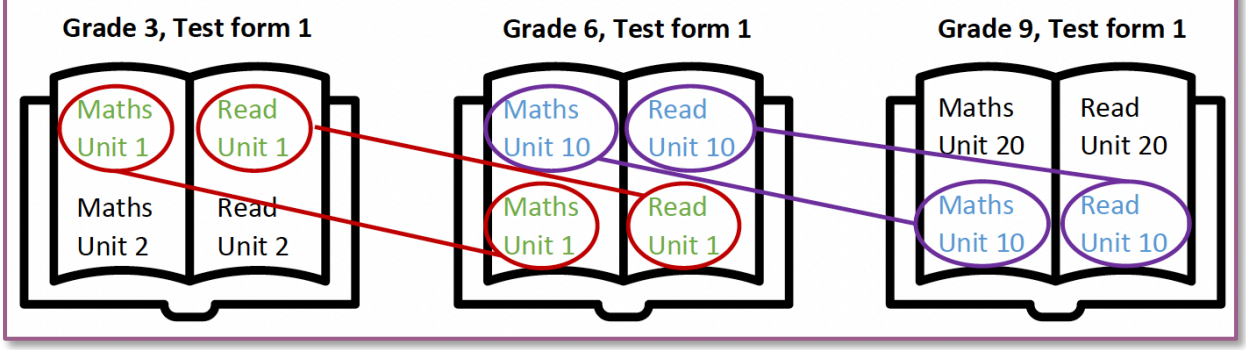
Content text type	Weighting percentage per grade		
	Grade 3	Grade 6	Grade 9
Narrative	55%	40%	35%
Informative	25%	30%	35%
Persuasive	10%	15%	15%
Instructional	10%	15%	15%

In order to test this range of content and skills across both domains and three grade levels, the DBE developed a large number of items. In total, 470 Mathematics items and 280 Reading items were developed and used in the SASE Main Study. While this number of items allowed good coverage of the knowledge, skills, and understanding involved in Reading and Mathematics, there were clearly too many items for one learner to be reasonably expected to attempt. For this reason, seven Mathematics test forms and five Reading test forms were developed for each grade level. Some common items, referred to as link items, were included across test forms to enable results to be compared. For SASE, there were two types of link items used:

Horizontal links: items were used in different test forms at the same year level, to ensure a single scale can apply across each year level



Vertical links: items from a lower year level were used at a higher year level, to ensure a single scale can apply to all year levels



Items were also placed in balanced clusters, and were arranged in overlapping groups to create test forms, so that the linking occurred at the cluster level. A rotated cluster design was implemented so that clusters of items appeared in various positions (beginning, middle, and end) within each test form. This helps to control for any 'order effect' that might influence a learner's response to the item[2].

2.1.3 Contextual questionnaires

In addition to the development of the assessment instrument, a series of contextual questionnaires was also created for SASE. The questionnaires were guided by the SASE Contextual Framework, which in turn was informed by two policy documents integral to South Africa's national education policy. These documents are:

1. National Development Plan 2030: Our Future-make it work; and
2. Action Plan to 2019: Towards the Realisation of Schooling 2030.

As outlined in the Contextual Framework, SASE can be seen as 'an important intervention within the Action Plan that sets out an investigative study of key aspects relating to the NDP vision and goals. It also provides a suitable reporting framework to measure progress of the education sector in this regard' (ACER-GEM & DBE, 2020, p. 9).

In terms of the contextual instruments themselves, seven questionnaires were developed for administration in SASE. These were:

- **Three learner questionnaires**: one for each of Grades 3, 6, and 9. The Grade 3 questionnaire was provided in 11 languages, and the Grade 6 and 9 questionnaires were provided in two languages (Afrikaans and English). The themes explored in these questionnaires include:
  - learner characteristics (e.g., gender, language spoken at home, etc.)
  - learner academic beliefs, values, and aspirations
  - learner health, nutrition, and distance from school
  - resources for learning in the home
  - parental values, expectations, and obligations
  - classroom and school infrastructure and resources for learning
  - teaching practices and pedagogy
  - school environment and school climate.

[2] For example, if an item always appears at the end of a test form, learners might by fatigued or not reach that item at all, so the accuracy of the measurement is therefore reduced.

- **One parent questionnaire**: provided in 11 languages. The themes explored in this questionnaire include:
  - parent or guardian characteristics
  - parental values, expectations, and obligations
  - resources of learning in the home
  - parental perception of school environment and school climate
  - relationship between school and community.
- **One teacher questionnaire:** provided in English only. The themes explored in this questionnaire include:
  - classroom and school infrastructure and resources for learning
  - teaching practices and pedagogy
  - teacher qualifications, experience, and development
  - school environment and school climate
  - relationship between school and community
  - school management team support for teaching and learning
  - co-curricular programme.
- **One principal questionnaire:** provided in English only. The themes explored in this questionnaire include:
  - school and teaching resources for learning
  - teacher qualifications, experience, and development
  - school management
  - relationship between school and community
  - school management team support for teaching and learning
  - co-curricular programme.
- **One district questionnaire:** provided in English only. The themes explored in this questionnaire include:
  - system support services provided to the school by the district
  - connection between district and school, district, and province
  - roles and responsibilities in support for teaching, learning, and professional development
  - pedagogical support in Mathematics and Reading
  - special needs support.

The learner questionnaires were administered to learners after they completed their assigned Mathematics and Reading test forms. For the learner questionnaires, it was recommended that

there was a provision to read the questionnaires to these respondents in order to address language and reading load issues. This provision was generally used at the Grade 3 level only.

2.2 Sampling

2.2.1 Target population

The target population for SASE is defined as learners in Grades 3, 6, and 9. For practical reasons, a small number of exclusions at school or student level were necessary. Schools were therefore removed from the main school sampling frame for each grade level according to the following criteria:

1. **Small schools:** any school with an enrolment in the target grade (3, 6, or 9) of fewer than 10 learners.
2. **Language not eligible:** schools whose language of instruction was not part of the target language. For Grade 3, this meant any language apart from Afrikaans, English, IsiNdebele, IsiXhosa, IsiZulu, Sepedi, SeSotho, Setswana, 'SiSwati, Sign Language, Tshivenda, and Xitsonga. For Grades 6 and 9, any language other than Afrikaans, English, and Sign Language was excluded.
3. **School status:** schools whose status was “Closed” or “Pending Closed” but had learners enrolled were also excluded.

In line with accepted international standards in large scale assessment design (e.g., TIMSS, PIRLS, PISA), the total number of learners excluded from the school frame did not exceed 5% of the total population of interest.

2.2.2 Sample design

A nationally representative sample was drawn in two stages, using a stratified cluster design. This is a sampling design similar to that used in large international studies such as TIMSS.

The first stage of sampling consisted of a sample of schools, stratified according to the following variables:

1. school province
2. language of learning and teaching (LOLT) at school
3. school SES quintile
4. school location
5. school sector
6. school DOE classification.

In order to draw a representative sample of learners within each school for the three different grade levels, three different samples were drawn, one for each grade level, to represent each of these populations of interest.

Schools were sampled to ensure maximum overlap between the three samples (grade levels) to facilitate administration of the test. In total, 3640 schools were sampled.

Table 6 shows the final sample allocation for each grade level and province in the target population.

Table 6: *Target population and designed samples by grade and province*

Province	Grade 3			Grade 6			Grade 9		
	Enrolment	Schools in Population	Schools in Sample	Enrolment	Schools in Population	Schools in Sample	Enrolment	Schools in Population	Schools in Sample
EC	143,196	3,618	232	132,035	3,406	204	104,893	1,728	224
FS	50,971	603	178	48,904	584	174	39,923	361	177
GT	206,193	1,744	175	157,632	1,618	170	155,129	877	176
KZN	205,818	3,696	198	192,748	3,548	184	172,363	1,893	178
LP	152,306	2,359	186	138,046	2,321	179	141,596	1,406	176
MP	87,433	1,107	179	78,347	1,064	174	69,596	612	177
NC	24,984	358	182	21,989	344	180	19,875	189	172
NW	69,067	972	179	60,926	944	178	50,894	456	168
WC	108,767	1,133	179	94,570	1,092	171	77,828	502	172
South Africa	**1,048,735**	**15,590**	**1,688**	**925,197**	**14,921**	**1,614**	**832,097**	**8,024**	**1,620**

The second stage of sampling involves sampling the learners that were to take part in the assessment from each of the sampled schools. For SASE, learner sampling involved sampling an entire class from the target grade level at each sampled school. Classes were selected centrally (i.e., not by the sampled schools themselves) using random sampling methods in line with internationally accepted sampling methods.

In total, the following numbers of learners were sampled from each grade:

- 56,650 learners from 1,688 schools were sampled from Grade 3.
- 58,005 learners from 1,614 schools were sampled from Grade 6.
- 47,540 learners from 1,620 schools were sampled from Grade 9.

2.2.3 Response rates

Response rates are used in large scale assessments in order to determine the reliability of the inferences that can be drawn from the results. Response rates are calculated by comparing the total

number of sampled schools and learners with the achieved participation of these schools and learners. Based on specific targets, we can determine whether the sample can deliver valid results about the overall target population.

For international surveys, the standard for response rates corresponds to a combination of a school participation of at least 85% of the whole sample, and learner participation of 80% or more of selected learners. For the purposes of estimating response rates, schools where fewer than 50% of sampled learners participated in the survey are excluded from the database and are deemed not to have participated in the survey.

For SASE 2022, the Grade 6 sample achieved the highest participation rate, with all school and student participation above these minimum levels. Grade 3 had some provinces where school and student participation fell below the threshold, albeit not too far from the minimum. In the case of Grade 9, there were more instances where provinces fell below participation standards. Where participation standards were not met, results should be interpreted with caution. The school and student participation rates for each grade are presented in Table 7, Table 8 and Table 9.

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Table 7: *School and Student Participation Rates – Grade 3*

Province	Unweighted Response Rates Sampled Schools Only			Unweighted Response Rates Including Replacement Schools			Weighted Response Rates Sampled Schools Only			Weighted Response Rates Including Replacement Schools		
	School	Student	Total	School	Student	Total	School	Student	Total	School	Student	Total
EC	84.91†	82.51	70.07	84.91†	82.51	70.07	86.21	82.16	70.83	86.21	82.16	70.83
FS	86.52	88.04	76.17	93.26	87.89	81.96	85.38	79.56*	67.92§	94.38	87.72	82.79
GT	97.71	87.81	85.81	97.71	87.81	85.81	98.86	88.00	87.00	98.86	88.00	87.00
KZN	97.98	86.60	84.85	97.98	86.60	84.85	98.99	86.56	85.68	98.99	86.56	85.68
LP	96.22	87.63	84.31	96.22	87.63	84.31	98.38	87.43	86.02	98.38	87.43	86.02
MP	96.63	87.42	84.47	96.63	87.42	84.47	96.63	87.45	84.50	96.63	87.45	84.50
NC	82.42†	88.89	73.26	82.42†	88.89	73.26	82.42†	88.95	73.31	82.42†	88.95	73.31
NW	98.32	88.50	87.02	98.32	88.50	87.02	98.32	88.10	86.62	98.32	88.10	86.62
WC	94.94	87.43	83.01	94.94	87.43	83.01	95.51	87.31	83.38	95.51	87.31	83.38
South Africa	**92.64**	**87.14**	**80.72**	**93.35**	**87.13**	**81.34**	**95.69**	**86.43**	**82.70**	**95.97**	**86.68**	**83.18**

†School response rate did not reach the standard

*Student response rate did not reach the standard

§ Total response rate (school rate multiplied by student rate) did not reach the standard (85 x 80 = 68 percent)

Table 8: *School and Student Participation Rates – Grade 6*

Province	Unweighted Response Rates in sampled Schools Only			Unweighted Response Rates Including Replacement Schools			Weighted Response Rates in Sampled Schools Only			Weighted Response Rates Including Replacement Schools		
	School	Student	Total	School	Student	Total	School	Student	Total	School	Student	Total
EC	88.67	86.18	76.42	88.67	86.18	76.42	89.66	85.87	76.98	89.66	85.87	76.98
FS	94.22	89.54	84.36	94.22	89.54	84.36	94.22	89.23	84.07	94.22	89.23	84.07
GT	99.41	91.81	91.27	99.41	91.81	91.27	99.41	91.46	90.92	99.41	91.46	90.92
KZN	97.28	91.12	88.65	97.28	91.12	88.65	97.28	91.18	88.70	97.28	91.18	88.70
LP	96.63	90.48	87.43	96.63	90.48	87.43	97.19	90.14	87.60	97.19	90.14	87.60
MP	95.95	89.25	85.64	95.95	89.25	85.64	95.95	89.02	85.41	95.95	89.02	85.41
NC	86.11	87.03	74.94	86.11	87.03	74.94	86.11	87.11	75.01	86.11	87.11	75.01
NW	98.88	89.83	88.82	98.88	89.83	88.82	98.88	89.95	88.94	98.88	89.95	88.94
WC	95.91	86.29	82.75	95.91	86.29	82.75	96.49	86.43	83.40	96.49	86.43	83.40
South Africa	**94.66**	**89.15**	**84.39**	**94.66**	**89.15**	**84.39**	**96.08**	**89.43**	**85.92**	**96.08**	**89.43**	**85.92**

Table 9: *School and student participation rates – Grade 9*

Province	Unweighted response rates sampled schools only			Unweighted response rates including replacement schools			Weighted response rates sampled schools only			Weighted response rates including replacement schools		
	School	Student	Total	School	Student	Total	School	Student	Total	School	Student	Total
EC	40.63†	76.07*	30.90¶	40.63†	76.07*	30.90¶	43.30†	74.94*	32.45¶	43.30†	74.94*	32.45¶
FS	74.01†	80.51	59.58§	74.01†	80.51	59.58§	77.21†	80.62	62.24§	77.21†	80.62	62.24§
GT	92.00	81.99	75.43	92.00	81.99	75.43	93.71	82.51	77.33	93.71	82.51	77.33
KZN	90.86	82.63	75.07	90.86	82.63	75.07	92.57	82.32	76.20	92.57	82.32	76.20
LP	86.36	79.20*	68.40	86.36	79.20*	68.40	90.34	78.84*	71.23	90.34	78.84*	71.23
MP	73.86†	78.14*	57.72§	73.86†	78.14*	57.72§	77.27†	78.23*	60.45§	77.27†	78.23*	60.45§
NC	62.21†	77.65*	48.31¶	62.21†	77.65*	48.31¶	65.90†	77.84*	51.30§	65.90†	77.84*	51.30§
NW	88.02	80.66	71.00	88.02	80.66	71.00	91.02	80.22	73.01	91.02	80.22	73.01
WC	86.63	79.28*	68.68	86.63	79.28*	68.68	91.28	79.31*	72.39	91.28	79.31*	72.39
South Africa	**76.02†**	**79.83***	**60.69§**	**76.02†**	**79.83***	**60.69§**	**81.13†**	**80.26**	**65.11§**	**81.13†**	**80.26**	**65.11§**

†School response rate did not reach the standard

*Student response rate did not reach the standard

§ Total response rate (school rate multiplied by student rate) did not reach the standard (85 x 80 = 68 percent)

¶ Total response rates under 50 percent should be interpreted with extreme caution

Please note that the total response rates for the overall South Africa sample in Grade 9 did not meet the SASE participation standard (see standard description on page 13). This caution is repeated in the tables presented in Section 0 on achievement by provinces; however for ease of reading, this caution is not repeated in any other tables in this report. Please keep this caution in mind when interpreting the Grade 9 results.

Defining Proficiency

3. Defining Proficiency

3.1 Introduction to Item Response Theory methods

Item Response Theory (IRT) utilises powerful statistical methods to produce empirical scales that can be used to describe both learner ability and assessment difficulty. In fact, IRT methods plot learner ability and item difficulty on the same scale. At the low end of the scale are learners with limited ability alongside easy assessment items. At the high end of the scale are learners with strong ability alongside more difficult assessment items.

When learners receive scores on IRT scales, the scores are based on how well they performed on the assessment items. No learner answered all of the assessment items (there are hundreds of Reading items and hundreds of Mathematics item across the assessment) – they answered only a sample (approximately 40 items on a test form) – so the learner's scale score is a probabilistic estimate of how they would likely perform on *all* items on the scale. Learners with high scale scores are expected to have a high skill set, and are therefore likely to answer the difficult questions as well as the easy questions. Learners with low scale scores have only a basic skill set, and are therefore likely to answer only the easy questions.

> Consider the following example where a learner is estimated to have a scale score of 500 points. This learner is likely to be able to correctly answer assessment items that have a scale score *at or below* 500 points. Items with scale scores around 600 require a higher level of skill, which this particular learner is unlikely to possess, and therefore these items are likely to be too difficult for this learner. Items with scale scores around 400 are likely to be *quite* easy for this learner, and items with scale scores around 300 are likely to be *very* easy for this learner. The lower the item's scale score, the greater the probability of the learner answering it correctly.

From a learner's scale score, we are able to make a probabilistic estimate of the types of questions the learner can answer correctly, and the kinds of skills that the learner possesses.

3.2 Reporting learner proficiency on a described proficiency scale

The SASE Reading and Mathematics assessments were designed so that there were some assessment items that were administered to both Grade 3 and Grade 6 learners. There were also assessment items that were administered to both Grade 6 and Grade 9 learners. This 'vertical

linking' allowed *all* items from Grades 3, 6, and 9 to be placed on the same empirical scale for reporting learner performance.

We thus have a reporting scale for each domain that is supported by hundreds of items, representing different skills.

- In Reading, we have a scale that ranges from basic reading skills (such as retrieving directly stated information from short, simple texts), to sophisticated reading skills (such as making inferences from dense, complex texts). See Figure 1 on page 24 for a graphic representation of the Reading scale.
- In Mathematics, we have a scale that ranges from basic numeracy skills (such as adding together two-digit numbers), to sophisticated numeracy skills (such as simplifying complex algebraic expressions). See Figure 2 on page 30 for a graphic representation of the Mathematics scale.

It is important to note that the Reading and Mathematics scales are reported on two independent scales with two separate ranges of scale scores, representing the two different learning domains. A scale score in Reading is NOT directly comparable to a scale score in Mathematics.

Why place all learners on the same scale? Mathematical and Reading literacy are conceived of as continua of learning – beginning from the early stages of schooling and developing across the grade levels and beyond school education. In any setting, students in a given grade demonstrate a range of skills, knowledge and understanding, and in any large-scale assessment, such as a national or international assessment, the range within a grade level is likely to be very wide: there is almost inevitably overlap between the proficiency of learners in different grades. Placing items and learners on the same empirical scale for reporting learner performance enables conclusions to be drawn about the amount of overlap between these groups of learners. As discussed in Section 0 of this report, learners performing at the higher levels in Grade 3 demonstrate a similar level of proficiency to learners at the lower levels in Grade 6 – and a similar overlap occurs between Grades 6 and 9.

3.3 Dividing the scale into proficiency bands

Although the Reading and Mathematics reporting scales are continuous, for ease of interpretation each scale is divided into proficiency bands. Each band contains a group of items that have similar levels of difficulty. The lowest band contains simple items that require a basic skill set. The highest band contains complex items that require higher levels of skill. The items *within* each band may be very different in terms of the skills required, but they have similar scales scores, indicating a comparable level of difficulty.

A summary description was developed for the skills learners are able to demonstrate at each proficiency band. For SASE the width of the proficiency bands is 50 scale score points on the Reading scale and 54 scale score points on the Mathematics scale.

For Reading, descriptions on the skills demonstrated within each proficiency band have been developed for band 5 to band 11. For Mathematics, descriptions have been written for band 2 to band 9.

At the upper and lower ends of the reporting scale there were insufficient items to accurately describe a particular band, and professional judgement was used to make predictions about the type of skills that are likely to be required at that band.

3.4 Interpreting the bands

A band description explains the typical skills demonstrated by a learner in that band, but learners are spread *throughout* the band. A learner positioned at the top of the band has more ability than a learner positioned at the bottom of the same band. So, a learner at the top of a band is more likely to be able to demonstrate the skills described in a band than a learner at the bottom of the band. This applies to every band on both Reading and Mathematics reporting scales.

The bands were constructed such that:

- a learner at the *bottom* of a band is likely to be able to correctly answer about 50% of items in that band (and most of the items positioned in the bands below).
- a learner in the *middle* of a band is likely to be able to correctly answer about 62% of items in that band (and almost all of the items positioned in the bands below).
- a learner at the *top* of a band is likely to be able to correctly answer about 80% of items in that band (and all of the items positioned in the bands below).

It should be noted that bands are NOT designed to align with years of schooling or grade levels. This means that learners in Grade 6 are NOT expected to be located at band 6 on the scale. In fact, learners in Grade 6 were found to be located at all bands between band 2 and band 9 in Mathematics, and are located at all bands between band 4 and band 11 in Reading (see Section 0 for more information about the spread of learner ability in the different grades).

It should also be noted that while progress is expected for groups of learners over time, the rate of progress will vary by learner: some learners will move up one band over a three-year period while other learners will more up two or more bands. This reflects the different learning journeys experienced by different learners during their years of schooling.

Learner Proficiency in SASE

4. Learner proficiency in SASE

Proficiency scales were developed to describe the outcomes of the SASE Reading and Mathematics assessments. As discussed in Section 0, these scales were developed in a way to accommodate all grade levels on the same proficiency scale so that learning progress can be identified and monitored between different grades. A learner's scale score is based on how well they performed on the assessment items.

Please note that while the scale scores may appear similar to those of other assessments, for example, PIRLS and TIMSS, the scores cannot be compared between the different assessments. Nor is it possible to directly compare scale scores between Reading and Mathematics in SASE.

4.1 Reading literacy: What learners know, understand and can do in Reading literacy

Thirteen bands were established for the Reading proficiency scale. As explained in section 0, not all of these bands could be described due to a lack of items in the higher and lower bands. In the future, as more items are developed at these upper and lower levels of the scale, descriptions for these bands could be developed.

Table 10 provides a description of the proficiency scale for Reading. This is followed by Figure 1, which illustrates the proficiency scale using items from the assessment. More details of the percentages of learners performing at these levels are described following these tables.



Table 10: *Proficiency band descriptions for Reading*

Scale score	Band	Description of skills in this band
705 and above	**12 and above**	**7% of Grade 9**, **1.9% of Grade 6** and **0.1% of Grade 3** learners perform at bands 12 and above. *There is no description for bands 12 and above*
655 to less than 705	**11**	**12.2% of Grade 9**, **4.3% of Grade 6** and **0.7% of Grade 3** learners perform at band 11. *In band 11, learners can typically:* • **Connect** explicitly stated ideas when there is substantial complexity (e.g., strongly competing information, or information that needs to be integrated across maps, graphs, tables or footnotes). • **Summarise** main ideas in paragraphs or across entire texts, or make generalisations, when there is some complexity (e.g., extensive detail, or an unusual structure). • **Interpret** figurative language used in extended metaphors in complex sentences. • **Make inferences** in a variety of texts where clues are not prominent, or are dispersed, and there is competing information.
605 to less than 655	**10**	**20.9% of Grade 9**, **9.1% of Grade 6** and **2.4% of Grade 3** learners perform at band 10. *In band 10, learners can typically:* • **Locate information** when there is extensive, strongly competing information or a dense sentence with unfamiliar vocabulary. • **Connect** explicitly stated pieces of related information, where there is some complexity (e.g., where a pronoun reference needs to be tracked over several sentences). • **Identify key ideas** when these are not explicitly stated. • **Select evidence** from a text to support an interpretation (e.g., a simple explanation for an event, when there is also another plausible interpretation). • **Extrapolate beyond the text** to make simple predictions.
555 to less than 605	**9**	**26.6% of Grade 9**, **15.8% of Grade 6** and **5.5% of Grade 3** learners perform at band 9. *In band 9, learners can typically:* • **Locate information** by synonymous matching to a less familiar word or expression, or by finding related words in the middle of a long paragraph with closely competing information nearby. • **Make inferences** in familiar, straightforward texts when there are some clues and a range of competing information. • **Summarise** a main idea or make a generalisation when there are clear clues. • **Evaluate** the likely purpose of a familiar text type using clues about the author, audience or source.

Scale score	Band	Description of skills in this band
505 to less than 555	**8**	**22.7% of Grade 9**, **23% of Grade 6** and **10.6% of Grade 3** learners perform at band 8. *In band 8, learners can typically:* • **Locate information** by matching words when the matched words are not in a prominent position and there is competing information nearby. • **Locate information** using simple and familiar synonyms between the question and the text, where the information is prominent. • **Make simple inferences** in familiar, highly predictable texts when there are multiple clues and some competing information. • **Identify** a range of familiar, distinctive text types, including identifying the purpose of sections of a text (e.g., recognise a part of an information text that provides a warning).
455 to less than 505	**7**	**9.3% of Grade 9**, **25.7% of Grade 6** and **17.4% of Grade 3** learners perform at band 7. *In band 7, learners can typically:* • **Locate information** in short, simple texts that is not in an obvious or prominent position in the text (e.g., beyond the second line of text) and that is closely related to the word(s) from the question (for example, jump, jumped, jumping). • **Locate information** in short, simple texts that is in a very prominent position by using very simple and highly familiar synonyms between the question and the text. • **Connect** two, explicitly stated pieces of related information in a simple text (e.g., two characters, but each pronoun reference is clear) when there is minimal competing information. • **Make very simple inferences** by recognising highly predictable ideas (e.g., implied feelings or motivation) when there are multiple, prominent clues and minimal competing information.
405 to less than 455	**6**	**1.3% of Grade 9**, **16.5% of Grade 6** and **24.2% of Grade 3** learners perform at band 6. *In band 6, learners can typically:* • **Locate information** that is prominent and explicitly stated in a short, simple text when there is some competing information. For example, the student can match words from a written question to words in a text to find additional information in an adjacent sentence. More information about learner performance needs to be gathered at this band to make a more detailed statement.
355 to less than 405	**5**	**0.1% of Grade 9**, **3.5% of Grade 6** and **26.6% of Grade 3** learners perform at band 5. *In band 5, learners can typically:* • **Locate information** that is prominent and explicitly stated within a few short sentences when there is limited, or no competing information. For example, the learner can match words from a written question to words in a text to find adjacent information without necessarily comprehending the text. More information about learner performance needs to be gathered at this band to make a more detailed statement.
Less than 355	**4**	**0.2% of Grade 6** and **12.4% of Grade 3** learners perform at bands 4 and below. *There is no description for band 4.*

Figure 1 uses exemplar items from the assessment to illustrate the proficiency bands. It also describes the skills needed for learners to answer each item correctly. The horizontal arrow within each band represents the approximate location of each exemplar item within the proficiency band. Note that all exemplar Reading items belong to the same unit with the stimulus text for that unit appearing at the top of the figure.

These exemplar items appeared in the Grade 9 assessment. While these items were not present in the Grade 3 and 6 assessments, they have been placed on the proficiency scale containing all Reading assessment items that are independent of the grade. Based on the learner's scale score, we are then able to make a probabilistic estimate of the types of questions the learner can answer correctly.



Figure 1: *Graphic representation of the illustrated Reading scale (bands 7–9)*

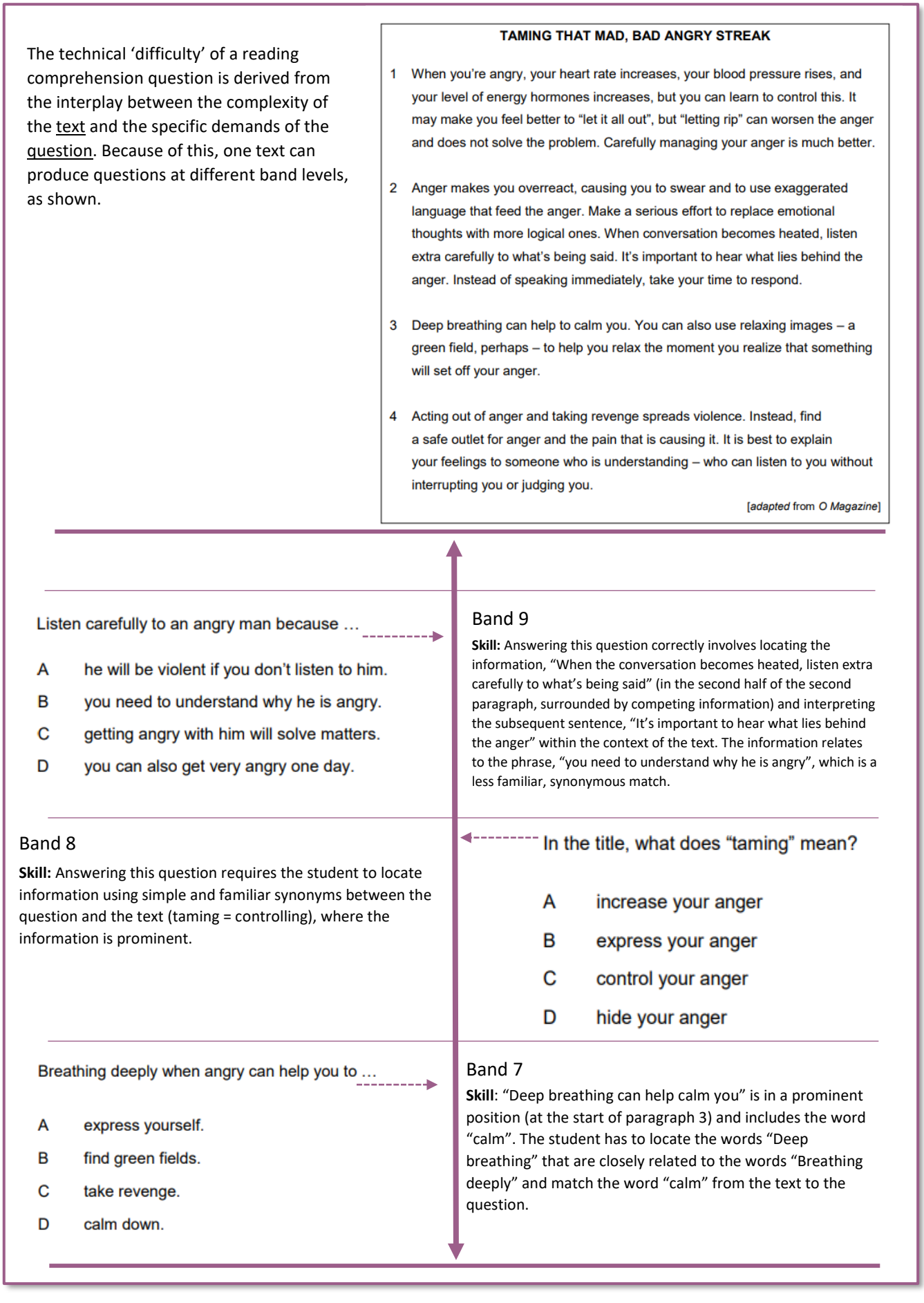


Table 11: *Percent of learners at each Reading proficiency band, by grade*

Reading proficiency band	Reading scale scores	Grade 3		Grade 6		Grade 9	
		%	SE	%	SE	%	SE
14	805- <855			0.1	0.03	0.3	0.07
13	755- <805			0.4	0.06	1.6	0.17
12	705- <755	0.1	0.05	1.5	0.15	5.1	0.30
11	655- <705	0.7	0.12	4.3	0.24	12.2	0.36
10	605- <655	2.4	0.23	9.1	0.24	20.9	0.49
9	555- <605	5.5	0.23	15.8	0.29	26.6	0.46
8	505- <555	10.6	0.31	23.0	0.34	22.7	0.44
7	455- <505	17.4	0.37	25.7	0.33	9.3	0.30
6	405- <455	24.2	0.35	16.5	0.32	1.3	0.09
5	355- <405	26.6	0.39	3.5	0.17	0.1	0.02
4	305- <355	10.3	0.26	0.2	0.04		
3	255- <305	1.7	0.12				
2	205- <255	0.3	0.04				

The mean Reading scale score for Reading achievement for Grade 3 learners is 438 (Table 16 in Section 5.1). This score falls towards the top of Reading proficiency band 6 (Table 11). 24.2 percent of Grade 3 learners performed at band 6. However, the band with the largest proportion of Grade 3 learners (26.6 percent) is band 5. At band 5, learners can typically locate information that is prominent and explicitly stated within a few short sentences when there is limited, or no competing information. For example, the learner can match words from a written question to words in a text to find adjacent information without necessarily comprehending the text.

The mean Reading scale score for Reading achievement for Grade 6 learners is 522 (Table 16 in Section 5.1). This score falls towards the bottom of Reading proficiency band 8 (Table 11). 23 percent of Grade 6 learners performed at band 8. 42.2 percent of Grade 6 learners are performing at bands 7 and 6, with band 7 containing the highest proportion of Grade 6 learners (25.7 percent). At band 7, learners can typically:

- Locate information in short, simple texts that is not in an obvious or prominent position in the text (e.g., beyond the second line of text) and that is closely related to the word(s) from the question (for example, jump, jumped, jumping).
- Locate information in short, simple texts that is in a very prominent position by using very simple and highly familiar synonyms between the question and the text.
- Connect two, explicitly stated pieces of related information in a simple text (e.g., two characters, but each pronoun reference is clear) when there is minimal competing information.

- Make very simple inferences by recognising highly predictable ideas (e.g., implied feelings or motivation) when there are multiple, prominent clues and minimal competing information.

The mean Reading scale score for Reading achievement for Grade 9 learners is 592 (Table 16 in Section 5.1). This score falls towards the top of Reading proficiency band 9 (Table 11). In Grade 9, this is the proficiency band with the highest proportion of learners. At band 9, learners can typically:

- Locate information by synonymous matching to a less familiar word or expression, or by finding related words in the middle of a long paragraph with closely competing information nearby.
- Make inferences in familiar, straightforward texts when there are some clues and a range of competing information.
- Summarise a main idea or make a generalisation when there are clear clues.
- Evaluate the likely purpose of a familiar text type using clues about the author, audience, or source.

4.2 Mathematical literacy: What learners know, understand and can do in Mathematical literacy

Twelve bands were established for the Mathematics proficiency scale. As explained in Chapter 0, not all of these bands could be described due to a lack of items in the higher and lower bands. In the future, as more items are developed at these upper and lower levels of the scale, descriptions for these bands could be developed. Table 12 provides a description of the proficiency scale for Mathematics. This is followed by Figure 2, which illustrates the proficiency scale using items from the assessment. More details of the percentages of learners performing at these levels are described following these tables.

Table 12: *Proficiency band descriptions for Mathematics*

Scale score	Band	Description of skills in this band
772.5 and above	**10 and above**	**1% of Grade 9** learners and **0.1% of Grade 6** learners perform at bands 10 and above. *There is no description for bands 10 and above.*
714.5 to less than 772.5	**9**	**3.7% of Grade 9** learners and **1.1% of Grade 6** learners perform at band 9. *In band 9, learners can typically:* • Use proportional reasoning in real-life contextual problems. • Simplify expressions with index notation, including negative and fractional indexes. • Solve complex algebraic equations and inequations. • Simplify algebraic expressions containing surds and fractions. • Graph linear and quadratic functions. • Understand and use Pythagoras' Theorem. • Solve problems using surface area and volume of a variety of 3D shapes (prism, pyramid; cylinder, sphere, cone), converting cubic centimetres to litres. • Find the mean, median, mode, range and interquartile range of ungrouped data. • Interpret a range of statistical data displays including line graphs, scatter plots, stacked column graphs, stem-and-leaf plots, box plots, frequency tables and pie charts. • Identify conditional probabilities of chance events from data in diagrams and tables.
656.5 to less than 714.5	**8**	**10.6% of Grade 9** learners, **3.8% of Grade 6** learners and **0.5% of Grade 3** learners perform at band 8. *In band 8, learners can typically:* • Solve 2-step and 3-step arithmetic problems with positive and negative numbers, fractions and percentages. • Recognise and continue a geometric sequence. • Understand arithmetic inverses (add/subtract, multiply/divide). • Understand the inverses of squares, cubes, square roots, cube roots. • Use the sum of angles in a triangle to solve simple geometric problems. • Calculate angles made by intersecting and parallel lines and polygons. • Recognise views, sections and nets of complex and compound 3D objects. • Convert SI units, such as metres to km and kg to grams. • Calculate the perimeter, surface area and volumes of familiar objects. • Express the probability of chance events as fractions, decimals or percentages.
598.5 to less than 656.5	**7**	**26.7% of Grade 9** learners, **11.2% of Grade 6** learners and **2.3% of Grade 3** learners perform at band 7. *In band 7, learners can typically:* • Solve missing number equations with mixed or multiple arithmetic operations. • Formulate simple problems mathematically. • Count forwards or backwards in any whole number steps. • Recognise equivalent forms of fractions and percentages. • Find simple time differences between analog clocks. • Find the perimeter of regular and irregular shapes • Recognise nets of 3D objects. • Calculate the volume of a cuboid. • Interpret tables and column graphs with multiple or fractional units and of up to 2 categories. • Summarise and display data from surveys.

Scale score	Band	Description of skills in this band
540.5 to less than 598.5	**6**	**39.2% of Grade 9** learners, **26.7% of Grade 6** learners and **6.1% of Grade 3** learners perform at band 6. *In band 6, learners can typically:* • Solve straightforward arithmetic problems in increasingly complex contexts. • Solve word problems involving multiplication or division. • Find quotients and remainders. • Understand ideas of place value in decimals. • Recognise geometric properties of 3D shapes. • Calculate the area of a rectangle. • Read time on an analog clock (half-hours). • Use calibrated devices to measure length, time, mass. • Read a 2-category column graph or table.
482.5 to less than 540.5	**5**	**17.2% of Grade 9** learners, **36.1% of Grade 6** learners and **13.6% of Grade 3** learners perform at band 5. *In band 5, learners can typically:* • Understand ideas of place value in multi-digit numbers. • Solve missing number equations with a single addition or subtraction. • Use symbols of arithmetic (multiply, divide). • Understand unit fractions and proper fractions (numerator, denominator). • Classify and describe 2D shapes in composite pictures. • Understand grid references and read a calendar. • Measure area using informal units. • Choose a device to measure the length of an object. • Display data as a pictograph, column graph or table.
424.5 to less than 482.5	**4**	**1.5% of Grade 9** learners, **18.7% of Grade 6** learners and **23.5% of Grade 3** learners perform at band 4. *In band 4, learners can typically:* • Understand ideas of place value in 2-digit numbers. • Add and subtract with 1-digit and 2-digit numbers. • Count forward by steps other than 2, 5 and 10. • Find a line of symmetry in a diagram. • Compare lengths of unaligned objects. • Compare counts in simple tables of column graphs.
366.5 to less than 424.5	**3**	**2.3% of Grade 6** learners and **32.5% of Grade 3** learners perform at band 3. *In band 3, learners can typically:* • Recognise and use quantities with up to 2 digits. • Count forward by 2, 5 and 10. • Continue a repeating pattern of 3 or more elements. • Match similar shapes. • Compare counts in simple pictographs or tally charts.
308.5 to less than 366.5	**2**	**18.3 % of Grade 3** learners perform at band 2. *In band 2, learners can typically:* • Compare small quantities verbally. • Understand the correspondence between small quantities and numbers. • Classify familiar objects by shape. • Compare lengths of aligned objects. • Read category counts from a simple pictograph.
Less than 308.5	**1**	**3.0% of Grade 3** learners perform at bands 1 and below. *There is no description for band 1.*

Figure 2 uses exemplar items in the Measurement and Geometry strand from the assessment to illustrate the proficiency bands. It also describes the skills needed for learners to answer each item correctly. The horizontal arrow within each band represents the approximate location of each exemplar item within the proficiency band.

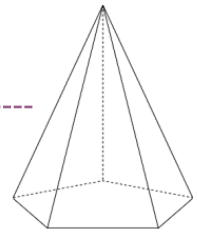
The bands 3 and 4 exemplar items appeared in the Grade 3 assessment. The bands 5 and 6 exemplar items appeared in both the Grade 3 and Grade 6 assessments. The bands 7 and 8 items appeared in both the Grades 6 and 9 assessments. While not all items were present in all grade-level assessments, they have been placed on a scale containing all Mathematics assessment items that are independent of grade. Based on the learner's scale score, we are then able to make a probabilistic estimate of the types of questions the learner can answer correctly.



Figure 2: *Graphic representation of the illustrated Mathematics scale (bands 3–8)*

Band 8

Skill: Answering this question requires the student to identify two features of an unfamiliar object (that the base of the object has five sides and is therefore pentagonal, and that the object narrows to a point, so is a pyramid rather than a prism).



What is the figure called?

A triangular pyramid

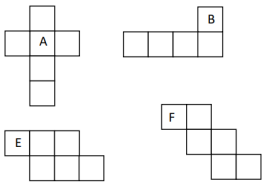
A pentagonal prism

A triangular prism

A pentagonal pyramid

Band 7

Skill: Answering this question requires the student to identify which three of the six nets presented can be folded to make a familiar 3D object. Some of these nets are common nets for a cube, so the student is likely to use a process of elimination to obtain the final answer.



Which nets can be folded to make a cube?

A A, B and E

B B, D and C

C A ; D and F

D D, F and E

Band 6

Skill: Answering this question requires the student to distinguish between visual representations of 2D and 3D shapes or objects.



How many 2-D shapes and 3-D objects are shown?

A Three 2-D shapes and zero 3-D objects

B Two 2-D shapes and one 3-D object

C One 2-D shape and two 3-D objects

D Zero 2-D shape and three 3-D objects

Band 5

Skill: Answering this question requires the student to visualise a familiar 3D object (represented in 2D) to count the number of corners, where one corner is not visible.

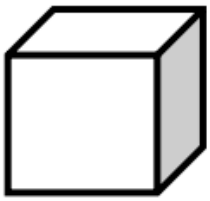
How many corners does a cube have?

A 12

B 8

C 6

D 4



Band 4

Skill: Answering this question requires the student to identify a number of very familiar shapes (squares and triangles) in a composite picture.

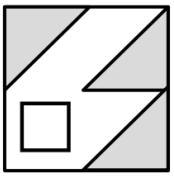
How many squares and triangles are in the picture?

A 2 squares and 1 triangle

B 3 triangles and 2 squares

C 2 triangles and 3 squares

D 2 squares and 1 triangle



Band 3

Skill: Answering this question requires the student to identify, from the four common shapes presented, that the very familiar object of a door has the shape of a rectangle.

What is the shape of the door?

A Rectangle

B Square

C Circle

D Triangle

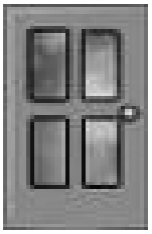


Table 13: *Percent of learners at each Mathematics proficiency band, by grade*

Mathematics proficiency bands	Mathematics scale scores	Grade 3		Grade 6		Grade 9	
		%	SE	%	SE	%	SE
10	772.5- <830.5			0.1	0.05	0.9	0.14
9	714.5- <772.5			1.1	0.15	3.7	0.29
8	656.5- <714.5	0.5	0.09	3.8	0.25	10.6	0.41
7	598.5- <656.5	2.3	0.19	11.2	0.32	26.7	0.49
6	540.5- <598.5	6.1	0.24	26.7	0.42	39.2	0.55
5	482.5- <540.5	13.6	0.32	36.1	0.49	17.2	0.47
4	424.5- <482.5	23.5	0.40	18.7	0.35	1.5	0.11
3	366.5- <424.5	32.5	0.37	2.3	0.10		
2	308.5- <366.5	18.3	0.34				
1	250.5- <308.5	2.7	0.13				
Below band 1	192.5- <250.5	0.4	0.05				

The mean Mathematics scale score for Mathematics achievement for Grade 3 learners is 428 (Table 18 in Section 5.2). This score falls at the bottom of Mathematics proficiency band 4 (Table 13). 23.5 percent of Grade 3 learners performed at band 4. However, over 50 percent of Grade 3 learners performed at bands 3 and 2, with band 3 containing the highest proportion of Grade 3 learners (32.5 percent). At band 3, learners can typically:

- Recognise and use quantities with up to 2 digits.
- Count forward by 2, 5 and 10.
- Continue a repeating pattern of 3 or more elements.
- Match similar shapes.
- Compare counts in simple pictographs or tally charts.

The mean Mathematics scale score for Mathematics achievement for Grade 6 learners is 536 (Table 18 in Section 5.2). This score falls near the top of Mathematics proficiency band 5 (Table 13). In Grade 6, this is the proficiency band with the highest proportion of learners (36.1 percent). A further 26.7 percent perform at band 6. At band 5, learners can typically:

- Understand ideas of place value in multi-digit numbers.
- Solve missing number equations with a single addition or subtraction.
- Use symbols of arithmetic (multiply, divide).
- Understand unit fractions and proper fractions (numerator, denominator).
- Classify and describe 2D shapes in composite pictures.
- Understand grid references and read a calendar.
- Measure area using informal units.

- Choose a device to measure the length of an object.
- Display data as a pictograph, column graph or table.

The mean Mathematics scale score for Mathematics achievement for Grade 9 learners is 594 (Table 18 in Section 5.2). This score falls near the top of Mathematics proficiency band 6 (Table 13). In Grade 9, this is the proficiency band with the highest proportion of learners (39.2 percent). A further 26.7 percent of learners perform at band 10. At band 6, learners can typically:

- Use proportional reasoning in real-life contextual problems.
- Simplify expressions with index notation, including negative and fractional indexes.
- Solve complex algebraic equations and inequations.
- Simplify algebraic expressions containing surds and fractions.
- Graph linear and quadratic functions.
- Understand and use Pythagoras' Theorem.
- Solve problems using surface area and volume of a variety of 3D shapes (prism, pyramid; cylinder, sphere, cone), converting cubic centimetres to litres.
- Find the mean, median, mode, range and interquartile range of ungrouped data.
- Interpret a range of statistical data displays including line graphs, scatter plots, stacked column graphs, stem-and-leaf plots, box plots, frequency tables and pie charts.
- Identify conditional probabilities of chance events from data in diagrams and tables.

4.3 Expected minimum outcomes by grade

To determine the definitions of expected minimum outcomes for SASE, researchers closely referenced the global Minimum Proficiency Levels (MPL) (Australian Council for Educational Research, 2022). The DBE considered the alignment of the MPL statements with grade expectations appropriate for the Grades 3, 6, and 9 in the SASE populations of interest. The DBE consider the following proficiency bands as appropriate expected minimum outcomes for learners within each grade for the SASE assessment. Further work needs to be undertaken to definitively establish minimum learning standards in South Africa. However, this initial estimate can provide an impression of how South African learners are faring in relation to the global minimum standards.

Table 14: *Expected minimum Reading outcomes for SASE*

Proficiency band	Grade	Percentage of learners at or above proficiency band
5	3	87.6
7	6	79.8
9	9	66.7

Table 15: Expected minimum Mathematics outcomes for SASE

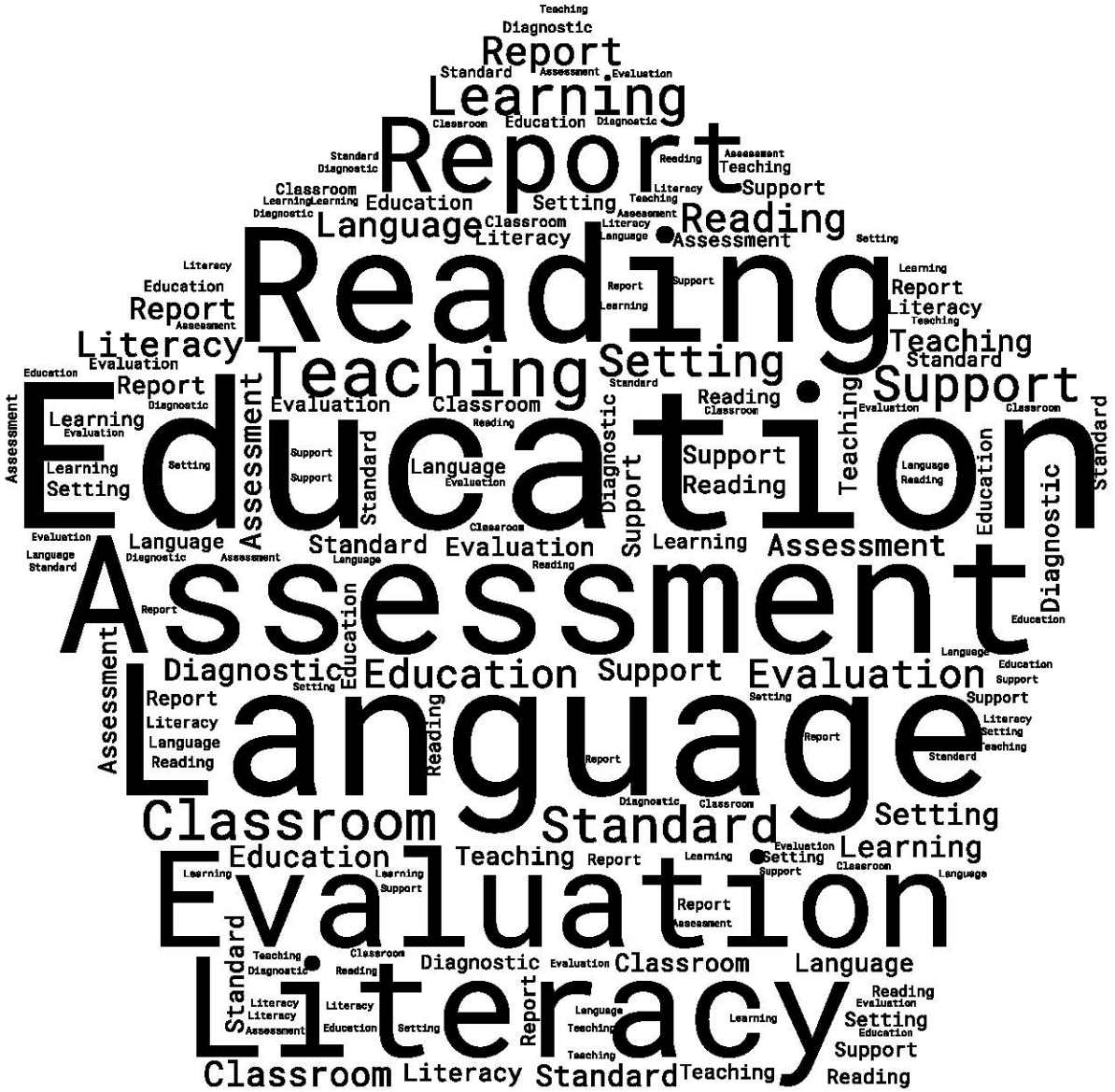
Proficiency band	Grade	Percentage of learners at or above proficiency band
3	3	78.6
6	6	43.0
8/9	9	15.3*

*For the purposes of learner percentage calculations, proficiency band 8 was used.

Table 14 and Table 15 both show that in Reading and Mathematics, Grade 3 has the largest proportion of learners meeting the expected minimum outcomes, and that the proportions of learners get smaller in Grades 6 and 9. In Mathematics, fewer than 50 percent of learners at Grade 6 are meeting the expected minimum outcomes, while in Grade 9, that proportion decreases to just 15.3 percent of learners.

Note that in Mathematics, the expected minimum outcomes proficiency band numbers correspond with the grade levels. This has occurred by chance. As described in Section 0, proficiency bands are not designed to align with grades.




Teaching
Diagnostic
Report
Standard
Assessment
Evaluation
Learning
Classroom
Education
Diagnostic
Report
Standard
Diagnostic
Reading
Assessment
Teaching
Classroom
Learning
Learning
Education
Setting
Support
Diagnostic
Language
Classroom
Reading
Literacy
Literacy
Assessment
Language
Setting
Reading
Literacy
Education
Report
Assessment
Report
Support
Learning
Learning
Report
Literacy
Literacy
Teaching
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Standard
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Language
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Diagnostic
Reading
Evaluation
Classroom
Language
Literacy
Literacy
Literacy
Language
Reading
Report
Assessment
Education
Setting
Teaching
Learning
Evaluation
Setting
Education
Support
Taaching
Classroom
Literacy
Standard
Teaching
Reading

Growth Between Grades 3, 6 and 9

5. Growth between Grades 3, 6, and 9

Growth in Reading and Mathematics literacy is illustrated in this section using mean scores and density plots. Learners from all grades are placed on one reporting scale. Please see Sections 2.1.2 and 0 for more information on how this is achieved.

To interpret the density plots in this section:

- The horizontal, x-axis is a scale score.
- The vertical, y-axis is a probability density function. In practical terms, it shows the distribution of learners' scores in each group.

Note that it is not possible to directly compare the heights of the three different groups. For example, if one group represented 100 learners, and another represented 10,000 learners, the heights could still be the same. Each density curve shows the **shape** of the distribution for each group but is not reflective of the absolute count of learners in each group.

Using estimated yearly shift in performance is useful in discussing what differences in performance might mean in a more real-world sense. To calculate estimates of the yearly shift in performance between the grades, we subtract one grade-level mean from another to obtain the difference in mean scores between the grades. As there are three years of schooling in between each assessment, we then divide the total difference in mean scores by three to get the yearly shift in performance. This shift for Reading is presented in Table 17 and for Mathematics is presented in Table 19. Note that these figures will be referred to in Chapter 0 to describe differences in performance between boys and girls in terms of years of schooling.

5.1 Growth in Reading literacy

Table 16 describes the mean Reading scale score for each grade. Looking at the shift in performance between grade levels (Table 17), growth in average Reading performance between grades is relatively stable. This is confirmed when we review the distributions in the density plot (Figure 3).

Figure 3 also shows us that within each grade, there is a wide range of abilities and that the abilities of learners are not bound by their grade level. For example,

Figure 3 is especially helpful in illustrating the overlap in learner abilities between grades. We can see that there are a considerable number of Grade 6 learners who are performing at or below the

average Grade 3 level. Similarly, there are a considerable number of Grade 9 learners performing at or below the average Grade 6 level. We can also see this overlap in the higher performing learners, where there are even some Grade 3 learners performing at or above the Grade 9 average. This overlap in abilities between the grade levels is further illustrated in the percentages of learners from each grade performing at each proficiency band (Section 0).

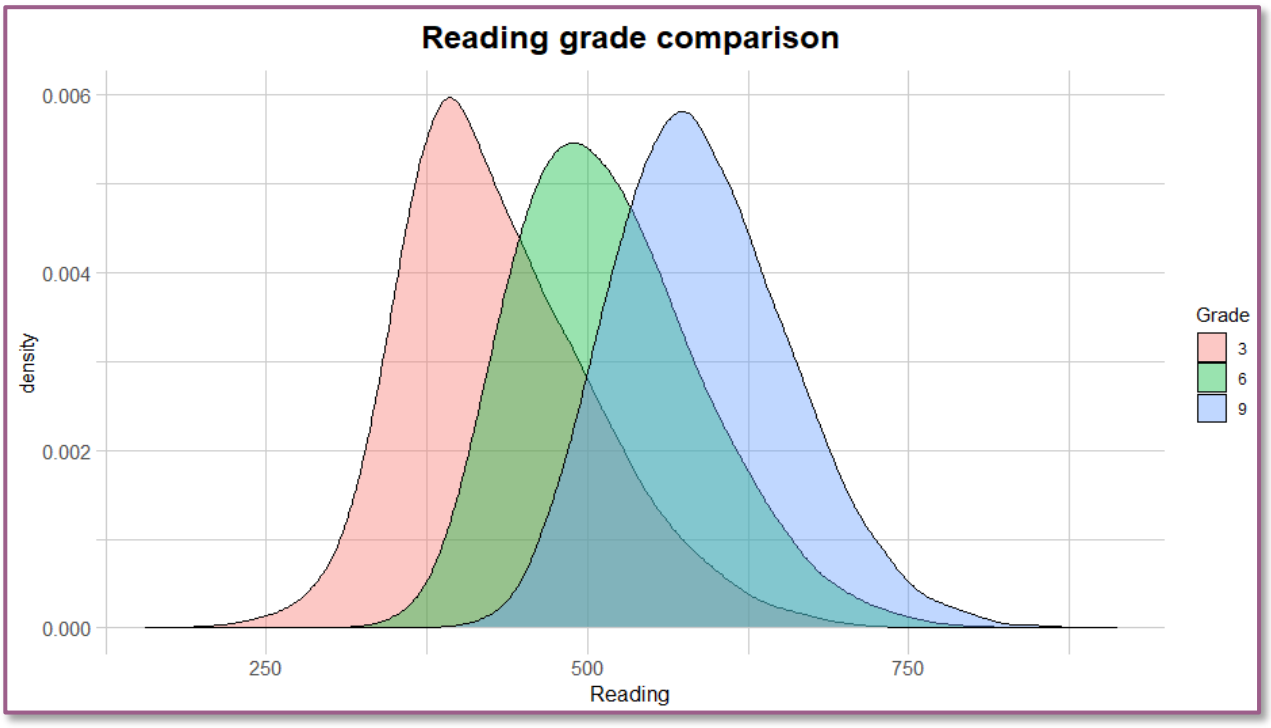
Table 16: *Mean Reading performance by grade*

Grade	Mean	SE	SD	SD SE
3	438	1.02	79	0.98
6	522	1.04	78	0.85
9	592	1.20	72	0.86

Table 17: *Yearly shift between grades in Reading scale score points*

Yearly shift	Scale score points
Grade 3 to Grade 6	28.2
Grade 6 to Grade 9	23.1

Figure 3: *Reading performance distribution, by grade*



5.2 Growth in Mathematical literacy

Table 18 describes the mean Mathematics scale score for each grade. Looking at the shift in performance between grade levels (Table 19), growth in Mathematics performance appears to slow between Grade 6 and Grade 9. This is confirmed when we review the distributions in the density plot (Figure 4). As for Reading, Figure 4 also shows us that in Mathematics there is a wide range of abilities within each grade and that the abilities of learners are not bound by their grade level. For example, there are substantial numbers of Grade 6 learners performing above the Grade 9 average, and substantial numbers of Grade 9 learners performing below the Grade 6 average. There are even some Grade 3 learners performing above the Grade 9 average. This overlap in abilities between the grade levels is further illustrated in the percentages of learners from each grade performing at each proficiency band (Section 0).

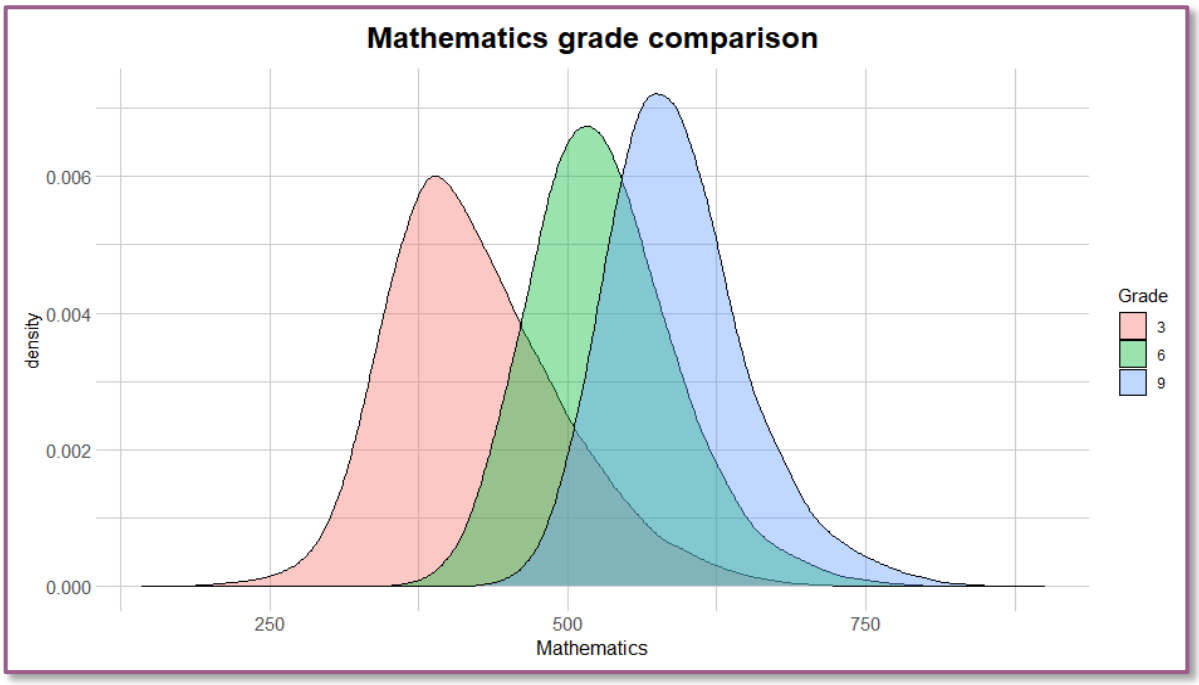
Table 18: *Mean Mathematics performance by grade*

Grade	Mean	SE	SD	SD SE
3	428	1.06	77	1.08
6	536	0.93	66	0.85
9	594	1.12	62	0.92

Table 19: *Yearly shift between grades in Mathematics scale score points*

Yearly shift	Scale score points
Grade 3 to Grade 6	36.0
Grade 6 to Grade 9	19.5

Figure 4: *Mathematics performance distribution, by grade*



Learner Achievement by Province

6. Learner achievement by province

The mean scores of each province are compared against the national mean in both Reading and Mathematics in all grades. Provinces whose mean scores were statistically significantly above or below the national mean are identified in the tables below. In this section, the use of the term 'significant' always refers to statistical significance. Across all grades in both Reading and Mathematics, Western Cape and Gauteng always performed significantly above the national mean, while Limpopo always performed significantly below.

The proportions of learners within each proficiency band are also described in Figure 5 to Figure 10 by province. These figures show that higher performing provinces have a higher proportion of learners at the higher proficiency bands.

6.1 Reading literacy of provinces

Table 20 outlines the mean Reading scale scores in Grade 3 for each province. On average, learners in Western Cape and Gauteng performed significantly above the national mean, while learners in Mpumalanga, Northern Cape, North West, and Limpopo performed significantly below.

Table 20: *Mean Reading performance in Grade 3, by province*

Province	Mean	SE	Difference	Diff SE	
Western Cape	477	3.45	39	3.39	^
Gauteng	450	3.51	12	3.03	^
Eastern Cape	439	2.83	1	2.76	
South Africa	**438**	**1.02**			
KwaZulu-Natal	436	2.94	-1	2.44	
Free State	436	3.08	-2	3.18	
Mpumalanga	427	2.28	-10	2.62	˅
Northern Cape†	424	3.78	-13	3.75	˅
North West	413	2.38	-25	2.61	˅
Limpopo	413	2.10	-25	2.30	˅

^Provincial mean significantly higher than the overall Grade 3 South African mean
˅Provincial mean significantly lower than the overall Grade 3 South African mean
†Weighted school response rate did not reach the standard

Table 21 outlines the mean Reading scale scores in Grade 6 for each province. On average, learners in Western Cape and Gauteng performed significantly above the national mean, while learners in

Mpumalanga, North West, Eastern Cape, KwaZulu-Natal and Limpopo performed significantly below.

Table 21: *Mean Reading performance in Grade 6, by province*

Province	Mean	SE	Difference	Diff SE	
Western Cape	567	2.64	44	2.67	^
Gauteng	559	3.53	37	3.15	^
Northern Cape	524	3.17	1	3.35	
South Africa	**522**	**1.04**			
Free State	518	2.97	-4	2.96	
Mpumalanga	516	2.68	-6	2.79	˅
North West	510	2.49	-13	2.37	˅
Eastern Cape	507	2.79	-16	2.63	˅
KwaZulu-Natal	504	2.76	-18	2.37	˅
Limpopo	493	2.02	-30	1.94	˅

^Provincial mean significantly higher than the overall Grade 6 South African mean
˅Provincial mean significantly lower than the overall Grade 6 South African mean

Table 22 outlines the mean Reading scale scores in Grade 9 for each province. On average, learners in Western Cape, Gauteng and Free State performed significantly above the national mean, while learners in Eastern Cape, KwaZulu-Natal and Limpopo performed significantly below.

Table 22: *Mean Reading performance in Grade 9, by province*

Province	Mean	SE	Difference	Diff SE	
Western Cape*	632	2.97	41	2.94	^
Gauteng	624	3.46	32	3.08	^
Free State†§	603	3.44	11	3.47	^
Northern Cape†*¶	594	4.16	2	4.29	
South Africa†§	**592**	**1.20**			
Mpumalanga†*¶	591	2.80	0	2.95	
North West	590	2.82	-2	3.18	
Eastern Cape†*¶	580	3.28	-12	2.88	˅
KwaZulu-Natal	571	2.63	-21	2.21	˅
Limpopo*	567	3.02	-25	2.93	˅

^Provincial mean significantly higher than the overall Grade 9 South African mean
˅Provincial mean significantly lower than the overall Grade 9 South African mean
†Weighted school response rate did not reach the standard

*Weighted student response rate did not reach the standard
§ Weighted total response rate (school rate multiplied by student rate) did not reach the standard (85 x 80 = 68 percent)
¶ Weighted total response rates under 50 percent should be interpreted with extreme caution

Figure 5 to Figure 7 show the percentage of learners in each Reading proficiency band by province for each grade. The provinces in all the figures are ordered by Grade 6 mean scores as described in Table 21 above. The proficiency band within which the South African mean score falls, is coloured dark purple with white text in all figures. In Grade 3, the mean score is 438, which falls towards the top of band 6. In Grade 6, the mean score is 522, which falls towards the bottom of band 8. In Grade 9, the mean score is 592, which falls towards the top of band 9.



We can see from these figures that high-performing provinces have more learners performing in the high proficiency bands, while the lower-performing provinces have more learners performing in proficiency bands below the mean.

We can also see that in Grade 3, the performance of each province differs substantially compared to Grades 6 and 9 where there is relatively little change between the grades.

For example, in Grade 3, Eastern Cape and KwaZulu-Natal have high proportions of learners in the higher bands; however, by Grade 6, these provinces have over 50 percent of their learners in the lower bands.

In contrast, Northern Cape, which has high proportions of learners in the higher proficiency bands in Grades 6 and 9, has 45.5 percent of learners performing below the mean proficiency band in Grade 3.

Figure 5: *Percentage of learners in each Reading proficiency band by province, Grade 3*

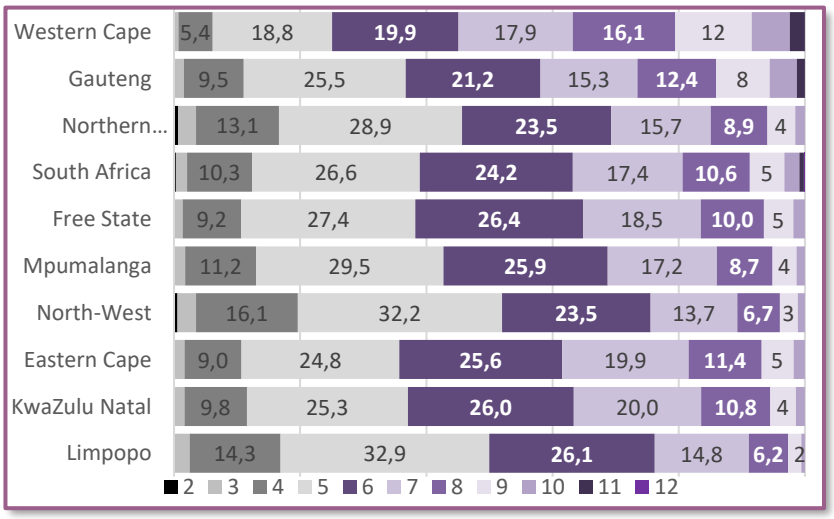


Figure 6: *Percentage of learners in each Reading proficiency band by province, Grade 6*

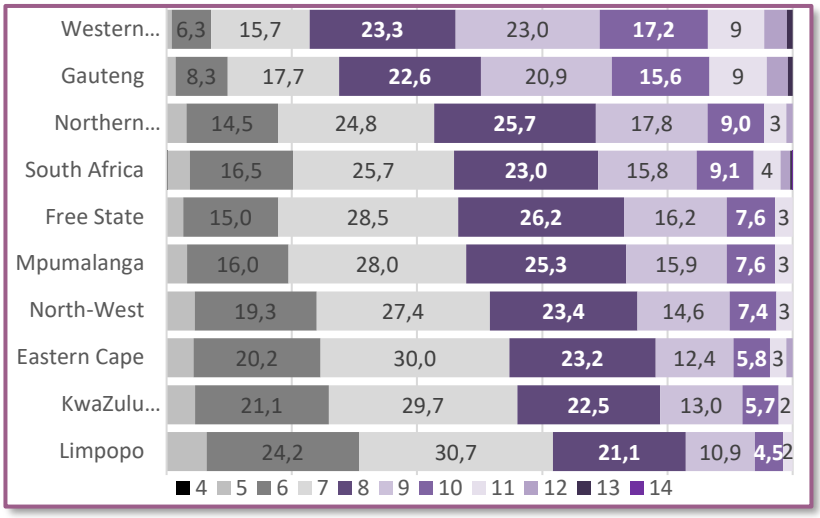
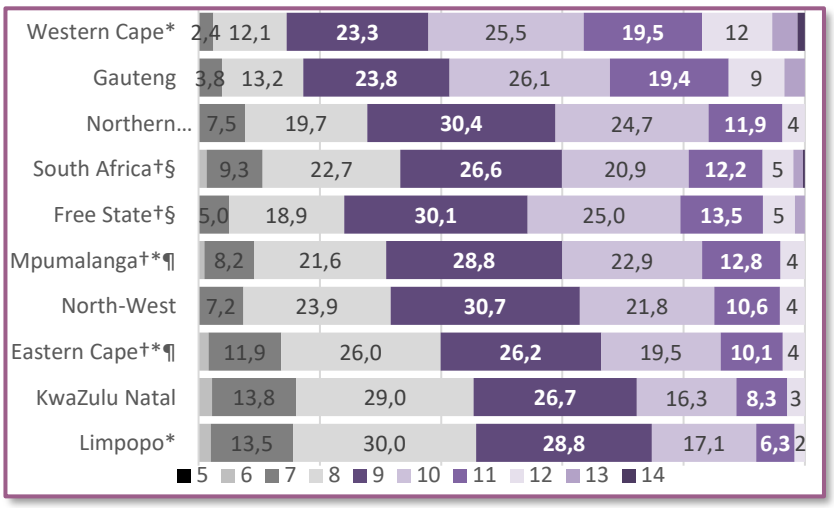


Figure 7: *Percentage of learners in each Reading proficiency band by province, Grade 9*



†Weighted school response rate did not reach the standard
*Weighted student response rate did not reach the standard
§ Weighted total response rate (school rate multiplied by student rate) did not reach the standard (85 x 80 = 68 percent)
¶ Weighted total response rates under 50 percent should be interpreted with extreme caution

6.2 Mathematical literacy of provinces

Table 23 outlines the mean Mathematics scale scores in Grade 3 for each province. On average, learners in Western Cape and Gauteng performed significantly above the national mean, while learners in Mpumalanga, North West and Limpopo performed significantly below.

Table 23: *Mean Mathematics performance in Grade 3, by province*

Province	Mean	SE	Diff	Diff_SE	
Western Cape	469	3.41	41	3.36	^
Gauteng	441	3.60	13	3.14	^
Free State	429	3.27	1	3.41	
South Africa	**428**	**1.06**			
KwaZulu-Natal	425	3.15	-3	2.61	
Eastern Cape	425	2.95	-3	2.89	
Northern Cape†	422	3.71	-6	3.75	
Mpumalanga	418	2.54	-10	2.84	˅
North West	407	2.50	-21	2.77	˅
Limpopo	404	2.46	-24	2.60	˅

^Provincial mean significantly higher than the overall Grade 3 South African mean
˅Provincial mean significantly lower than the overall Grade 3 South African mean
†Weighted school response rate did not reach the standard

Table 24 outlines the mean Mathematics scale scores in Grade 6 for each province. On average, learners in Western Cape and Gauteng performed significantly above the national mean, while learners in Northern Cape, Eastern Cape, KwaZulu-Natal, North West and Limpopo performed significantly below.



Table 24: *Mean Mathematics performance in Grade 6, by province*

Province	Mean	SE	Diff	Diff_SE	
Western Cape	569	2.51	33	2.49	^
Gauteng	561	3.11	25	2.76	^
Free State	536	2.87	0	2.90	
South Africa	**536**	**0.93**			
Mpumalanga	536	2.41	0	2.49	
Northern Cape	530	2.85	-6	2.93	˅
Eastern Cape	526	2.37	-10	2.19	˅
KwaZulu-Natal	524	2.50	-12	2.14	˅
North West	522	2.34	-14	2.26	˅
Limpopo	513	1.75	-23	1.71	˅

^Provincial mean significantly higher than the overall Grade 6 South African mean
˅Provincial mean significantly lower than the overall Grade 6 South African mean

Table 25 outlines the mean Mathematics scale scores in Grade 9 for each province. On average, learners in Western Cape, Gauteng and Free State performed significantly above the national mean, while learners in Limpopo, Eastern Cape and KwaZulu-Natal performed significantly below.

Table 25: *Mean Mathematics performance in Grade 9, by province*

Province	Mean	SE	Diff	Diff_SE	
Western Cape*	622	3.27	28	3.14	^
Gauteng	615	3.44	21	3.04	^
Free State†§	603	3.48	9	3.48	^
South Africa†§	**594**	**1.12**			
Mpumalanga†*¶	594	2.37	0	2.53	
North West	592	2.61	-3	2.91	
Northern Cape†*¶	590	4.07	-4	4.14	
Limpopo*	585	2.93	-9	2.81	˅
Eastern Cape†*¶	582	3.05	-12	2.70	˅
KwaZulu-Natal	581	2.30	-14	1.98	˅

^Provincial mean significantly higher than the overall Grade 9 South African mean
˅Provincial mean significantly lower than the overall Grade 9 South African mean
†Weighted school response rate did not reach the standard
*Weighted student response rate did not reach the standard
§ Weighted total response rate (school rate multiplied by student rate) did not reach the standard (85 x 80 = 68 percent)
¶ Weighted total response rates under 50 percent should be interpreted with extreme caution

Figure 8 to Figure 10 show the percentage of learners in each Mathematics proficiency band by province for each grade. The provinces in all the figures are ordered by Grade 6 mean scores as described in Table 24 above. The proficiency band within which the South African mean score falls, is coloured dark purple with white text in all figures. In Grade 3, the mean score is 428, which falls towards the bottom of band 4. In Grade 6, the mean score is 536, which falls at the top of band 5. In Grade 9, the mean score is 594, which falls at the top of band 6.



We can see from these figures that high-performing provinces have more learners performing in the high proficiency bands, while the lower-performing provinces have more learners performing in proficiency bands below the mean.

We can also see that, unlike for Reading, where the Grade 3 performance for each province differed between Grade 3 and the other two grades, for Mathematics, comparative performance among provinces is relatively stable.

Figure 8: *Percentage of learners in each Mathematics proficiency band by province, Grade 3*

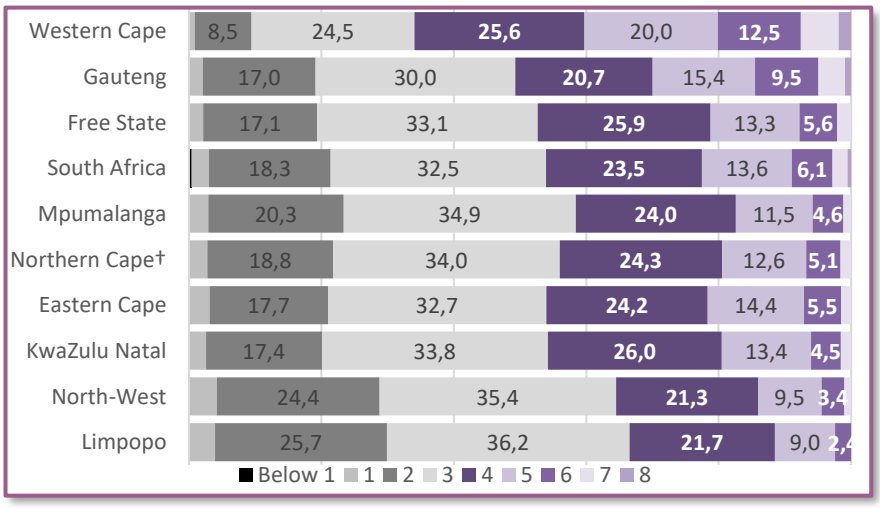


Figure 9: *Percentage of learners in each Mathematics proficiency band by province, Grade 6*

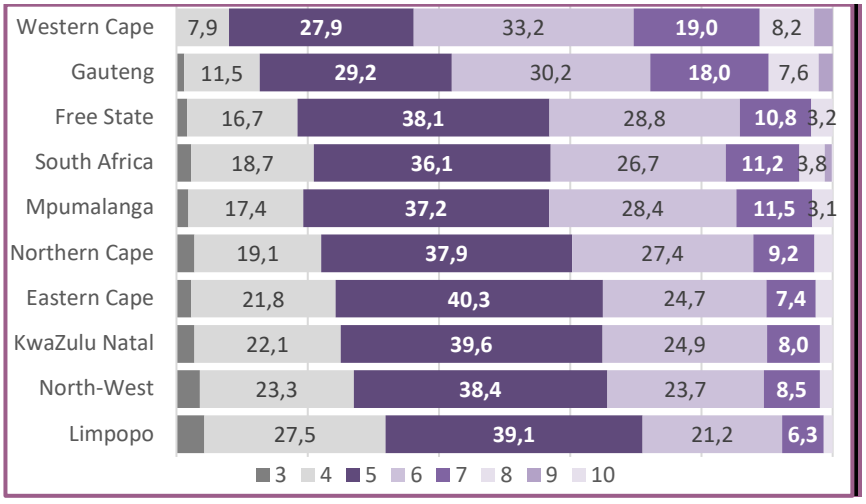
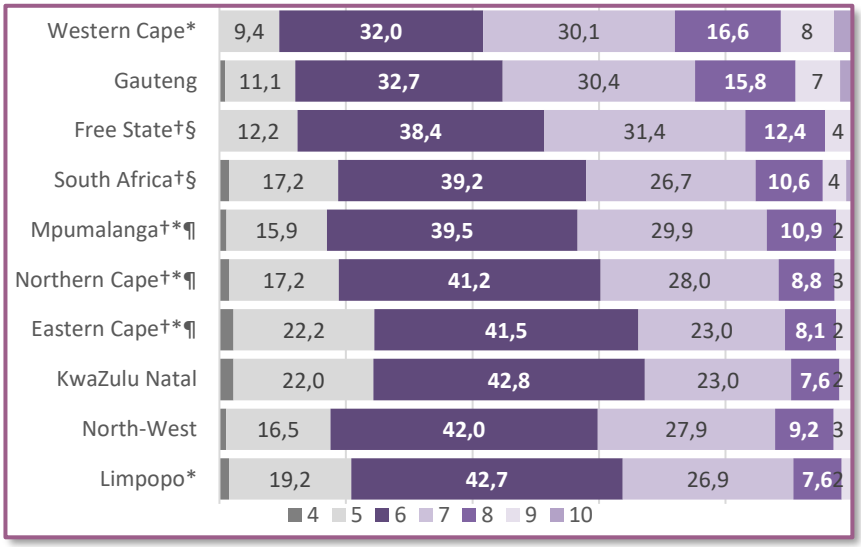
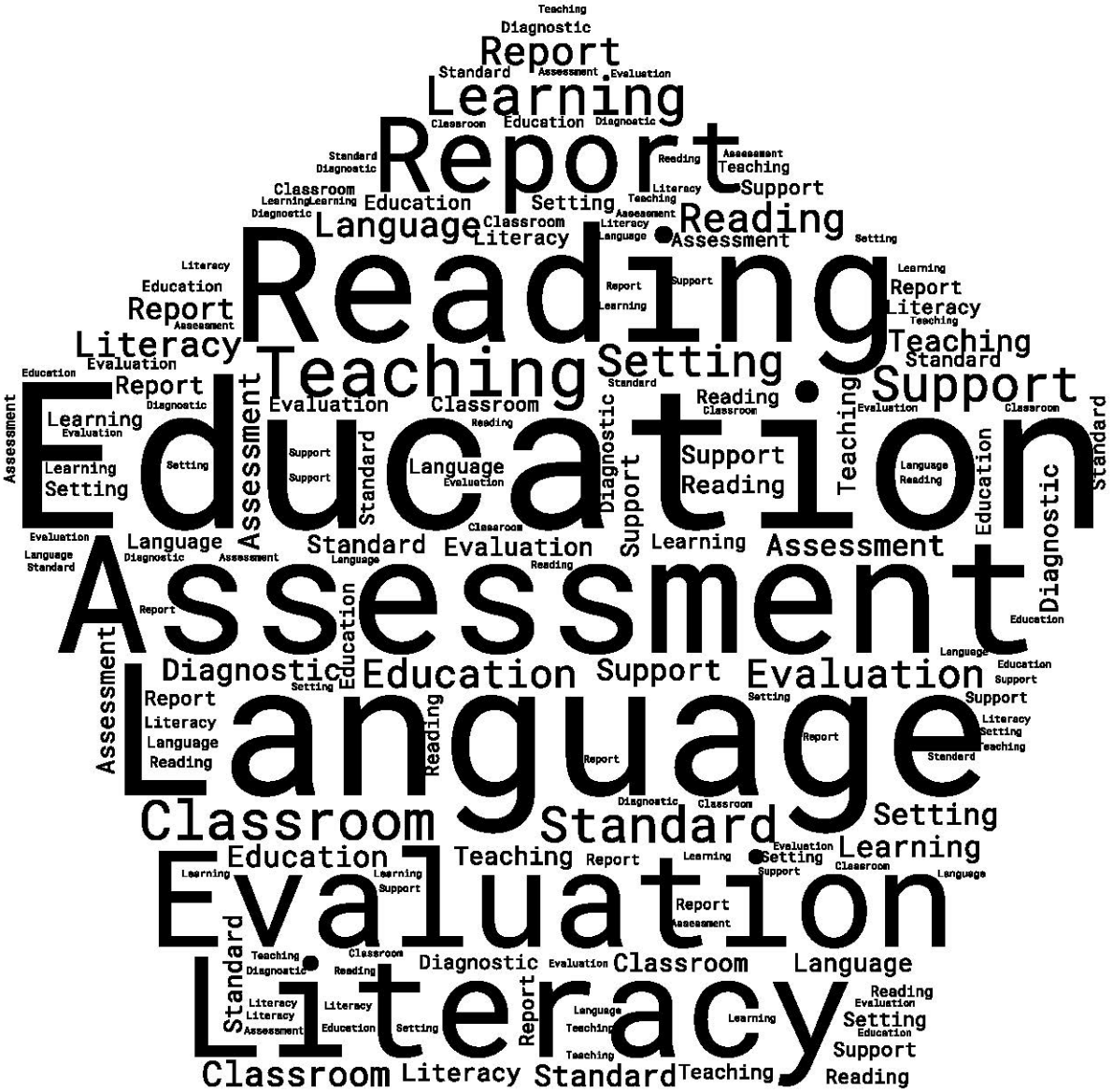


Figure 10: *Percentage of learners in each Mathematics proficiency band by province, Grade 9*



†Weighted school response rate did not reach the standard
*Weighted student response rate did not reach the standard
§ Weighted total response rate (school rate multiplied by student rate) did not reach the standard (85 x 80 = 68 percent)
¶ Weighted total response rates under 50 percent should be interpreted with extreme caution


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Learner Achievement by Language of Assessment

7. Learner achievement by language of assessment

Achievement in Reading and Mathematics was examined by language of assessment. Results show that learners sitting the assessment in Afrikaans are generally performing above their peers in both Reading and Mathematics.

7.1 Reading literacy by language of assessment

Table 26 to Table 28 outline the mean Reading scale scores for learners in Grades 3 to 9 by language of assessment. In Grade 3, learners taking the assessment in Afrikaans and English performed above the overall mean of 438, with English receiving the highest score (473). Learners taking the assessment in African languages performed below the overall mean.

In Grades 6 and 9, learners taking the assessment in Afrikaans performed higher than those taking the assessment in English; however, in both cases, learners taking the assessment in English achieved a scale score only slightly below the overall mean (Grade 6=overall mean 522, Grade 9=overall mean 592).

Table 26: *Mean Reading achievement by language of assessment, Grade 3*

Test Language	Mean	Mean SE	SD	SD SE
Afrikaans	466	3.99	89	1.92
English	473	3.32	92	1.54
IsiNdebele	413	6.96	61	3.99
IsiXhosa	431	2.17	67	1.32
IsiZulu	428	2.03	64	0.93
Sepedi	406	2.61	60	2.12
Sesotho	416	4.17	61	1.64
Setswana	397	1.94	59	0.95
Siswati	425	4.14	64	3.30
Tshivenda	415	4.64	61	2.68
Xitsonga	406	4.44	60	1.34

Table 27: *Mean Reading achievement by language of assessment, Grade 6*

Test Language	Mean	Mean SE	SD	SD SE
Afrikaans	558	4.27	79	2.19
English	519	1.10	77	0.92

Table 28: *Mean Reading achievement by language of assessment, Grade 9*

Test Language	Mean	Mean SE	SD	SD SE
Afrikaans	629	3.80	70	2.18
English	589	1.31	72	0.96

7.2 Mathematics literacy by language of assessment

Table 29 to Table 31 outline the mean Mathematics scale scores for learners in Grades 3 to 9 by language of assessment. In Grade 3, learners taking the assessment in Afrikaans and English performed above the overall mean of 428, with Afrikaans receiving the highest score (469). Learners taking the assessment in African languages performed below the overall mean.

As with Reading, in Grades 6 and 9, learners taking the assessment in Afrikaans performed higher than those taking the assessment in English; however, in both grades, learners taking the assessment in English achieved a scale score only slightly below the overall mean (Grade 6= overall mean 536, Grade 9=overall mean 594).

Table 29: *Mean Mathematics achievement by language of assessment, Grade 3*

Test Language	Mean	Mean SE	SD	SD SE
Afrikaans	469	4.26	89	2.40
English	462	3.38	87	1.73
IsiNdebele	413	7.87	62	4.16
IsiXhosa	416	2.22	65	1.26
IsiZulu	416	2.21	63	1.29
Sepedi	401	3.01	62	2.37
Sesotho	408	4.18	63	1.98
Setswana	395	2.21	59	0.89
Siswati	411	4.23	61	3.22
Tshivenda	405	5.36	62	2.74
Xitsonga	393	5.02	60	1.77

Table 30: *Mean Mathematics achievement by language of assessment, Grade 6*

Test Language	Mean	Mean SE	SD	SD SE
Afrikaans	563	4.20	72	2.32
English	533	0.94	65	0.92

Table 31: *Mean Mathematics achievement by language of assessment, Grade 9*

Test Language	Mean	Mean SE	SD	SD SE
Afrikaans	630	3.73	72	2.41
English	592	1.20	61	1.01



Learner Achievement of Boys and Girls

8. Learner achievement of girls and boys

Girls tended to perform better than boys across all grades in both Reading and Mathematics. This result is also reflected in the most recent TIMSS and PIRLS results for South Africa (Mullis et al., 2020, 2023). Differences in performance in Reading and Mathematics were greatest in Grade 3 and tended to reduce as learners progressed in their schooling. We cannot compare scale scores between Reading and Mathematics directly, but if we look at the differences in performance between girls and boys in terms of the number of years' schooling, the differences are estimated to be greater for Reading than they are for Mathematics.

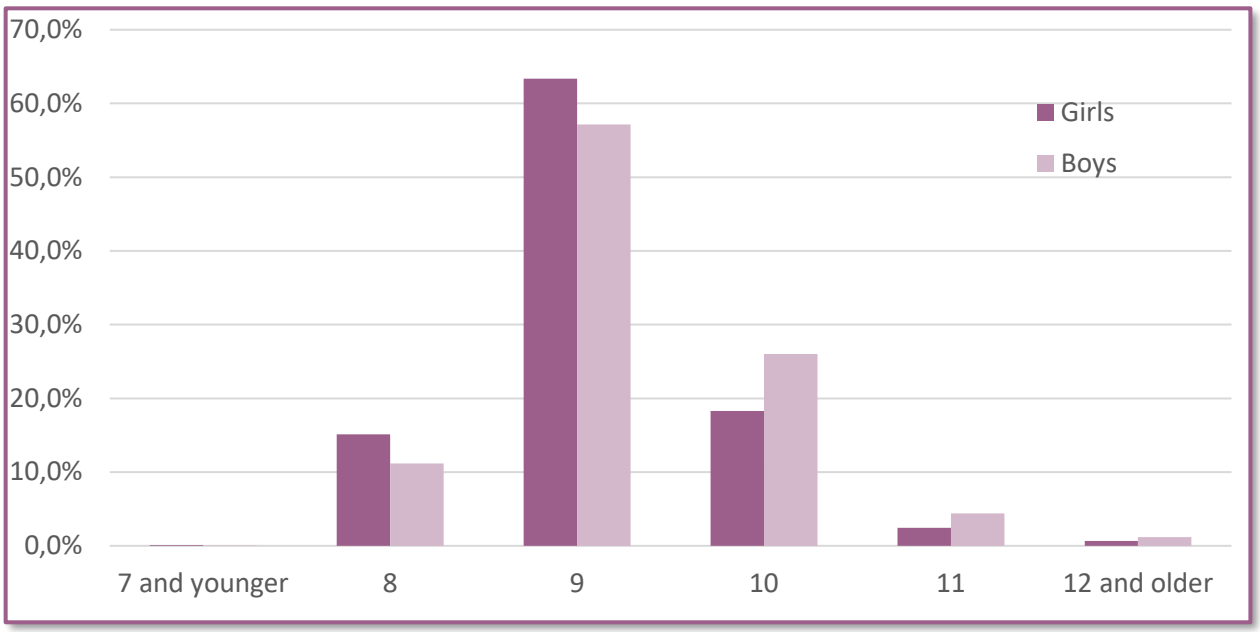
8.1 Age of learners

Learners' ages were calculated using their date of birth as reported in the student tracking forms as of the time of the test[3].

In all three grades, girls tended to be younger than boys. In Grade 3, the difference is less pronounced than in Grades 6 and 9.

In Grade 3 (Figure 11), the majority of boys (57.1 percent) and girls (63.4 percent) were aged 9 at the time of the test. A further 26 percent of boys and 18.3 percent of girls were aged 10.

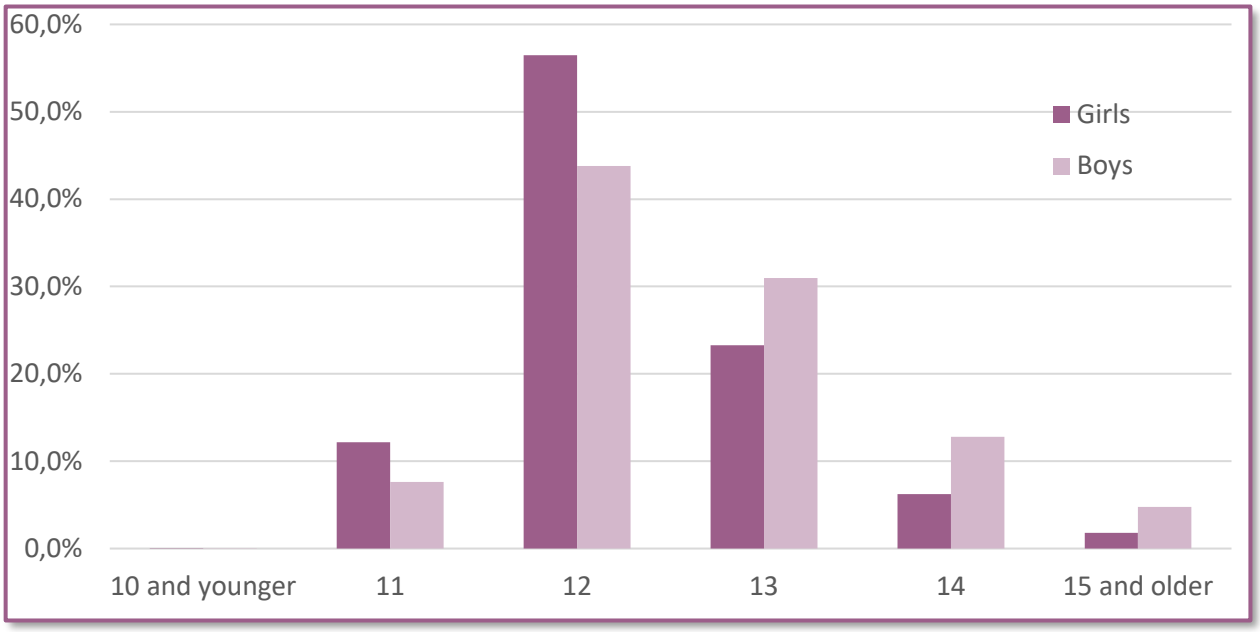
Figure 11: *Percentage of boys and girls in each of the Grade 3 age categories*



[3] Using March 2022 as the mid-point between the February to April testing schedule

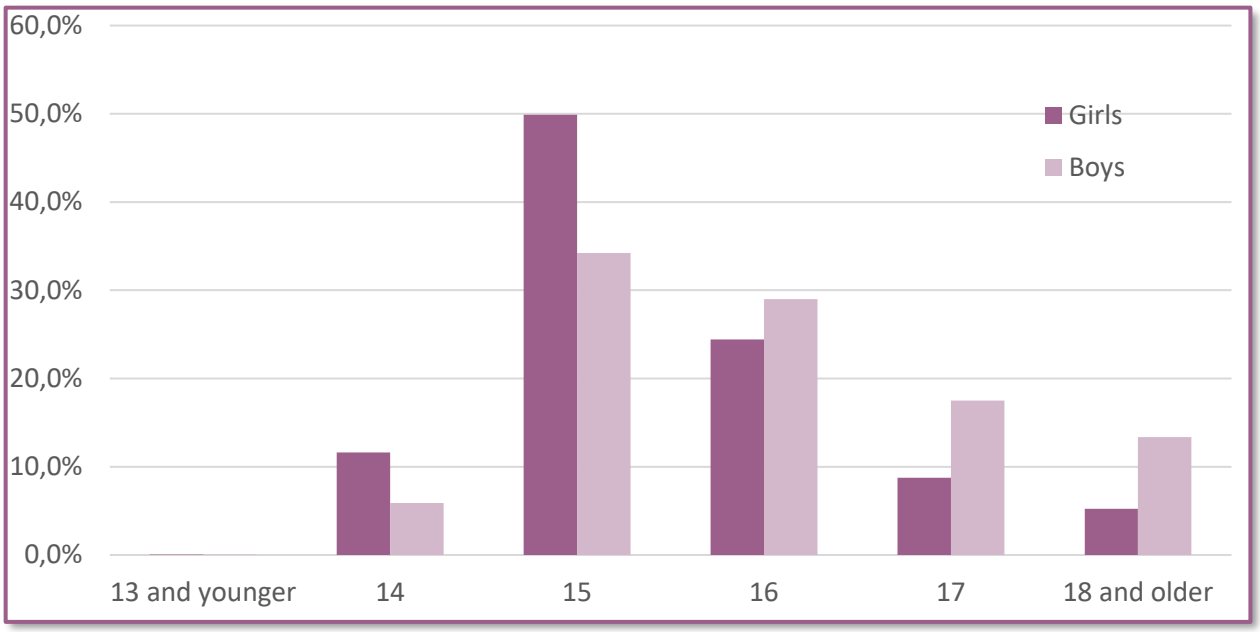
In Grade 6 (Figure 12), 43.8 percent of boys and 56.5 percent of girls were aged 12 at the time of the test. A large proportion – almost a third of the boys (31 percent) and almost a quarter of the girls (23.3 percent) – were aged 13.

Figure 12: *Percentage of boys and girls in each of the Grade 6 age categories*



In Grade 9 (Figure 13), almost half of the girls (49.9 percent) were 15 years old while only a third of the boys (34.2 percent) were this old. A large proportion of boys (59.8 percent) were 16 and older, with 13.4 percent of those being 18 and older.

Figure 13: *Percentage of boys and girls in each of the Grade 9 age categories*



8.2 Reading literacy of boys and girls

In all grades, girls scored higher on average in Reading than boys. All differences in mean performance between girls and boys were statistically significant.

Table 32 outlines the mean scores achieved by boys and girls in Mathematics and the difference between those scores. In Grade 3, girls scored an average of 31.4 score points more than boys, which represents an estimated 1.1-year difference in performance[4]. In Grade 6, the difference reduces to 25.6 score points, representing a 0.9-year difference in performance on average[5]. In Grade 9, the difference reduces slightly again to 22.9 score points, representing a 1-year difference in performance on average[6]. Please see Section 0 on for more information on how yearly shift in performance was estimated.

We can see from the density plots in Figure 14 to Figure 16 below, that there is a wide range of abilities among boys and girls across all grades, but on average, more girls are receiving higher scores.

[4] Using the Grade 3 to Grade 6 yearly shift estimate. See Table 17 on page 30 for more information.
[5] Using the Grade 3 to Grade 6 yearly shift estimate. See Table 17 on page 30 for more information.
[6] Using the Grade 6 to Grade 9 yearly shift estimate. See Table 17 on page 30 for more information.

Table 32: *Mean Reading performance by grade and gender*

	Boys				Girls				Difference Boy–Girl	
	Mean	**SE**	**SD**	**SD SE**	**Mean**	**SE**	**SD**	**SD SE**	**Mean**	**SE**
Grade 3	422	1.25	77	1.30	454	1.09	79	0.98	-31.4	1.19
Grade 6	509	1.42	78	1.33	535	1.01	76	0.85	-25.6	1.29
Grade 9	580	1.42	71	0.97	603	1.46	71	1.10	-22.9	1.67

*All differences are significant at $p < 0.001$

Figure 14: *Grade 3 Reading performance by gender*

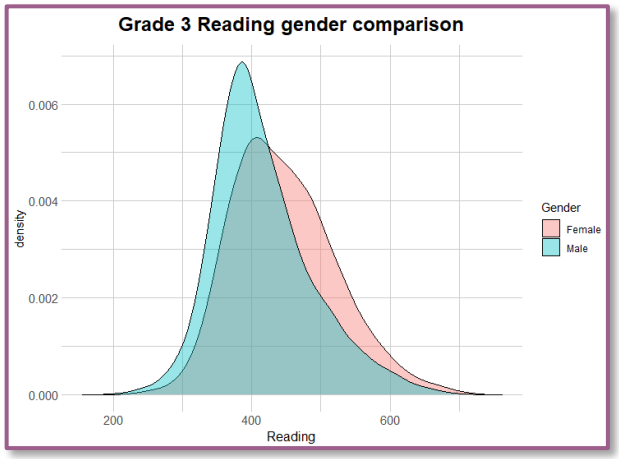


Figure 15: *Grade 6 Reading performance by gender*

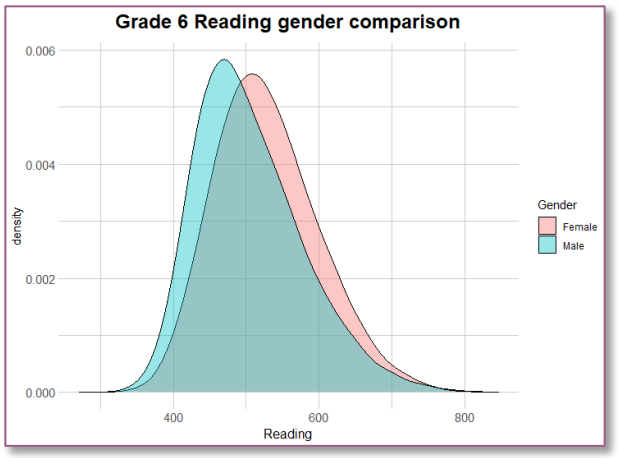
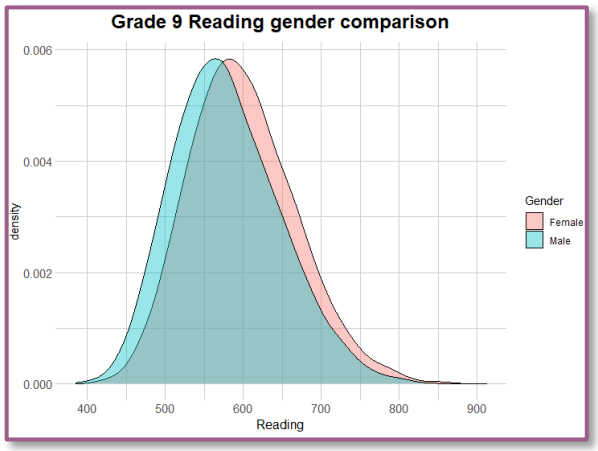


Figure 16: *Grade 9 Reading performance by gender*



8.3 Mathematical literacy of boys and girls

As with Reading, in Mathematics, girls scored higher than boys across all grades on average. Again, all differences in performance between girls and boys were statistically significant.

Table 33 outlines the mean scores achieved by boys and girls in Mathematics and the difference between those scores. In Grade 3, girls scored an average of 21.4 score points more than boys, which represents a 0.6-year difference in performance[7]. In Grade 6, the difference reduces to 11.3 score points, representing a 0.3-year difference in performance on average[8]. In Grade 9, the difference is 13.1 score points, representing a 0.7-year difference in performance on average[9]. Please see Section 0 for more information on how yearly shift in performance was estimated.

As with Reading, we can see in the density plots in Figure 17 to Figure 19 below, that there is a wide range of abilities among boys and girls across all grades, but more girls are receiving higher scores on average.

Table 33: *Mean Mathematical literacy by grade and gender*

	Boys				Girls				Difference Boy–Girl	
	Mean	SE	SD	SD SE	Mean	SE	SD	SD SE	Mean	SE
Grade 3	418	1.34	77	1.43	439	1.09	76	1.05	-21.4	1.22
Grade 6	530	1.31	67	1.34	542	0.91	64	0.79	-11.3	1.26
Grade 9	587	1.30	61	1.08	601	1.36	63	1.16	-13.1	1.51

*All differences are significant at p < 0.001

Figure 17: *Grade 3 Mathematical literacy by gender*

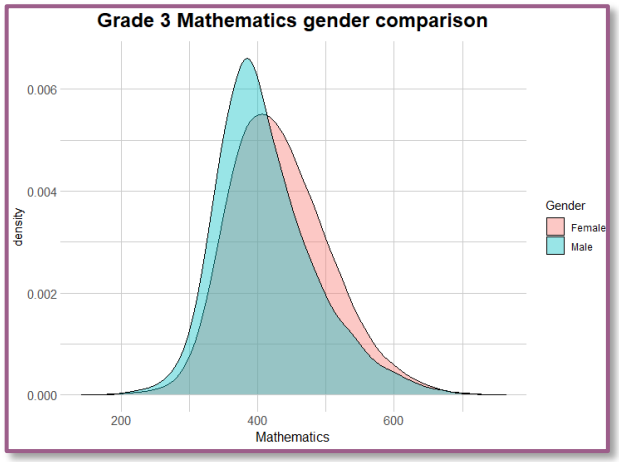
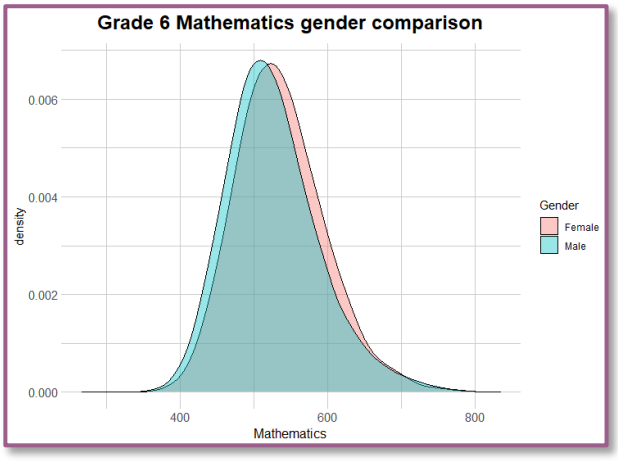
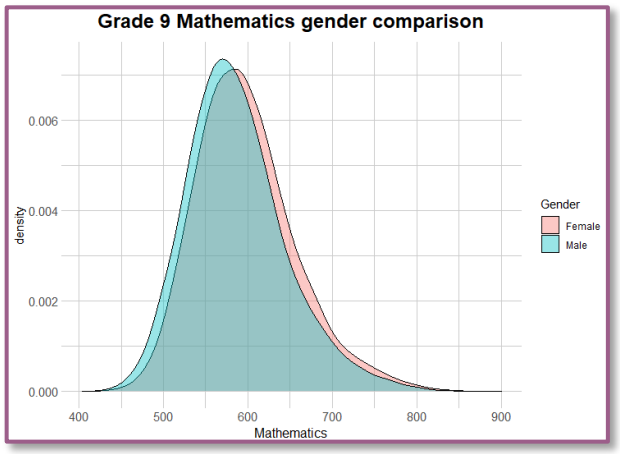


Figure 18: *Grade 6 Mathematical literacy by gender*



[7] Using the Grade 3 to Grade 6 yearly shift estimate. See Table 19 on page 31 for more information.
[8] Using the Grade 3 to Grade 6 yearly shift estimate. See Table 19 on page 31 for more information.
[9] Using the Grade 6 to Grade 9 yearly shift estimate. See Table 19 on page 31 for more information.

Figure 19: *Grade 9 Mathematical literacy by sex*



8.3.1 Mathematics strands

Mathematics achievement for boys and girls was also examined in five Mathematics strands:

1. Data handling
2. Measurement
3. Number Operations and Relationships
4. Patterns, Functions, and Algebra
5. Space and Shape.

More details about these strands can be found in Section 2.1.2. On average, girls scored higher across all strands. All differences in performance between girls and boys across Mathematic strands were statistically significant.

In Grade 3 (Table 34), the largest difference between boys and girls was found in the *Data Handling* strand, with girls performing 31.4 points higher than boys on average. In fact, for girls, this was the strand with the highest mean score, while for boys, it was the strand with the lowest mean score. The strand the with smallest difference between boys and girls is the *Patterns, Functions, and Algebra* strand, with girls performing 13.4 points higher than boys on average. Interestingly, this was the strand with the lowest mean score for girls, and the highest mean score for boys.

Table 34: *Mean Mathematical literacy by substrand and gender, Grade 3*

	Boys				Girls				Difference Boy–Girl	
	Mean	SE	SD	SD SE	Mean	SE	SD	SD SE	Mean	SE
Data handling	412	1.68	93	1.71	444	1.32	91	1.17	-31.4	1.47
Measurement	418	1.36	76	1.35	438	1.04	75	0.94	-20.0	1.15
Number operations and relationships	418	1.44	80	1.44	440	1.17	78	1.02	-22.1	1.30
Patterns, functions, and algebra	422	1.34	78	1.38	435	1.12	77	1.01	-13.4	1.24
Space and shape	418	1.39	77	1.44	440	1.07	75	1.01	-21.1	1.21

In Grade 6 (Table 35), as in Grade 3, *Data Handling* has the highest mean score for girls and one of the lowest means scores for boys. It is also the strand with the largest difference, with girls performing 16.6 points above boys on average. However, for Grade 6, the smallest difference between girls and boys is the *Measurement* strand (5.4 score points), where boys received their highest mean score and girls received their lowest.

Table 35: *Mean Mathematical literacy by substrand and gender, Grade 6*

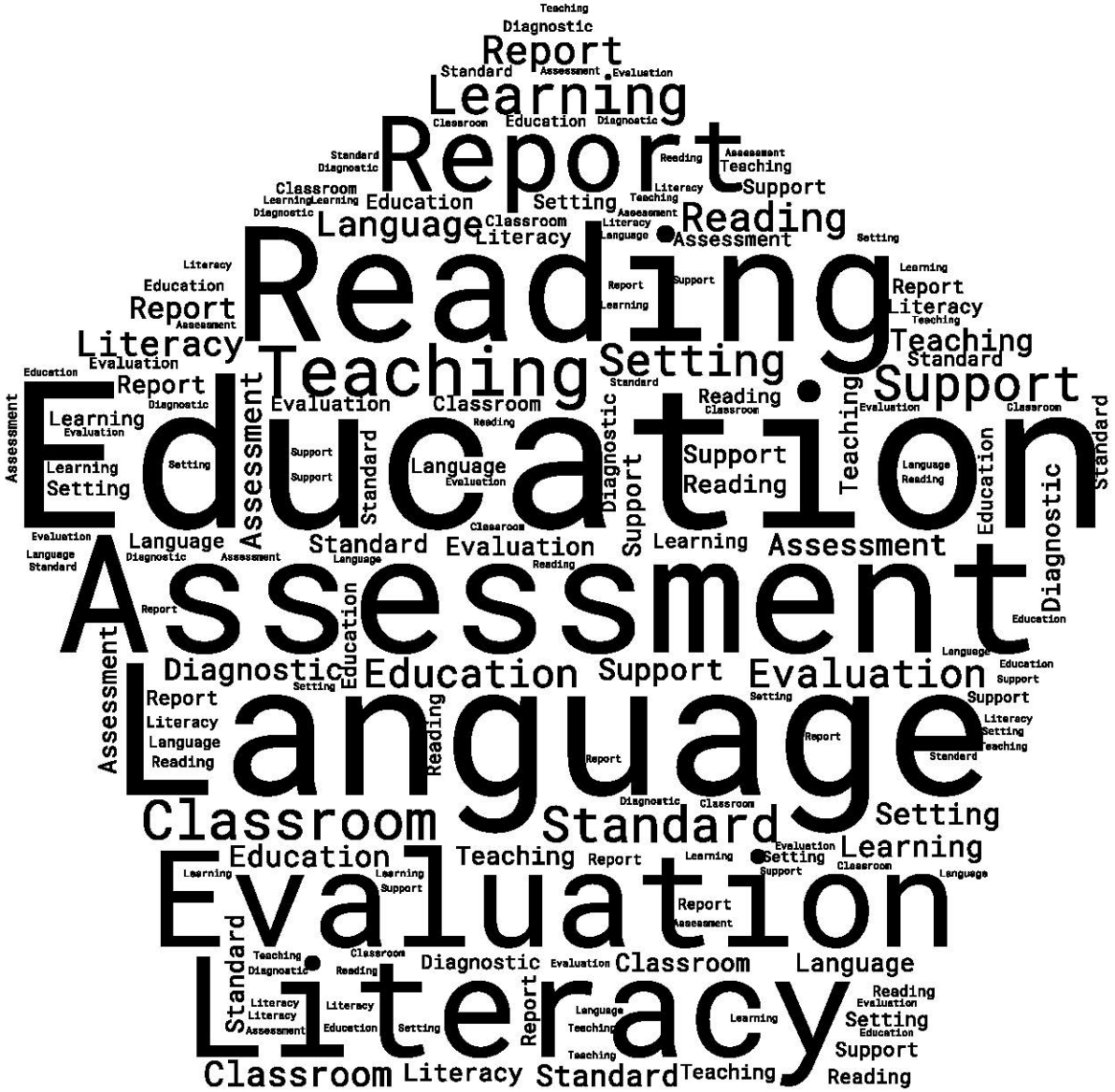
	Boys				Girls				Difference Boy–Girl	
	Mean	SE	SD	SD SE	Mean	SE	SD	SD SE	Mean	SE
Data handling	528	1.50	77	1.40	545	1.01	73	0.88	-16.6	1.31
Measurement	533	1.39	73	1.30	538	0.93	69	0.88	-5.4	1.22
Number operations and relationships	528	1.24	66	1.19	542	0.82	63	0.69	-13.8	1.09
Patterns, functions, and algebra	530	1.33	74	1.19	540	0.89	71	0.75	-9.8	1.19
Space and shape	531	1.27	65	1.27	541	0.88	62	0.80	-10.3	1.15

The pattern continues in Grade 9 (Table 36), where the smallest difference between girls and boys is in the *Measurement* strand (5.8 score points), wherein the boys received their highest mean score and girls received their lowest. In Grade 9, the largest difference is found in the *Patterns, Functions, and Algebra* strand (19 score points), wherein the girls received their highest mean score and boys received their lowest.

Table 36: *Mean Mathematical literacy by substrand and gender, Grade 9*

	Boys				Girls				Difference Boy–Girl	
	Mean	**SE**	**SD**	**SD SE**	**Mean**	**SE**	**SD**	**SD SE**	**Mean**	**SE**
Data handling	588	1.17	60	0.93	601	1.29	61	1.03	-12.8	1.35
Measurement	591	1.37	66	1.20	597	1.46	68	1.36	-5.8	1.60
Number operations and relationships	588	1.44	72	1.11	602	1.58	74	1.28	-14.5	1.69
Patterns, functions, and algebra	584	1.29	67	0.96	603	1.43	68	1.16	-19.0	1.50
Space and shape	588	1.26	60	1.04	598	1.37	62	1.11	-9.9	1.52




Reading
Education
Assessment
Language
Evaluation
Literacy
Report
Learning
Teaching
Classroom
Standard
Setting
Support
Diagnostic

Learner Achievement by Quintile and District

9. Learner achievement by quintile

Achievement in Reading and Mathematics was examined by school quintile. Schools in Quintile 1 represent the poorest schools in South Africa and schools in Quintile 5 the most affluent. Results show that learners from schools classified as Quintile 5 are performing far above their peers in lower quintile schools in both Reading and Mathematics.

9.1 Reading literacy by quintile

The mean Reading scale score for Grade 3 learners is 438. In Grade 3 (Table 37), there is very little difference between the scale scores of the first three quintiles; however, they are all performing below the overall mean. Learners at Quintile 5 have the highest mean scale score (498), which is 56 score points above Quintile 4 and 80 score points above the lowest performing quintile, Quintile 2. Eighty score points represents an estimated 2.8-year difference[10] in performance between the lowest performing quintile and the highest.

Table 37: *Mean Reading scale scores by quintile, Grade 3*

Quintile	Mean	SE	SD	SD SE
1	420	1.95	68	1.43
2	418	2.09	67	1.42
3	424	1.82	67	0.99
4	442	2.86	76	1.94
5	498	4.59	90	1.96

The mean Reading scale score for Grade 6 learners is 522. In Grade 6 (Table 38), the first three quintiles are performing below the overall mean. Learners in Quintile 5 have the highest mean scale score (594), which is 57 score points above Quintile 4 and 101 score points above Quintile 1, the lowest performing quintile. One hundred and one score points represents an estimated 3.6 year[11] difference in performance between the lowest performing quintile and the highest.

[10] Using the Grade 3 to Grade 6 yearly shift estimate. See Table 17 on page 42 for more information.
[11] Using the Grade 3 to Grade 6 yearly shift estimate. See Table 17 for more information.

Table 38: *Mean Reading scale scores by quintile, Grade 6*

Quintile	Mean	SE	SD	SD SE
1	493	1.53	64	0.91
2	499	1.60	63	1.05
3	507	1.53	64	0.85
4	537	3.44	75	1.83
5	594	4.37	79	1.69

The mean Reading scale score for Grade 9 learners is 592. In Grade 9 (Table 39), Quintiles 1 and 4 are performing around this overall mean. Quintile 2 is the lowest performing quintile, with a mean of 568 and again, Quintile 5 is the highest with a mean of 625. The difference between these mean scores is 57 score points, which represents an estimated 2.5-year difference[12] in performance between the lowest performing quintile and the highest.

Table 39: *Mean Reading scale scores by quintile, Grade 9*

Quintile	Mean	SE	SD	SD SE
1	593	3.21	79	1.69
2	568	2.67	65	1.57
3	581	2.68	66	1.90
4	591	3.30	64	2.25
5	625	3.92	72	2.06

9.2 Mathematics literacy by quintile

The mean Mathematics scale score for Grade 3 learners is 428. Learners in schools classified as Quintile 1 to 3 are performing below the overall mean score (Table 40). Quintile 2 has the lowest score (408) while Quintile 5 has the highest (489). The difference between these scores is 81 points, which represents an estimated 2.3-year difference[13] in performance.

[12] Using the Grade 6 to Grade 9 yearly shift estimate. See Table 17 for more information.
[13] Using the Grade 3 to Grade 6 yearly shift estimate. See Table 19 for more information.

Table 40: *Mean Mathematics scale scores by quintile, Grade 3*

Quintile	Mean	SE	SD	SD SE
1	410	2.04	67	1.52
2	408	2.20	66	1.49
3	415	1.90	65	1.03
4	434	2.97	74	2.20
5	489	4.79	86	2.09

The mean Mathematics scale score for Grade 6 learners is 536. In Grade 6 (Table 41), the first three Quintiles are performing below the overall mean. Learners in Quintile 5 have the highest mean scale score (593), which is 48 score points above Quintile 4 and 79 score points above Quintile 1, the lowest performing quintile. Seventy-nine score points represents an estimated 2.2 year[14] difference in performance between the lowest performing quintile and the highest.

Table 41: *Mean Mathematics scale scores by quintile, Grade 6*

Quintile	Mean	SE	SD	SD SE
1	514	1.39	55	0.90
2	518	1.33	54	0.77
3	523	1.21	53	0.71
4	545	2.68	62	1.84
5	593	4.06	70	1.98

The mean Mathematics scale score for Grade 9 learners is 594. In Grade 9 (Table 42), Quintile 1 is performing above the overall mean score. Quintile 2 has the lowest score (578) while Quintile 5 has the highest (619). The difference between these scores is 41 points, which represents an estimated 2.1-year difference[15] in performance.

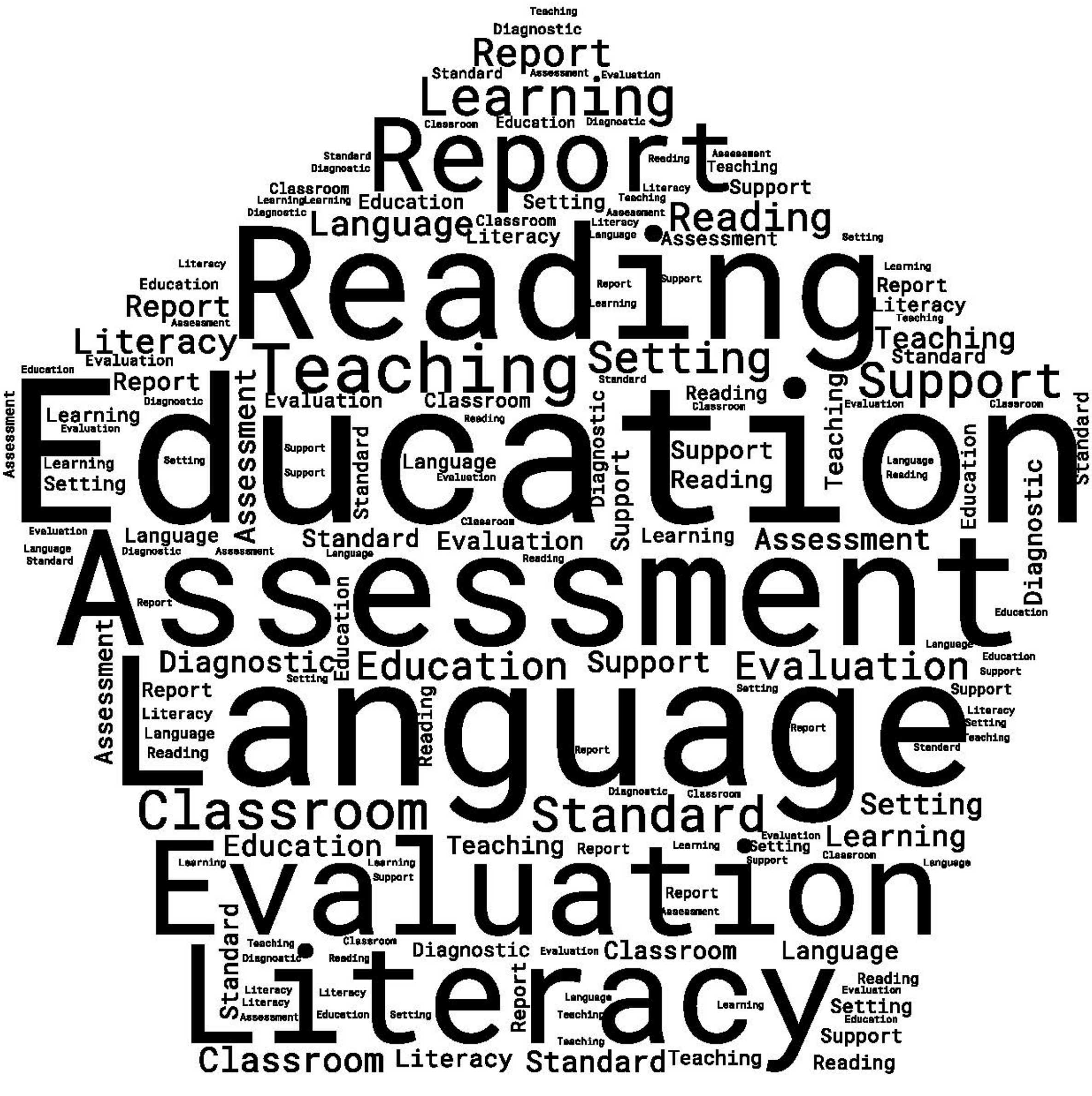
[14] Using the Grade 3 to Grade 6 yearly shift estimate. See Table 19 for more information.
[15] Using the Grade 6 to Grade 9 yearly shift estimate. See Table 19 for more information.

Table 42: *Mean Mathematics scale scores by quintile, Grade 9*

Quintile	Mean	SE	SD	SD SE
1	601	2.69	69	1.79
2	578	2.18	54	1.46
3	584	2.46	57	1.99
4	590	3.18	54	2.30
5	619	3.91	66	2.31

10. Learner achievement by district

The mean Reading and Mathematics achievement of learners by district is described in tables in Appendix 1. Please note that as education district was not taken into account when designing the school sample, some of the results presented in these tables may not be statistically reliable. As such, these results should be interpreted with caution and are included in this report for the DBE and provincial educations departments' use only.


Teaching
Diagnostic
Report
Learning
Report
Reading
Education
Assessment
Language
Evaluation
Literacy
Teaching
Setting
Support
Classroom
Standard

Contextual Factors of Learner Achievement

11. Contextual factors of learner achievement

This chapter uses effect sizes to illustrate differences in Reading and Mathematics achievement between groups in relation to a range of contextual factors. An effect size is a measure of the strength of the relationship between two variables using a standardised difference (OECD, 2009). Using effect sizes makes comparisons between groups with considerably different learning outcomes easier to interpret. The Programme for International Student Assessment (PISA) effect size methodology has been adopted to calculate effect size in this study (OECD, 2009). We have used effect-size benchmarks suggested by Hattie (2008), with 0.2 as a small effect, 0.4 as a medium effect, and 0.6 as a large effect on outcomes.

11.1 Learner wealth

The items included in the creation of the learner wealth index are derived from the parent questionnaire and listed in Table 43 below. Parents were asked: Does your home have or do you own any of the following? If missing in the parent questionnaire, valid responses were obtained from the learner questionnaire for variables marked with an asterisk.



Table 43: *Learner wealth index: proportions of households with certain items, all grades*

	Yes	No	Invalid or Missing
Running tap water*	74.63	25.37	15.91
Electricity*	93.88	6.12	15.09
Flushing toilet*	59.29	40.71	16.68
Radio*	63.72	36.28	17.78
Television*	86.54	13.46	15.62
A satellite dish*	68.37	31.63	18.59
A DVD or CD player*	48.22	51.78	18.96
A computer/laptop/tablet*	33.83	66.17	20.50
Access to the internet (from the learner questionnaire)	47.17	52.83	32.48
Cell phone*	91.42	8.58	16.66
Motor vehicle or motor bike (combined into a single variable)	34.13	65.87	31.39
Bicycle	19.42	80.58	33.94

Figure 20 shows the effect size for the difference in Reading and Mathematics achievement by learner wealth for each grade level. Learner wealth has a medium positive relationship with learning outcomes in Grade 3, and a large positive relationship in Grades 6 and 9 for both Reading and Mathematics. This means that wealthier learners perform better in both Reading and Mathematics.

While PIRLS and TIMSS measure wealth and socioeconomic status differently to SASE, South African results from these international assessments are in line with findings here, showing that learners with higher wealth or socioeconomic status perform better in both Reading and Mathematics (Mullis et al., 2020, 2023).



Figure 20: *Reading and Mathematics achievement by learner wealth index, by grade*

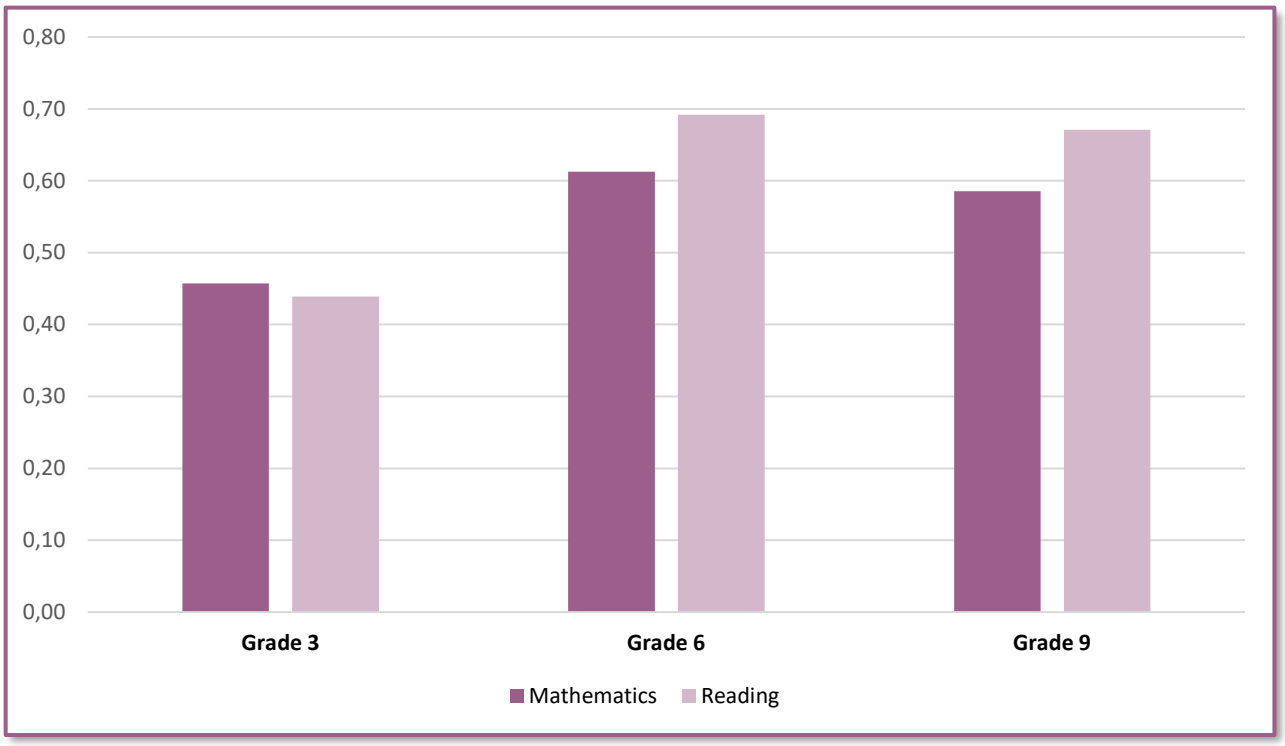


Figure 21 shows the effect size for the difference in Reading and Mathematics achievement by learner wealth for each province. The effect size of a learner's wealth on Reading and Mathematics performance differs across provinces, but is always positive. This means that in all provinces, wealthier learners displayed higher achievement in both Mathematics and Reading. A medium effect size was found in Gauteng for both Mathematics and Reading. Most other provinces were found to have small to medium effect sizes except for Limpopo, where the relationship between a learner's wealth and their performance in Reading and Mathematics was negligible.

Please note, however, that effect sizes are influenced by the amount of variance in both the outcome variable (Reading and Mathematics performance) and the predictor variable (learner wealth). As such, while it appears that in Limpopo wealth does not have a significant effect on performance, it could be that there were a large number of learners in that province of low wealth, and/or that a high proportion of learners were low-performing.

Figure 21: *Reading and Mathematics achievement by learner wealth index, by province*

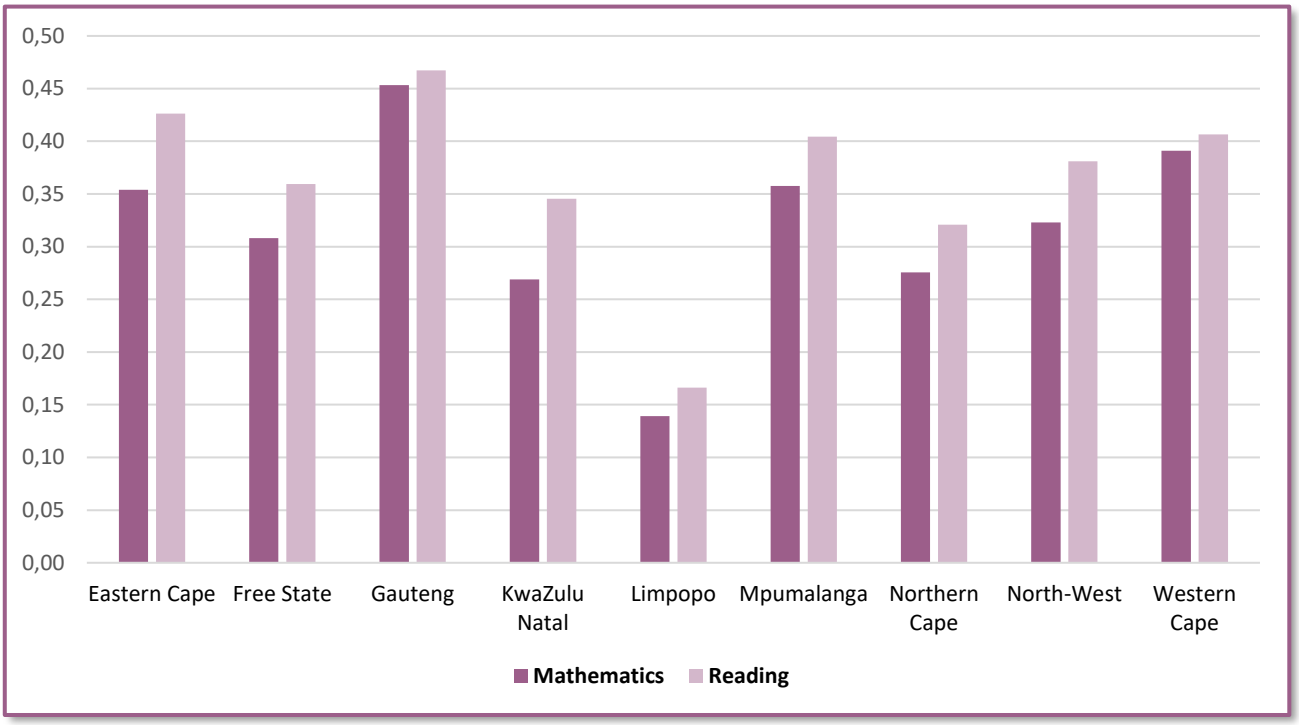


Figure 22 to Figure 24 the effect sizes for the difference in Reading and Mathematics achievement by learner wealth for test language by grade. In Grade 3, the effect size of a learner's wealth on Reading and Mathematics performance is generally negligible in the African languages except in IsiXhosa and IsiZulu, where there is a small negative relationship with Mathematics performance. This means that for learners taking the test in these two languages, those who were wealthier displayed lower achievement in Mathematics.

In contrast, for learners who took the test in Afrikaans or English, there is a medium positive relationship between wealth and performance in Reading and Mathematics for Grade 3. This means that for learners taking the test in Afrikaans or English, those who were wealthier displayed higher achievement in both Reading and Mathematics.

In Grades 6 and 9, the relationship between a learner's wealth and their Mathematics performance remains positive and medium for learners who took the test in English. However, for learners who took the test in Afrikaans, there is a large positive relationship between a learner's wealth and their Mathematics performance. For learners who took the test in Afrikaans or English, there is a large positive relationship between a learner's wealth and their performance in Reading. Overall, this means that for learners taking the test in Afrikaans or English, those who were wealthier displayed higher achievement in both Reading and Mathematics.

Figure 22: *Grade 3 Reading and Mathematics achievement by learner wealth index, by test language*

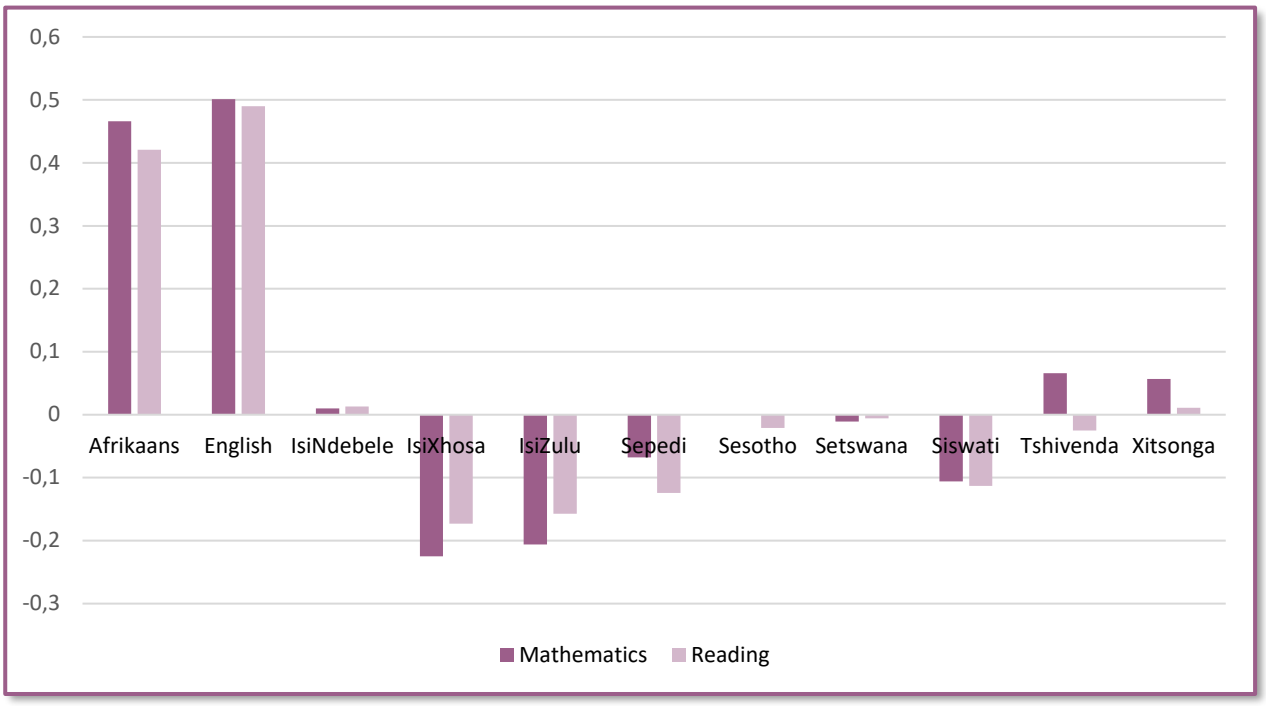


Figure 23: *Grade 6 Reading and Mathematics achievement by learner wealth index, by test language*

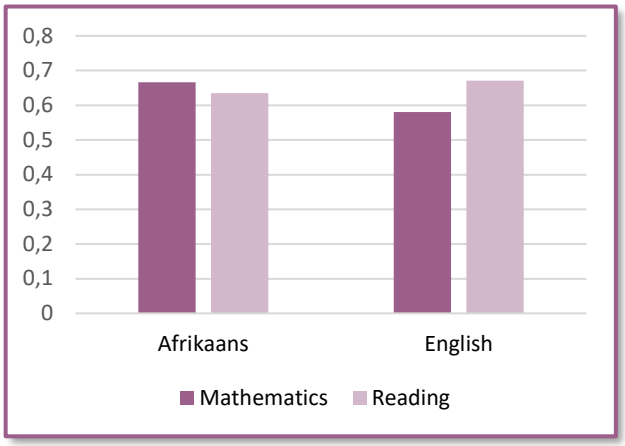
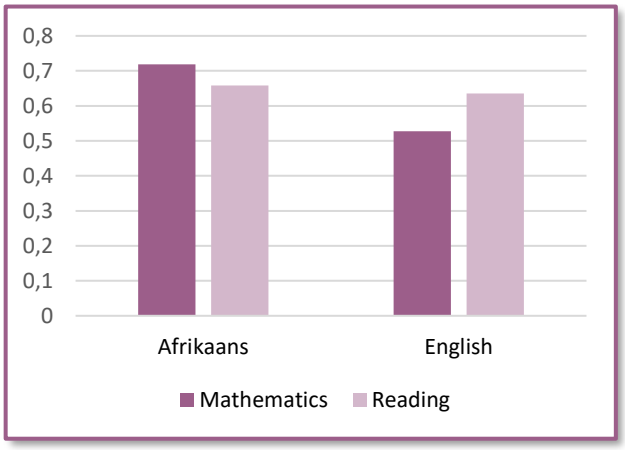


Figure 24: *Grade 9 Reading and Mathematics achievement by learner wealth index, by test language*



When examined by grade and gender and by province and gender, the differences in effect size between boys and girls did not differ substantially. See Table 66 and Table 67 in the appendix for details.

11.2 Parental engagement

The items included in the creation of the parental engagement index are derived from the parent questionnaire and listed in Table 44 to Table 46 below. Parents were asked: How often do you or someone else do the following things with your child? Note that as learners progress in their

schooling, the proportions receiving everyday support from their parents in these types of activities diminishes. For example, while almost 83 percent of parents report helping their child in Grade 3 with their schoolwork every day, this decreases to 44 percent of parents with Grade 9 learners.

Table 44: *Parental engagement index: proportions of Grade 3 parents performing certain tasks with their children*

	Every day	Once or twice a week	Once or twice a month	Never or hardly ever	Invalid or Missing
Talk about your child's Language schoolwork	72.21	20.58	4.41	2.79	10.34
Talk about your child's Mathematics schoolwork	65.13	26.77	5.16	2.94	13.30
Help your child with their schoolwork	82.94	12.50	2.84	1.72	9.87
Read with your child	59.59	29.67	6.35	4.39	13.84

Table 45: *Parental engagement index: proportions of Grade 6 parents performing certain tasks with their children*

	Every day	Once or twice a week	Once or twice a month	Never or hardly ever	Invalid or Missing
Talk about your child's Language schoolwork	62.22	25.90	7.49	4.40	11.53
Talk about your child's Mathematics schoolwork	52.58	33.30	9.09	5.03	13.69
Help your child with their schoolwork	68.75	21.61	6.10	3.54	8.94
Read with your child	43.08	34.72	12.84	9.36	13.52

Table 46: *Parental engagement index: proportions of Grade 9 parents performing certain tasks with their children*

	Every day	Once or twice a week	Once or twice a month	Never or hardly ever	Invalid or Missing
Talk about your child's Language schoolwork	50.06	30.09	11.88	7.97	9.64
Talk about your child's Mathematics schoolwork	42.48	34.64	13.54	9.34	11.83
Help your child with their schoolwork	44.44	29.21	14.04	12.31	9.18
Read with your child	27.03	30.19	18.78	24.00	12.30

Figure 25 shows the effect sizes for the difference in Reading and Mathematics achievement by parental engagement for each grade level. The effect size of a parent's engagement in their child's schooling on Reading and Mathematics performance is negligible in Grades 3 and 6, but in Grade 9 a small negative relationship with learning outcomes was found. This means that Grade 9 learners who receive more support from their parents displayed lower achievement in both Reading and Mathematics. A possible explanation for this could be that the types of engagement listed in this index are focused towards younger learners, so that by Grade 9, those parents who are still reading to their child, for example, may be parents of low-performing children.

Figure 25: *Reading and Mathematics achievement by parental engagement index, by grade*

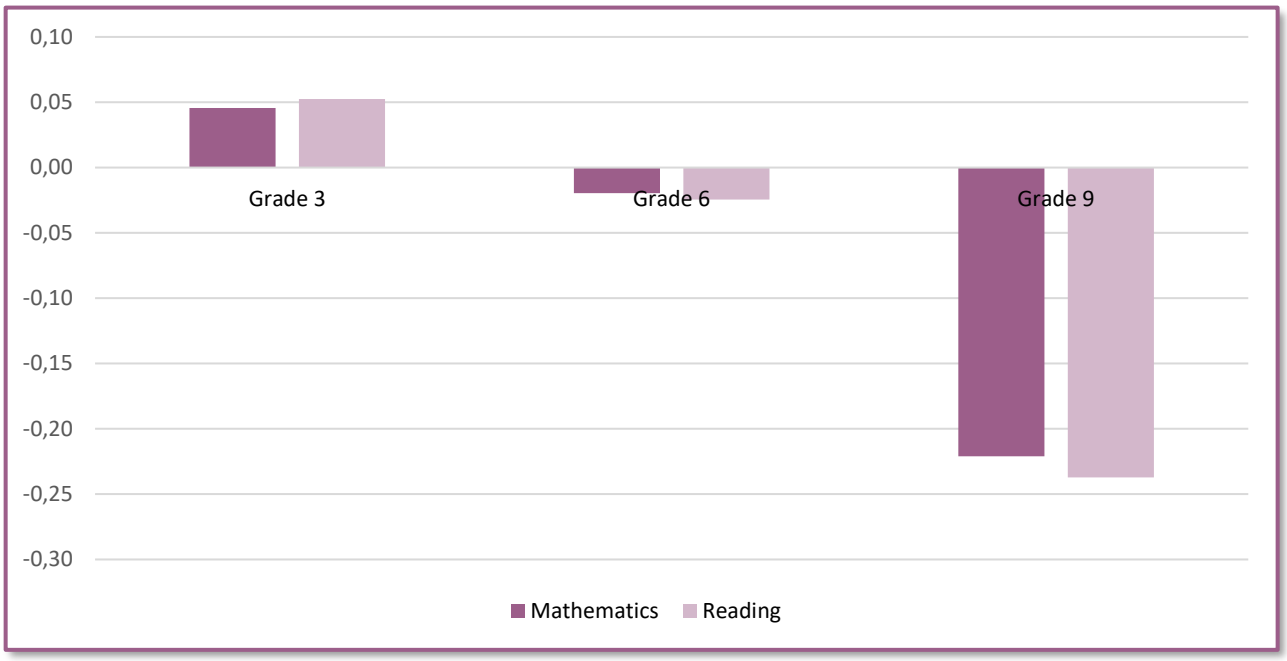


Figure 26 to Figure 28 show the effect sizes for the difference in Reading and Mathematics achievement by parental engagement for each grade level by test language. In Grade 3, effect sizes are generally negligible except for IsiNdebele and Tshivenda, which show parental engagement to have a small relationship with both Reading and Mathematics. For learners taking the test in Tshivenda, the effect size is positive, meaning that learners with more engaged parents are displaying higher performance in both Reading and Mathematics. However, for learners taking the test in IsiNdebele, the effect size is negative, meaning that learners with more engaged parents are displaying lower performance in both Reading and Mathematics. This may be because parents of learners schooled in IsiNdebele are providing more support to low-performing children.

In Grade 6, the effect sizes are negligible; however, in Grade 9, the effect sizes are negative and medium in Afrikaans, and negative and small (and approaching small) in English. This reflects the grade level effect size results, but also shows that parental engagement has a larger negative

relationship with learning outcomes for learners taking the test in Afrikaans compared to those taking the test in English.

Figure 26: *Grade 3 Reading and Mathematics achievement by parental engagement index, by test language*

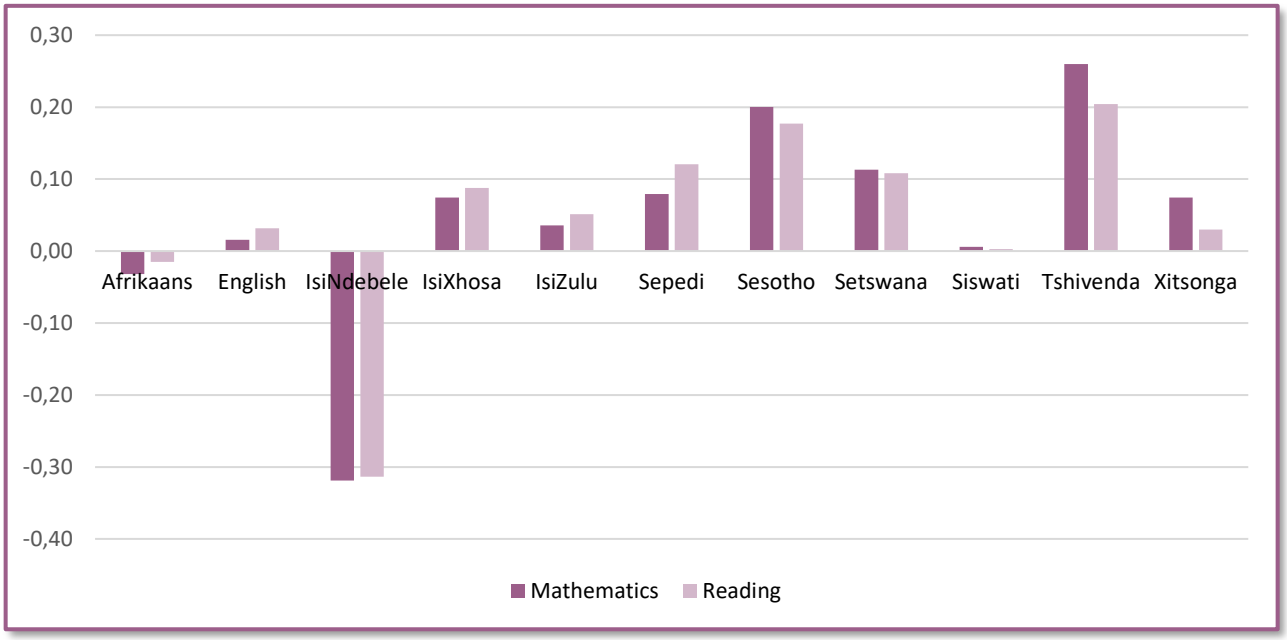


Figure 27: *Grade 6 Reading and Mathematics achievement by parental engagement index, by test language*

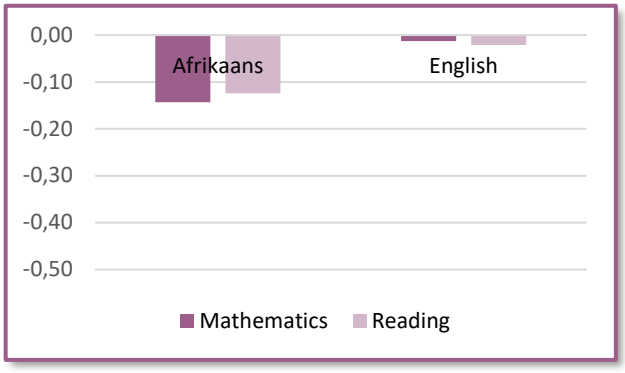
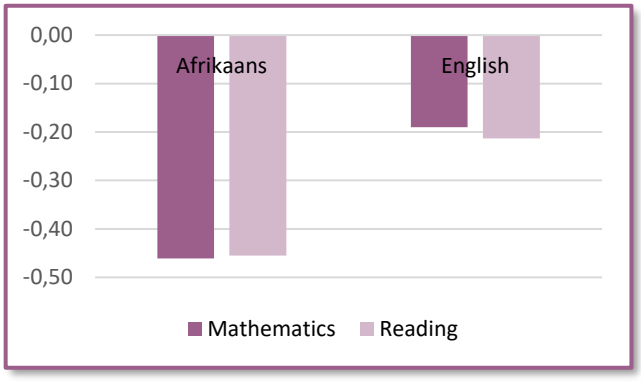


Figure 28: *Grade 9 Reading and Mathematics achievement by parental engagement index, by test language*



The effect size of a parent's engagement in their child's schooling was found to be negligible across all provinces. See Table 68 in the appendix for details. When examined by grade and gender and by province and gender, the differences in effect size between boys and girls did not differ substantially. See Table 69 and Table 70 in the appendix for details.

11.3 Positive educational environments

The items included in the creation of the positive educational environments index are derived from the learner questionnaire and listed in Table 47 below. Learners were asked: How much do you agree with these

statements about school and home? Table 47 lists proportions of learners across all grades. For grade-level proportions, see

Table **71** to Table 73 in the appendix.

Table 47: *Positive educational environments index: proportion of learners, all grades*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I enjoy coming to school	9.17	5.49	14.14	71.19	7.61
I feel safe in my school	8.07	8.72	20.35	62.86	9.97
My teachers care about me	8.40	8.41	21.44	61.75	10.68
My teachers encourage me to work hard	7.86	6.12	13.05	72.96	10.44
I enjoy learning at school	6.92	5.43	12.60	75.05	9.82
I like my teachers	6.76	5.90	16.22	71.12	10.33
My parent(s)/guardian(s) think it is important that I do well at school	6.24	4.19	8.09	81.47	10.68
Someone at home helps me with my homework	11.85	7.97	18.84	61.34	9.97
My parent(s)/guardian(s) ask me about what I am learning at school	8.00	7.61	19.17	65.22	10.59
My parent(s)/guardian(s) read to me when I was younger	12.11	9.03	19.22	59.65	10.36

Figure 29 shows the effect sizes for the difference in Reading and Mathematics achievement by learners with positive educational environments for each grade level. The effect size of positive educational environments on Reading and Mathematics performance is almost small in Grade 3, meaning that Grade 3 learners who report having more positive educational environments displayed higher achievement in both Reading and Mathematics. In Grade 6, the effect sizes were negligible. However, in Grade 9, a small negative effect size was found. This means that Grade 9 learners who report having more positive educational environments displayed lower achievement in both Reading and Mathematics.

Figure 29: *Reading and Mathematics achievement by positive educational environments index, by grade*

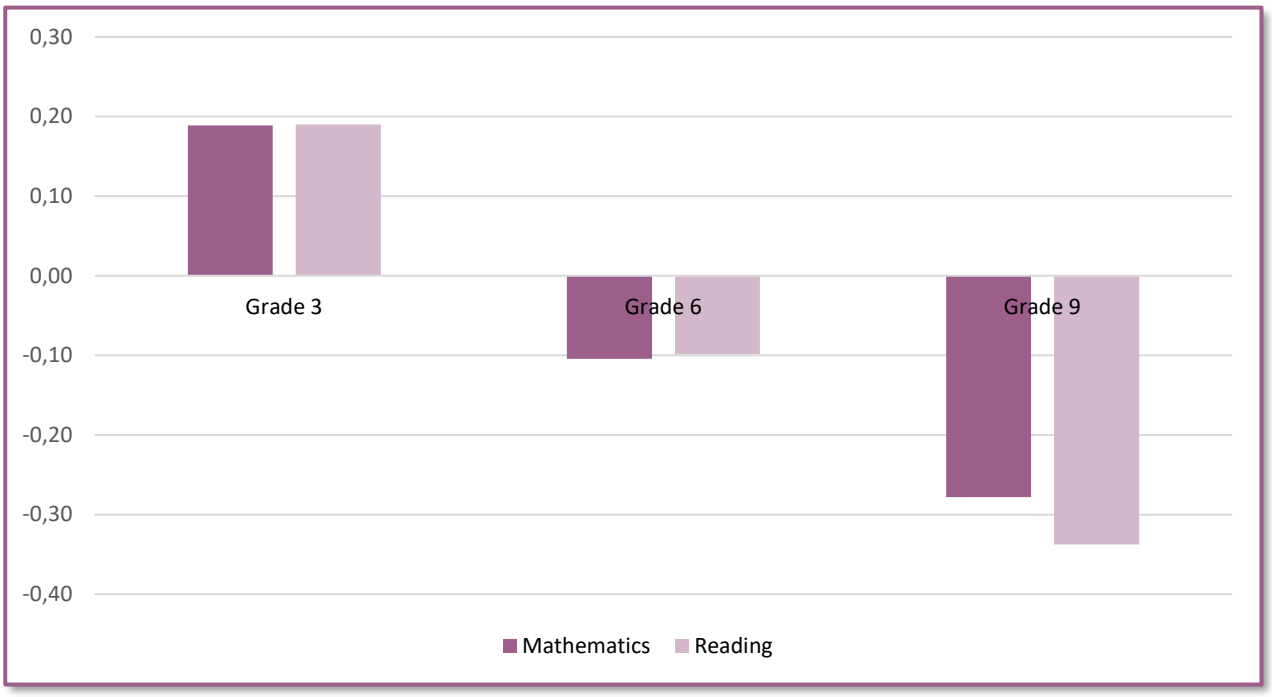


Figure 30 to Figure 32 below show the effect sizes for the difference in Reading and Mathematics achievement by learners with positive educational environments for each grade level by test language. In Grade 3, effect sizes for learners taking the test in Afrikaans or English are negligible. However, for all other languages, effect sizes are positive and small to medium. This means that for learners taking the test in African languages, those with more positive educational environments displayed higher performance in both Reading and Mathematics.

Again, for Grades 6 and 9, the relationship between positive educational environments and learning outcomes becomes negative. In Grade 6, the effect size is negligible for learners taking the test in English, but small for those taking the test in Afrikaans. In Grade 9, the effect size is small for learners taking the test in English, but medium for those taking the test in Afrikaans. This means that learners with more positive educational environments displayed lower performance in both Reading and Mathematics, and the relationship is always stronger for learners taking the test in Afrikaans than it is for those taking the test in English.

Figure 30: *Grade 3 Reading and Mathematics achievement by positive educational environments index, by test language*

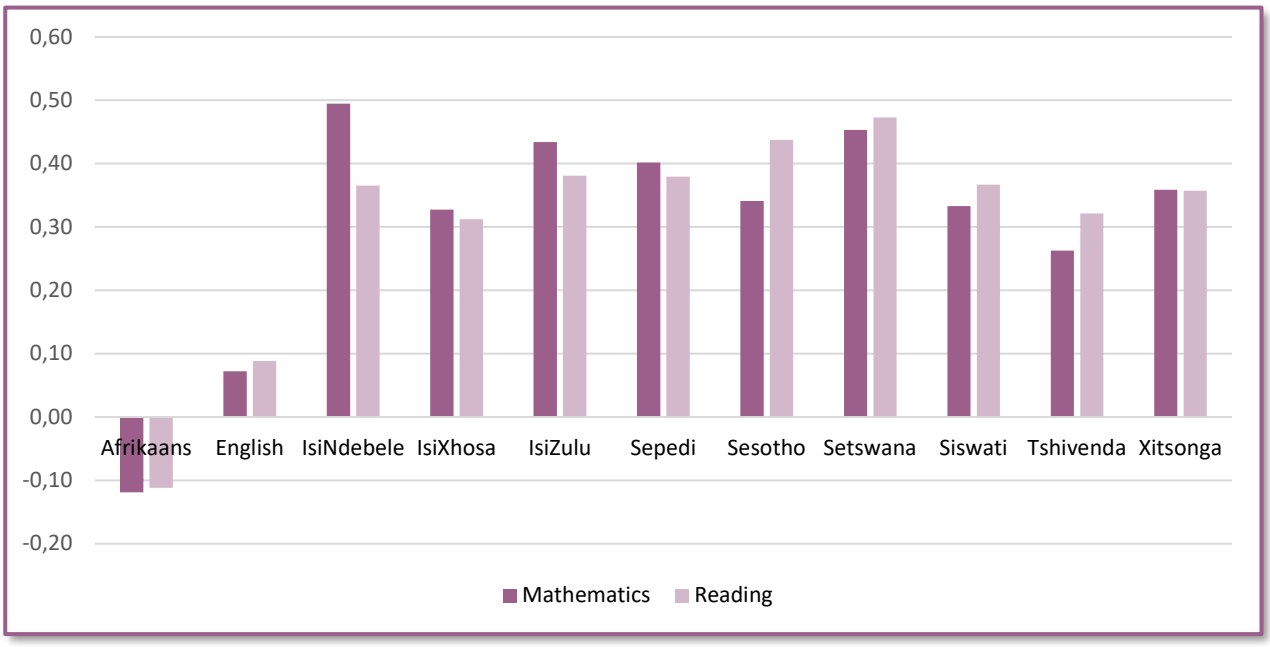


Figure 31: *Grade 6 Reading and Mathematics achievement by positive educational environments index, by test language*

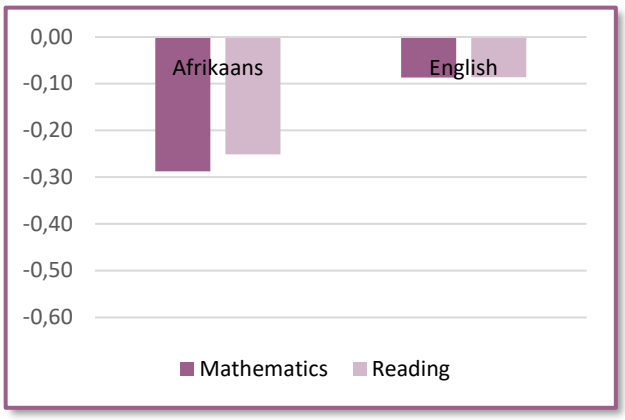
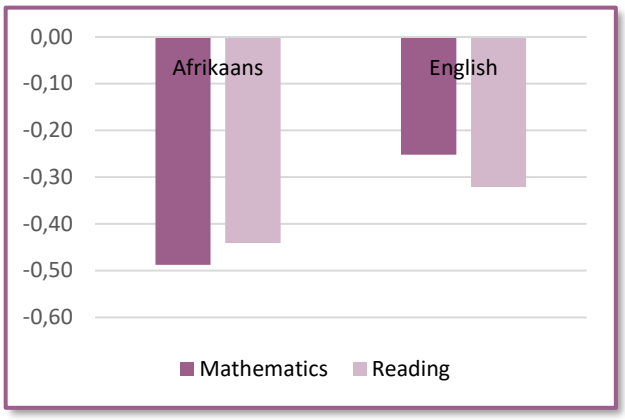


Figure 32: *Grade 9 Reading and Mathematics achievement by positive educational environments index, by test language*



The effect size of positive educational environments was found to be negligible across most provinces except North West (positive small) and Western Cape (negative small). See Table 74 in the appendix for details. When examined by grade and gender and by province and gender, the differences in effect size between boys and girls did not differ substantially. See Table 75 and Table 76 in the appendix for details.

11.4 Attitudes towards Language and Mathematics

The items included in the creation of the attitudes towards Language and attitudes towards Mathematics indices are derived from the learner questionnaire and listed in Table 48 to Table 53 below. Learners were asked: How much do you agree with these statements? For attitudes towards Language, proportions of learners who agree a lot with the statements are roughly similar across the grades. A higher proportion of Grade 3 learners tended to disagree a lot with the statements, compared to Grade 6 and 9 learners.

For attitudes towards Mathematics, the proportion of learners who agreed a lot with the statements tends to become smaller as the learners progress in their schooling. This is especially obvious for the statement "I do well in Mathematics" for example, where in Grade 3, around 67 percent of the learners agreed a lot, while this falls to 52 percent in Grade 6 and 28 percent in Grade 9. Again, a higher proportion of Grade 3 learners tended to disagree a lot with the statements, compared to Grade 6 and 9 learners.

Table 48: *Attitudes towards Language index: proportions of Grade 3 learners*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I like my Language lessons	15.09	5.22	7.56	72.13	12.52
I do well in Language	11.43	7.27	14.88	66.42	15.55
I like reading	11.79	6.72	11.07	70.42	16.21
Language is an important subject	10.81	5.92	9.83	73.44	17.33
I find learning Language easy	N/A	N/A	N/A	N/A	N/A

Table 49: *Attitudes towards Language index: proportions of Grade 6 learners*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I like my Language lessons	6.13	4.51	13.82	75.54	5.64
I do well in Language	4.96	6.81	27.42	60.81	7.65
I like reading	5.86	7.66	23.36	63.13	7.31
Language is an important subject	4.82	4.76	12.69	77.72	8.03
I find learning Language easy	5.55	8.18	27.65	58.63	8.97

Table 50: *Attitudes towards Language index: proportions of Grade 9 learners*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I like my Language lessons	3.08	3.57	16.96	76.39	3.25
I do well in Language	2.04	5.55	33.66	58.75	4.89
I like reading	3.85	8.69	30.87	56.59	4.57
Language is an important subject	2.13	2.81	12.50	82.57	4.89
I find learning Language easy	2.70	6.92	28.79	61.60	5.38

Table 51: *Attitudes towards Mathematics index: proportions of Grade 3 learners*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I like my Mathematics lessons	11.71	7.27	10.11	70.91	15.08
I do well in Mathematics	11.27	7.11	14.52	67.10	16.25
I like Mathematics	11.34	6.43	11.18	71.06	17.15
Mathematics is an important subject	11.28	5.43	8.50	74.80	16.35
I find learning Mathematics easy	N/A	N/A	N/A	N/A	N/A

Table 52: *Attitudes towards Mathematics index: proportions of Grade 6 learners*

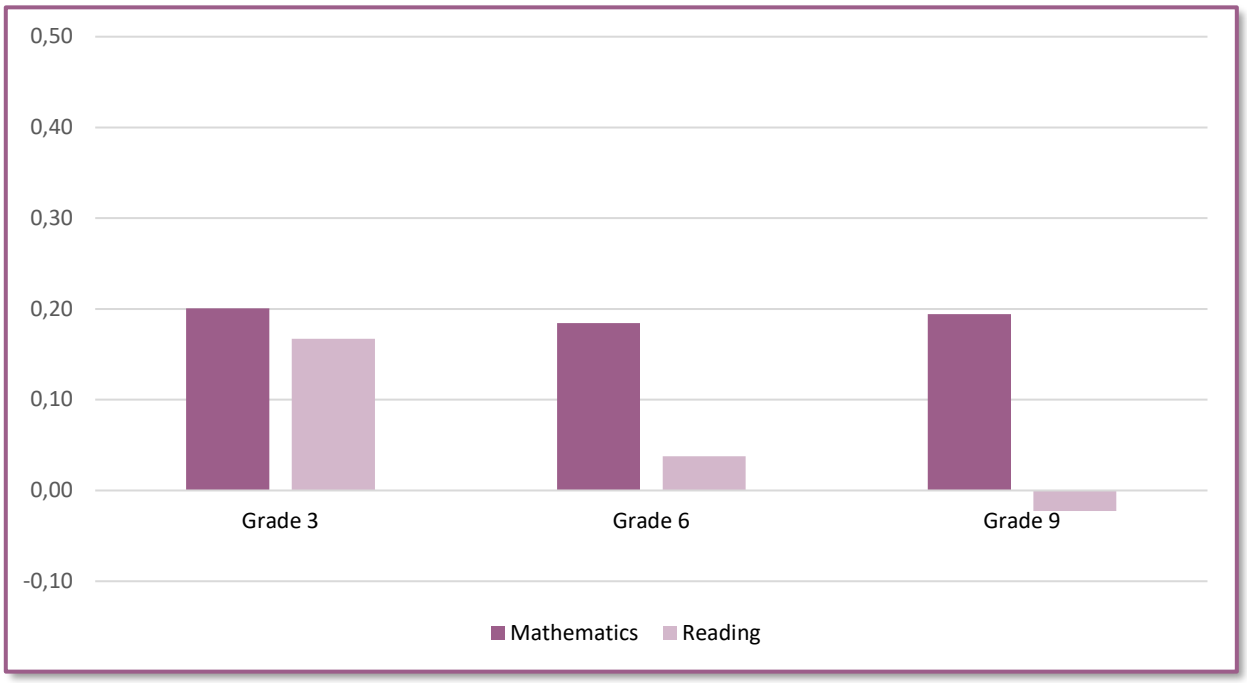
	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I like my Mathematics lessons	5.70	5.87	18.06	70.38	6.24
I do well in Mathematics	5.46	8.77	33.51	52.26	8.09
I like Mathematics	6.20	6.64	20.96	66.20	7.97
Mathematics is an important subject	5.12	4.71	12.40	77.77	7.91
I find learning Mathematics easy	7.18	11.60	36.91	44.31	8.50

Table 53: *Attitudes towards Mathematics index: proportions of Grade 9 learners*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I like my Mathematics lessons	4.11	6.14	28.37	61.38	4.15
I do well in Mathematics	5.61	14.89	51.23	28.27	5.34
I like Mathematics	5.66	9.72	32.26	52.36	5.12
Mathematics is an important subject	2.40	3.34	13.28	80.99	4.86
I find learning Mathematics easy	10.99	19.63	45.21	24.17	5.21

Figure 33 shows the effect sizes for the difference in Reading achievement by attitudes towards Reading and the effect size for Mathematics achievement by attitudes towards Mathematics for each grade level. The effect size of a learner's attitudes towards Reading on their Reading performance is negligible across all grade levels, though larger in Grade 3. The effect size of a learner's attitudes towards Mathematics on their Mathematics performance is negligible to almost small across all grade levels, however the effect size does not diminish as the learner progresses through their schooling in the way that it does for Reading. This means that for all grade levels, learners with more positive attitudes towards Mathematics displayed higher achievement in Mathematics.

Figure 33: *Reading and Mathematics achievement by attitudes to Reading and Mathematics indices, by grade*



The different effects of learners' attitudes towards Reading or Mathematics on their performance are especially clear when we examine the effect sizes by province (Figure 34). For Reading, the effect sizes are negligible across all provinces. However, for Mathematics, effect sizes are medium across all provinces except KwaZulu-Natal where it is almost medium (effect size 0.39), and Limpopo and North West, where it is large. This means that across all provinces, learners with more positive attitudes towards Mathematics displayed higher achievement in Mathematics.

Figure 34: *Reading and Mathematics achievement by attitudes to Reading and Mathematics indices, by province*

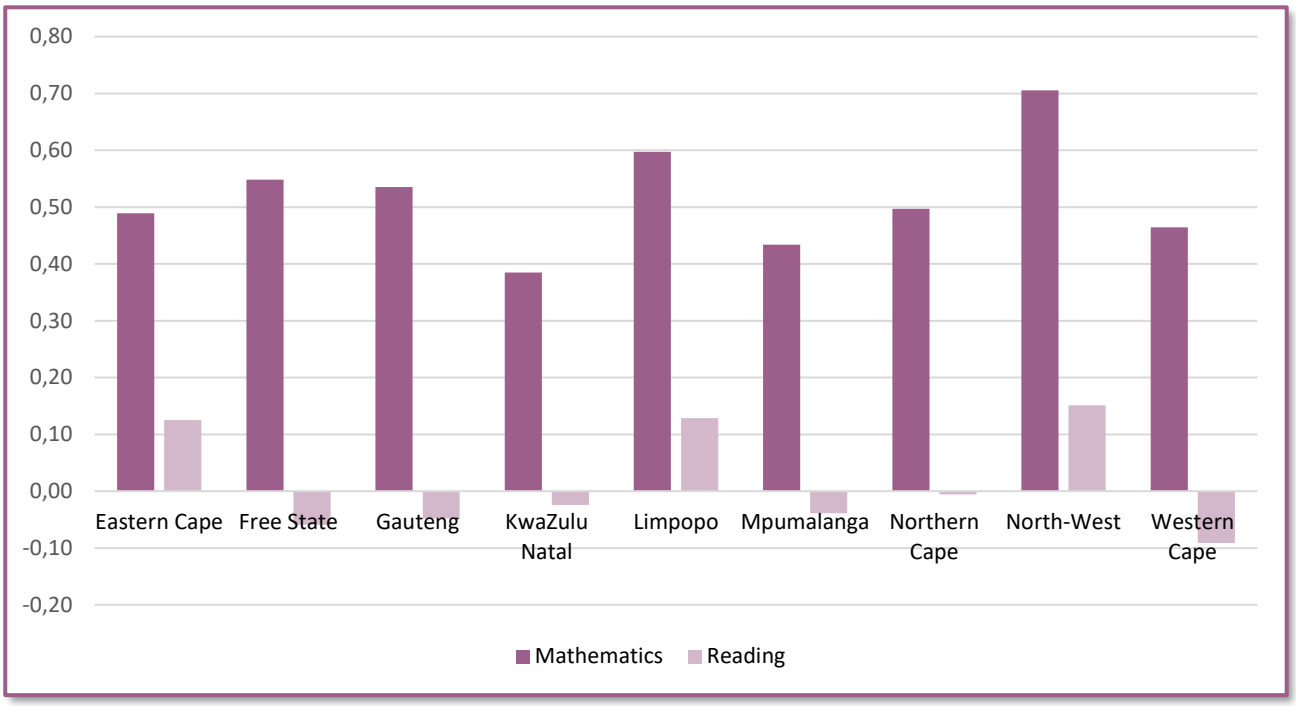


Figure 35 to Figure 37 below show the effect sizes for the difference in Reading achievement by attitudes towards Reading, and the effect size for Mathematics achievement by attitudes towards Mathematics for each grade level by test language. For Reading in Grade 3, for learners taking the test in African languages, the relationship between learners' attitudes towards Reading and their Reading performance is positive, and small to medium. This means that learners with a more positive attitude towards Reading displayed higher Reading performance. For learners taking the test in Afrikaans or English across all grades, the effect size for Reading is negligible.

For Mathematics, in Grade 3, the effect size differs across test languages, with some displaying a negligible effect size (IsiNdebele, IsiZulu, Siswati, Tshivenda and Xitsonga) and others displaying a positive small effect size (Afrikaans, English, IsiXhosa, Sepedi, Sesotho and Setswana), meaning that learners with a more positive attitude towards Mathematics performed better in Mathematics. In Grades 6 and 9, for learners taking the test in English, the relationship between learners' attitudes

towards Mathematics and their Mathematics performance is negligible, as it is for Reading. However, for learners taking the test in Afrikaans, the effect size is positive and medium in Grade 6, and positive and small in Grade 9. This means that for learners taking the test in Afrikaans, those with a positive attitude towards Mathematics perform higher in Mathematics.

Figure 35: *Grade 3 Reading and Mathematics achievement by attitudes to Reading and Mathematics indices, by test language*

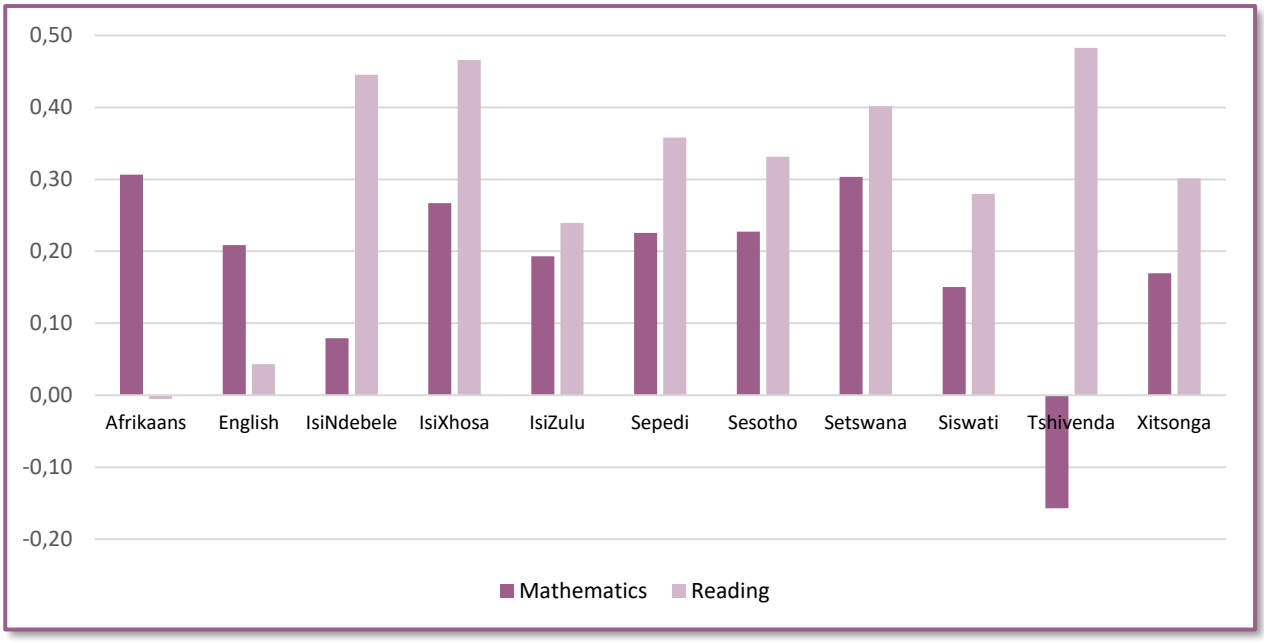


Figure 36: *Grade 6 Reading and Mathematics achievement by attitudes to Reading and Mathematics indices, by test language*

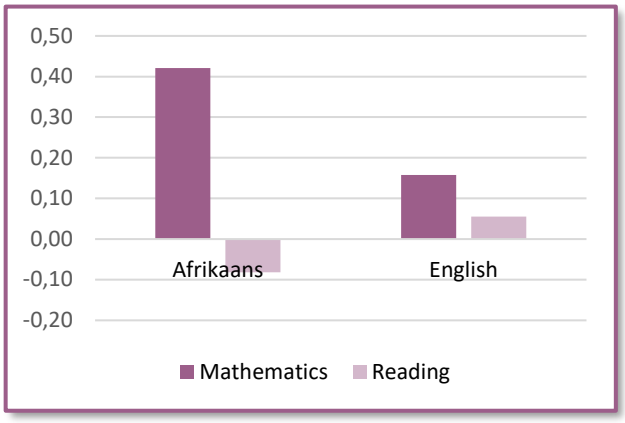
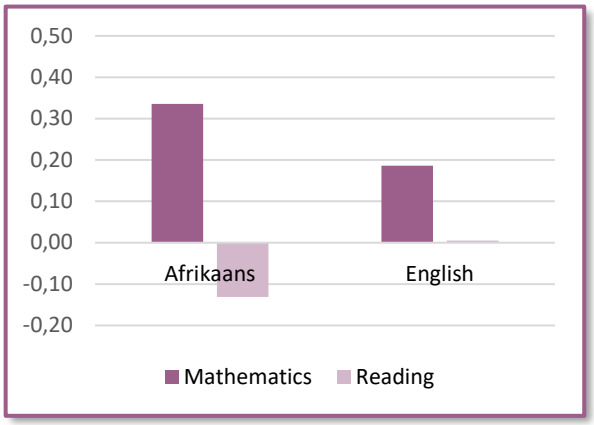


Figure 37: *Grade 9 Reading and Mathematics achievement by attitudes to Reading and Mathematics indices, by test language*



When examined by grade and gender, the differences in effect size between boys and girls did not differ substantially. See Table 77 in the appendix for details. When examined by province and gender, the differences in effect size between boys and girls did not differ substantially for Reading. The differences in effect size between boys and girls did not differ substantially for Mathematics for

most provinces except Free State and North West, where the effect size was higher for boys than it was for girls. See Table 78 in the appendix for more details.

11.5 Classroom practices for Language and Mathematics

The items included in the creation of the classroom practices for Language and Mathematics indices are derived from the learner questionnaire and listed in Table 54 to Table 59. Learners were asked: How often do these things happen in a normal Language/Mathematics lesson?

Table 54: *Language classroom practices index: proportions of Grade 3 learners*

	Never	Sometimes	Often	Always	Invalid or Missing
The teacher is in class	13.45	17.84	14.36	54.36	15.42
Lessons start on time	11.47	19.94	17.72	50.88	18.18
The teacher reads us a book	15.38	27.55	18.66	38.41	17.11
We silently listen to the teacher when she/he reads to us	13.46	17.17	18.20	51.17	17.58
The teacher asks us questions	11.41	15.27	18.18	55.15	16.87
We repeat what the teacher says	16.62	23.56	18.79	41.02	18.66
We work in small groups	24.72	30.34	17.32	27.62	18.96
The teacher helps me when I don't understand something	N/A	N/A	N/A	N/A	N/A
The teacher marks my Language homework	12.00	14.69	17.15	56.16	17.86

Note: "The teacher helps me when I don't understand something" was missing from the Grade 3 learner questionnaire in error.



Table 55: *Language classroom practices index: proportions of Grade 6 learners*

	Never	Sometimes	Often	Always	Invalid or Missing
The teacher is in class	2.96	16.42	9.30	71.32	5.88
Lessons start on time	3.47	24.60	13.78	58.15	8.60
The teacher reads us a book	5.65	39.28	12.90	42.17	7.70
We silently listen to the teacher when she/he reads to us	4.95	19.98	12.71	62.37	8.09
The teacher asks us questions	2.40	12.84	8.91	75.86	7.40
We repeat what the teacher says	10.29	39.09	14.32	36.30	8.80
We work in small groups	15.23	54.78	12.31	17.69	8.82
The teacher helps me when I don't understand something	2.75	14.77	7.45	75.02	7.50
The teacher marks my Language homework	4.12	20.57	11.15	64.16	7.34

Table 56: *Language classroom practices index: proportions of Grade 9 learners*

	Never	Sometimes	Often	Always	Invalid or Missing
The teacher is in class	1.50	13.78	10.31	74.41	3.62
Lessons start on time	1.81	24.76	16.83	56.61	5.25
The teacher reads us a book	3.88	41.93	17.93	36.27	5.02
We silently listen to the teacher when she/he reads to us	2.49	18.03	14.83	64.65	4.65
The teacher asks us questions	0.96	12.35	11.37	75.32	4.36
We repeat what the teacher says	12.13	43.81	16.40	27.65	5.15
We work in small groups	16.32	59.08	12.77	11.83	5.21
The teacher helps me when I don't understand something	2.06	15.18	8.96	73.81	4.11
The teacher marks my Language homework	3.54	22.82	14.26	59.39	4.30

Table 57: *Mathematics classroom practices index: proportions of Grade 3 learners*

Item label	Never	Sometimes	Often	Always	Invalid or Missing
The teacher is in class	11.42	16.54	15.42	56.61	14.28
Lessons start on time	9.82	18.74	18.43	53.02	17.35
The teacher reads us a book	12.28	19.41	20.70	47.61	17.69
We silently listen to the teacher when she/he reads to us	10.85	15.33	18.92	54.90	18.12
The teacher asks us questions	10.42	15.72	19.09	54.77	17.39
We repeat what the teacher says	14.96	22.31	19.42	43.31	19.03
We work in small groups	23.58	27.70	18.48	30.24	19.61
The teacher helps me when I don’t understand something	10.03	14.79	17.82	57.36	19.90
The teacher marks my Mathematics homework	10.83	14.75	18.21	56.21	21.11

Table 58: *Mathematics classroom practices index: proportions of Grade 6 learners*

Item label	Never	Sometimes	Often	Always	Invalid or Missing
The teacher is in class	3.29	15.41	8.86	72.44	6.09
Lessons start on time	2.88	20.68	12.20	64.24	8.15
The teacher reads us a book	6.28	24.81	13.77	55.14	9.10
We silently listen to the teacher when she/he reads to us	3.48	14.98	11.33	70.22	8.30
The teacher asks us questions	2.43	14.15	9.40	74.02	8.02
We repeat what the teacher says	11.20	35.85	14.44	38.52	9.22
We work in small groups	23.89	46.81	11.39	17.90	9.44
The teacher helps me when I don’t understand something	2.93	14.96	7.94	74.17	8.35
The teacher marks my Mathematics homework	4.23	17.93	9.28	68.57	7.68

Table 59: *Mathematics classroom practices index: proportions of Grade 9 learners*

Item label	Never	Sometimes	Often	Always	Invalid or Missing
The teacher is in class	1.35	10.46	7.71	80.49	3.43
Lessons start on time	1.54	17.07	11.28	70.10	4.94
The teacher reads us a book	10.21	24.40	16.00	49.39	8.08
We silently listen to the teacher when she/he reads to us	2.76	11.75	11.10	74.39	4.98
The teacher asks us questions	1.45	12.59	9.88	76.08	4.70
We repeat what the teacher says	11.12	36.99	16.35	35.54	5.73
We work in small groups	23.28	47.95	12.39	16.38	5.71
The teacher helps me when I don't understand something	2.28	14.10	8.16	75.47	4.69
The teacher marks my Mathematics homework	4.44	19.67	11.43	64.46	4.77

Figure 38 shows the effect sizes for the difference in Reading achievement by Language classroom practices and the effect sizes for the difference in Mathematics achievement by Mathematics classroom practices for each grade level. The effect size for a teacher's everyday use of the listed Mathematics classroom practices (as reported by the learner) and their learners' performance in Mathematics, is negligible across all grades. However, for Grades 6 and 9, there is a small negative relationship between a teacher's use of certain Language classroom practices and their Reading performance. This means that learners whose teachers used more of the classroom practices every day displayed lower performances in Reading.

Figure 38: *Reading and Mathematics achievement by classroom practices indices, by grade*

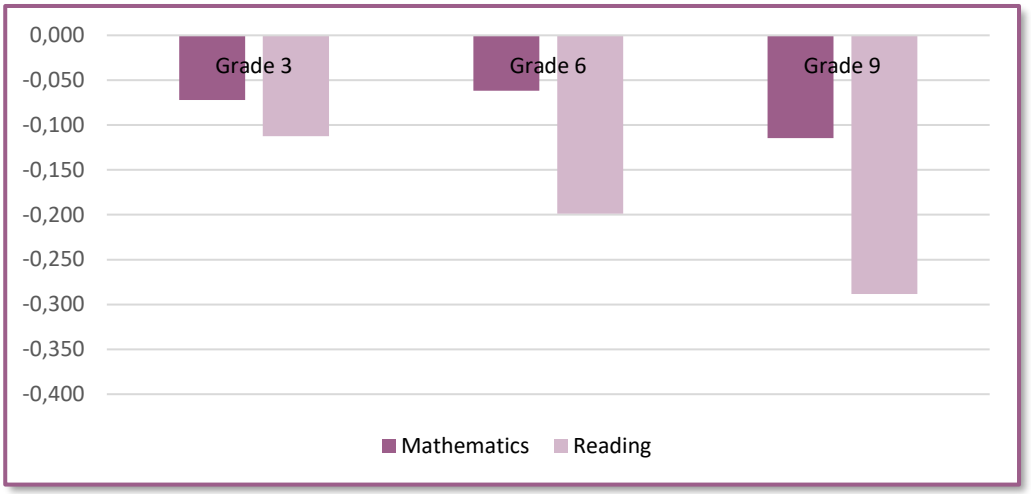


Figure 39 shows the effect sizes for the difference in Reading achievement by Language classroom practices and the effect sizes for the difference in Mathematics achievement by Mathematics classroom practices for each province. In general, effect sizes by province are negligible. Eastern Cape stands out as having medium effect sizes in Mathematics and small effect sizes in Reading. This means that in Eastern Cape, learners whose teachers performed certain tasks every day displayed higher performance in Reading and Mathematics. KwaZulu-Natal (Reading and Mathematics) and Western Cape (Reading only) also have small effect sizes, but they are negative, meaning that learners whose teachers performed certain tasks every day displayed lower learning outcomes.

Figure 39: *Reading and Mathematics achievement by classroom practices indices, by province*

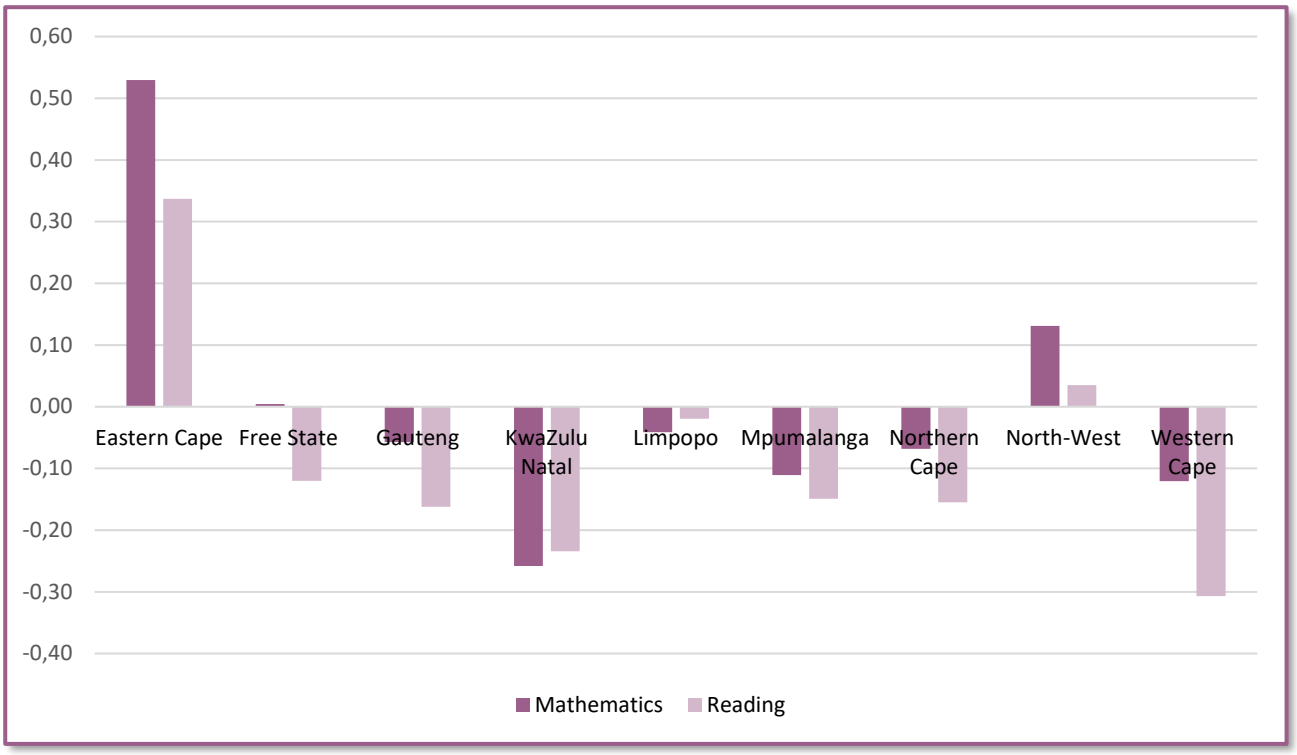


Figure 40 to Figure 42 show the effect sizes for the difference in Reading achievement by Language classroom practices and the effect size for the difference in Mathematics achievement by Mathematics classroom practices for test language. In Grade 3, in most languages there is a negligible effect size. However, for learners completing the test in Afrikaans, English or IsiXhosa, there is a small negative relationship between classroom practices and learning outcomes. This means that learners completing the test in these languages, whose teachers performed certain tasks every day, displayed lower performances in Reading and Mathematics.

In Grade 6, the effect size of the teacher performing certain tasks every day is negligible, except in Reading classrooms for learners completing the test in Afrikaans. For these learners, the effect size

is negative and small, meaning that learners completing the test in Afrikaans, whose teachers performed certain tasks every day, displayed lower performances in Reading.

In Grade 9, the effect size remains similar for Reading classrooms in Afrikaans. In Mathematics classrooms, the relationship between a teacher performing certain tasks every day and their learners' Mathematics outcomes was higher than in Grade 6, for learners completing the test in Afrikaans. In classrooms for learners who completed the test in English, the effect size of a teacher performing certain tasks every day in Mathematics classrooms remains negligible, but there is a small negative relationship between a teacher performing certain tasks every day in Reading classrooms and their learners' Reading outcomes. This means that learners whose teachers performed certain tasks every day displayed lower performances in Reading in Afrikaans and English, and lower performances in Mathematics in Afrikaans.

Figure 40: *Grade 3 Reading and Mathematics achievement by classroom practices indices, by test language*

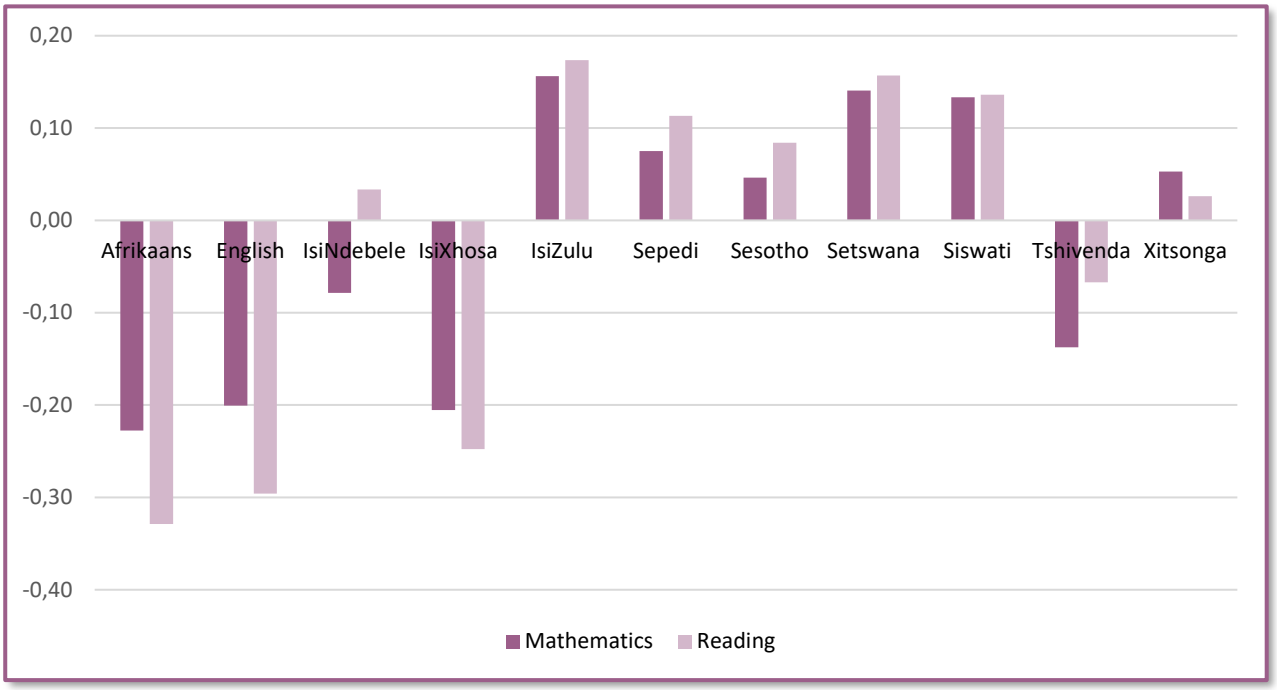


Figure 41: *Grade 6 Reading and Mathematics achievement by classroom practices indices, by test language*

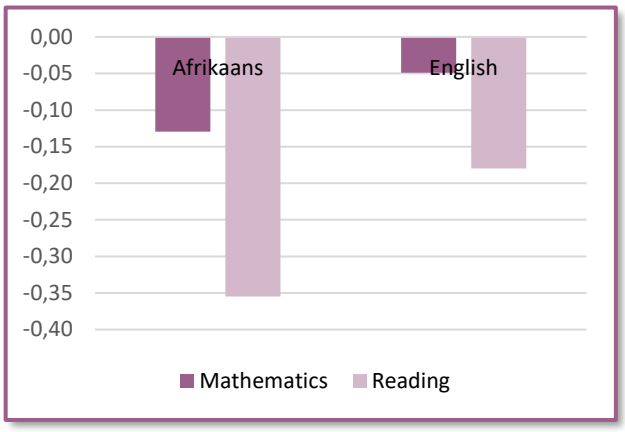
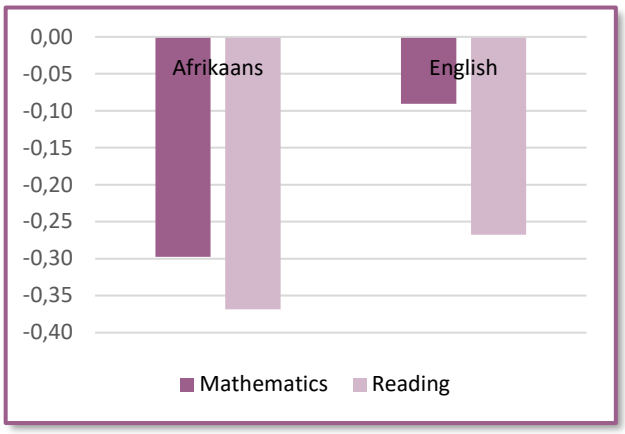


Figure 42: *Grade 9 Reading and Mathematics achievement by classroom practices indices, by test language*



When examined by grade and gender and by province and gender, the differences in effect size between boys and girls did not differ substantially. See Table 79 and Table 80 in the appendix for more details.

Concluding Remarks

12. Concluding remarks

The SASE aims to improve learning outcomes for all learners by measuring learner achievement in Reading and Mathematics while also identifying the contextual factors that influence this achievement. General findings from the assessment illustrate that:

- Learners in Grades 3, 6, and 9 demonstrate a broad range of skills that are not restricted to their grade level. For example, in Grade 6, some learners are performing at or above the average Grade 9 level, while others are performing around the Grade 3 average.
- Some provinces are consistently performing above the national average, while others are consistently performing below.
- Learners sitting the assessment in Afrikaans are generally performing above their peers.
- Girls perform higher than boys across the board.
- Learners from schools classified as Quintile 5 are performing far above their peers in lower quintile schools. The positive relationship between wealth and achievement is also demonstrated when examining wealth at the learner level.

This first implementation of SASE provides information about the education system and school contexts, identifies areas and factors that enable or constrain learner performance, and can inform educational policies and programmes. Future cycles of SASE will additionally enable stakeholders to monitor system performance and evaluate the implementation and impact of policies and programmes. With this in mind, this first cycle of SASE forms a baseline measure of the achievement of learners in the South African education system.



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Appendices

Appendix 1: Learner achievement by district

The following tables describe the mean Reading and Mathematics achievement of learners by district. Please note that as education district was not taken into account when designing the school sample, some of the results presented in this table may not be statistically reliable. As such, these results should be interpreted with caution and are included in this report for the DBE and provincial educations departments' use only.

The number of schools and students reported in these tables represent the sample outcomes, not population estimates. That is, the final number of schools and students who participated in the assessment.

Districts with asterisks next to their names are those represented by a very small number of schools: less than 5.

Reading achievement

Grade 3

Table 60: *Mean Reading scale score, by District, by Grade 3*

District	Schools	Students	Mean	Mean SE	SD	SD SE
ALFRED NZO	31	872	429	5.44	64	2.69
AMAJUBA	7	239	434	11.39	66	4.88
AMATHOLE E	21	485	441	8.42	71	4.28
AMATHOLE W	14	321	417	8.40	69	6.81
BOHLABELA	28	996	398	3.50	59	1.89
BUFFALO CI	16	413	463	18.86	92	7.62
CAPE WINEL	20	587	460	16.25	92	6.74
CAPRICORN	40	1327	419	7.80	75	6.00
CHRIS HANI	25	587	436	13.58	76	9.58
DITSOBOTLA	7	275	404	17.67	73	17.56
EDEN AND C	17	474	474	16.68	92	7.38
EHLANZENI	51	2058	435	5.91	72	4.25
EKURHULENI	38	1294	468	9.76	86	4.18
FEZILE DAB	31	842	438	6.97	65	3.11
FRANCES BA	44	1292	439	6.38	77	3.64
GAUTENG EA*	4	127	450	18.07	74	7.07

District	Schools	Students	Mean	Mean SE	SD	SD SE
GAUTENG NO*	2	79	388	7.17	48	8.72
GAUTENG WE	17	618	416	9.76	73	4.38
GERT SIBAN	41	1263	446	7.34	74	3.75
GREATER DE	14	494	407	6.29	63	3.22
GREATER SE	35	1163	409	4.41	62	2.63
GREATER TA	14	411	414	8.05	68	4.73
HARRY GWAL	8	211	435	8.13	62	3.68
ILEMBE	14	429	421	8.69	63	3.10
JOE GQABI	11	310	457	17.74	72	9.83
JOHANNESBU	67	2112	459	9.02	91	3.63
JOHN TAOLO	32	837	428	5.69	65	3.15
KAGISANO M	9	279	428	28.34	87	23.92
KGETLENG R	6	182	387	5.66	52	4.62
KING CETHS	25	787	439	6.93	63	2.54
LEJWELEPUT	38	1207	429	6.20	73	4.16
LETLHABILE	9	355	389	8.89	59	3.42
LICHTENBUR*	3	71	543	19.39	88	11.64
MADIBENG	13	381	417	19.84	73	11.78
MAHIKENG	7	226	393	4.84	55	3.25
MAQUASSI H	11	338	407	8.04	65	5.95
MATLOSANA	18	589	438	15.49	80	7.75
METRO CENT	25	737	512	12.78	96	6.36
METRO EAST	29	925	478	9.11	83	3.29
METRO NORT	30	938	456	10.32	86	4.90
METRO SOUT	27	800	497	11.24	89	4.88
MOPANI	40	1558	411	5.09	62	3.62
MORETELE	8	254	407	14.95	72	8.99
MOSES KOTA	10	340	436	15.19	71	4.87
MOTHEO	53	1558	436	8.34	79	6.47
NAMAKWA (N	17	426	438	11.75	75	5.12
NELSON MAN	22	612	465	9.40	86	3.73
NGAKA MODI*	1	37	388	6.20	54	3.16
NKANGALA	52	1805	421	5.65	69	3.39
O R TAMBO	52	1586	429	3.89	66	2.06
OVERBERG	11	372	471	20.18	102	13.38

District	Schools	Students	Mean	Mean SE	SD	SD SE
PINETOWN	23	695	430	6.48	72	4.73
PIXLEY KA	12	318	400	12.00	76	6.17
RAMOTSHERE	9	224	427	6.76	65	5.29
REKOPANTSW	8	218	386	8.82	65	4.18
RUSTENBURG	27	935	416	4.48	63	1.98
SARAH BAAR	8	188	418	10.78	64	4.12
SEDIBENG E	5	179	440	12.86	69	5.03
SEDIBENG W	10	329	420	27.35	86	26.06
TALEDI	12	320	407	19.38	75	9.56
THABO MOFU	37	1075	447	6.94	70	4.79
TLOKWE	10	353	431	17.08	73	7.01
TSHWANE NO	8	288	405	18.34	70	15.69
TSHWANE SO	13	456	469	21.45	100	5.35
TSHWANE WE	9	312	443	15.23	77	6.26
UGU	10	299	461	15.25	77	9.31
UMGUNGUNDL	13	395	451	15.00	82	11.07
UMKHANYAKU	20	649	420	6.75	64	2.67
UMLAZI	24	701	449	13.26	93	8.82
UMZINYATHI	13	379	433	10.25	68	3.73
UTHUKELA	15	495	433	10.34	71	4.07
VHEMBE	44	1495	420	4.23	64	2.25
WATERBERG	23	805	395	5.38	60	4.61
WEST COAST	12	397	424	5.40	69	2.90
XHARIEP	9	230	422	12.22	67	5.08
ZF MGCAWU	24	729	428	5.36	70	2.31
ZULULAND	24	669	434	8.27	69	4.74

Grade 6

Table 61: *Mean Reading scale score, by District, Grade 6*

District	Schools	Students	Mean	Mean SE	SD	SD SE
ALFRED NZO	31	1105	500	7.54	62	3.29
AMAJUBA	7	267	517	19.87	75	13.25
AMATHOLE E	18	519	487	8.82	60	5.10
AMATHOLE W	12	374	484	6.17	59	2.71
BOHLABELA	31	1128	485	3.24	57	1.57
BOJANALA*	1	14	530	8.90	67	8.28
BUFFALO CI	22	678	545	16.87	84	15.65
CAPE WINEL	29	927	556	6.05	70	3.09
CAPRICORN	42	1675	513	6.23	70	4.08
CHRIS HANI	21	511	508	8.90	69	6.61
DITSOBOTLA	6	160	497	7.51	58	3.62
EDEN AND C	15	497	551	10.66	76	5.31
EHLANZENI	45	2052	519	5.85	72	3.45
EKURHULENI	40	1393	570	8.99	85	3.17
FEZILE DAB	30	855	522	5.34	61	3.69
FRANCES BA	37	1076	569	20.53	96	10.61
GAUTENG EA	9	265	559	21.06	84	6.50
GAUTENG NO*	3	86	612	52.24	91	35.86
GAUTENG WE	18	623	540	9.29	70	3.45
GERT SIBAN	44	1653	530	7.84	74	5.97
GREATER DE	10	286	504	12.40	61	5.51
GREATER SE	34	1181	485	5.87	66	5.80
GREATER TA	16	506	502	9.31	65	6.51
HARRY GWAL	6	179	515	14.29	62	4.70
ILEMBE	11	412	489	7.08	62	3.03
JOE GQABI	8	206	514	20.43	79	16.16
JOHANNESBU	60	2121	567	7.62	81	2.78
JOHN TAOLO	39	1202	562	13.00	94	5.63
KAGISANO M	14	534	502	12.33	75	13.08
KGETLENG R*	4	121	567	30.90	92	11.18
KING CETHS	21	766	497	3.63	57	1.79
LEJWELEPUT	36	1067	507	8.62	67	5.86

District	Schools	Students	Mean	Mean SE	SD	SD SE
LETLHABILE	11	480	499	4.72	63	2.75
LICHTENBUR*	4	121	516	5.60	59	6.07
MADIBENG	13	450	500	10.87	71	6.75
MAHIKENG	12	407	504	7.40	63	4.35
MAQUASSI H	7	247	521	21.03	72	8.09
MATLOSANA	23	827	501	5.70	60	2.51
METRO CENT	21	693	564	8.41	78	5.60
METRO EAST	28	955	553	9.64	78	5.93
METRO NORT	27	805	574	9.47	76	5.02
METRO SOUT	28	994	565	9.78	81	5.97
MOPANI	35	1501	482	5.89	64	4.65
MORETELE	6	184	509	7.80	62	2.62
MOSES KOTA	12	313	488	8.56	61	3.14
MOTHEO	51	1518	519	6.88	75	4.45
NAMAKWA (N	13	348	547	11.13	67	6.49
NELSON MAN	16	487	540	12.25	81	6.89
NKANGALA	46	1803	518	5.49	67	2.80
O R TAMBO	46	1490	493	5.87	65	5.78
OVERBERG*	4	111	539	12.88	64	3.48
PINETOWN	21	751	514	9.65	72	4.75
PIXLEY KA	13	399	576	16.66	83	5.03
RAMOTSHERE	5	214	494	10.31	58	2.41
REKOPANTSW	8	349	477	8.55	59	3.63
RUSTENBURG	22	783	512	9.10	69	3.19
SARAH BAAR	8	205	504	9.84	62	4.79
SEDIBENG E	5	149	521	12.37	54	4.87
SEDIBENG W	8	312	528	11.21	70	5.47
TALEDI	14	477	514	10.94	67	4.16
THABO MOFU	39	1090	527	6.71	66	3.38
TLOKWE	15	506	520	7.43	64	3.18
TSHWANE NO	5	187	507	14.09	64	2.74
TSHWANE SO	13	510	560	15.21	81	6.67
TSHWANE WE	8	258	578	21.81	81	6.43
UGU	12	459	499	7.39	61	2.62
UMGUNGUNDL	17	564	513	14.96	77	10.49

District	Schools	Students	Mean	Mean SE	SD	SD SE
UMKHANYAKU	14	392	486	7.29	54	2.58
UMLAZI	22	755	530	13.44	90	9.21
UMZINYATHI	16	487	471	4.51	53	2.78
UTHUKELA	13	501	503	6.20	60	3.27
VHEMBE	38	1351	486	5.48	62	3.19
WATERBERG	24	927	493	6.76	64	3.23
WEST COAST	12	392	558	5.83	60	2.61
XHARIEP	8	203	511	6.56	55	3.99
ZF MGCAWU	27	745	565	21.78	91	8.73
ZULULAND	19	602	507	13.59	72	10.79

Grade 9

Table 62: *Mean Reading scale score, by District, Grade 9*

District	Schools	Students	Mean	Mean SE	SD	SD SE
ALFRED NZO	13	600	560	7.71	56	3.17
AMAJUBA	8	274	550	8.69	59	2.52
AMATHOLE E	7	288	547	6.83	56	3.19
AMATHOLE W	6	208	561	11.81	58	3.55
BOHLABELA	23	651	604	14.24	76	12.10
BOJANALA*	1	32	558	4.19	37	5.03
BUFFALO CI	14	482	605	11.51	71	4.66
CAPE WINEL	25	685	608	10.43	70	5.13
CAPRICORN	29	1026	573	9.86	71	8.26
CHRIS HANI	13	512	571	13.89	70	13.68
DITSOBOTLA*	4	81	569	13.08	54	6.40
EDEN AND C	17	463	623	14.67	75	4.19
EHLANZENI	32	1132	589	6.63	63	3.10
EKURHULENI	39	1127	622	7.22	71	5.89
FEZILE DAB	25	582	608	6.58	60	4.70
FRANCES BA	16	422	646	12.34	69	6.03
GAUTENG EA	9	279	587	10.68	61	5.22
GAUTENG NO*	2	26	602	11.28	45	7.84
GAUTENG WE	17	431	616	15.55	70	7.56
GERT SIBAN	40	1264	597	7.38	72	2.76
GREATER DE	16	404	586	7.68	58	4.19

District	Schools	Students	Mean	Mean SE	SD	SD SE
GREATER SE	27	885	579	11.83	70	8.80
GREATER TA	16	429	581	6.59	57	3.67
HARRY GWAL	10	335	557	8.08	53	1.63
ILEMBE	8	418	576	8.93	61	4.62
JOE GQABI	5	132	625	24.93	81	4.60
JOHANNESBU	61	1766	616	6.92	70	3.38
JOHN TAOLO	22	534	665	11.81	67	8.70
KAGISANO M	10	195	624	24.20	73	11.77
KGETLENG R	5	150	593	9.23	53	5.43
KING CETHS	17	629	576	9.40	63	3.19
LEJWELEPUT	30	744	589	6.57	58	2.31
LETLHABILE	8	231	571	8.11	56	3.10
LICHTENBUR*	4	88	588	26.62	89	16.87
MADIBENG	10	271	575	10.87	63	4.40
MAHIKENG	13	328	607	16.62	76	7.31
MAQUASSI H	6	131	647	29.66	72	16.60
MATLOSANA	16	424	614	6.57	73	5.74
METRO CENT	27	805	608	7.50	60	3.07
METRO EAST	24	657	636	13.23	77	7.22
METRO NORT	21	714	599	6.96	58	2.43
METRO SOUT	26	870	615	6.26	64	4.35
MOPANI	40	1419	569	6.29	63	4.11
MORETELE	11	236	605	8.49	58	3.77
MOSES KOTA	16	430	579	6.94	60	3.64
MOTHEO	35	891	616	13.59	81	7.15
NAMAKWA (N	10	282	666	17.53	72	7.34
NELSON MAN	20	533	618	10.99	67	4.72
NGAKA MODI*	1	24	615	6.27	66	8.64
NKANGALA	39	1207	589	6.29	64	3.27
O R TAMBO	11	407	550	9.30	58	3.15
OVERBERG	7	158	573	8.09	52	2.46
PINETOWN	20	769	577	8.08	65	3.72
PIXLEY KA	16	449	663	12.81	86	9.74
RAMOTSHERE	10	288	588	13.26	64	9.85
REKOPANTSW	6	105	582	6.89	52	3.70
RUSTENBURG	20	522	582	7.26	57	4.07
SARAH BAAR	8	247	574	8.05	56	2.74
SEDIBENG E	5	120	664	39.41	88	20.19
SEDIBENG W	9	231	635	17.00	73	7.41

District	Schools	Students	Mean	Mean SE	SD	SD SE
TALEDI	12	345	591	6.36	57	3.57
THABO MOFU	26	703	600	6.48	61	3.36
TLOKWE	8	203	623	48.40	86	38.19
TSHWANE NO	11	292	629	14.72	69	5.84
TSHWANE SO	16	412	603	5.60	55	2.32
TSHWANE WE	14	375	622	13.23	68	6.41
UGU	15	540	583	19.07	82	11.09
UMGUNGUNDL	14	606	569	4.05	56	1.94
UMKHANYAKU	11	332	580	22.58	81	22.29
UMLAZI	18	727	581	10.03	69	4.82
UMZINYATHI	15	560	570	15.08	83	7.31
UTHUKELA	8	278	581	28.49	81	25.22
VHEMBE	39	1240	561	5.75	59	2.66
WATERBERG	25	865	575	7.90	62	5.12
WEST COAST	13	414	604	12.83	66	6.31
XHARIEP	5	142	598	14.90	55	13.98
ZF MGCAWU	7	213	660	10.33	54	5.30
ZULULAND	18	612	552	12.22	72	10.88



Mathematics achievement

Grade 3

Table 63: *Mean Mathematics scale score, by District, Grade 3*

District	Schools	Students	Mean	Mean SE	SD	SD SE
ALFRED NZO	31	872	411	6.03	63	2.33
AMAJUBA	7	239	420	13.58	63	3.68
AMATHOLE E	21	485	426	9.50	69	4.02
AMATHOLE W	14	321	406	9.23	65	7.22
BOHLABELA	28	996	389	3.31	59	1.82
BUFFALO CI	16	413	445	20.34	94	9.95
CAPE WINEL	20	587	456	13.79	84	5.94
CAPRICORN	40	1327	413	8.60	74	7.03
CHRIS HANI	25	587	426	13.81	75	9.31
DITSOBOTLA	7	275	397	16.63	72	13.81
EDEN AND C	17	474	467	16.36	86	8.16
EHLANZENI	51	2058	420	6.17	70	4.35
EKURHULENI	38	1294	461	9.90	84	3.64
FEZILE DAB	31	842	431	6.40	62	2.63
FRANCES BA	44	1292	434	5.63	73	3.78
GAUTENG EA*	4	127	438	17.15	70	8.15
GAUTENG NO*	2	79	383	8.83	53	16.36
GAUTENG WE	17	618	407	10.21	71	5.62
GERT SIBAN	41	1263	437	7.40	72	4.14
GREATER DE	14	494	403	6.74	62	4.03
GREATER SE	35	1163	401	4.28	60	2.48
GREATER TA	14	411	412	8.45	66	4.05
HARRY GWAL	8	211	425	9.97	61	2.36
ILEMBE	14	429	406	8.90	60	4.14
JOE GQABI	11	310	441	19.80	72	11.98
JOHANNESBU	67	2112	448	8.80	86	4.15
JOHN TAOLO	32	837	427	4.75	61	2.70
KAGISANO M	9	279	419	27.95	83	22.11
KGETLENG R	6	182	384	6.16	52	3.75
KING CETHS	25	787	427	5.88	61	2.34
LEJWELEPUT	38	1207	423	6.78	74	4.48
LETLHABILE	9	355	384	8.67	58	4.20
LICHTENBUR*	3	71	536	20.16	87	13.16
MADIBENG	13	381	412	18.32	71	11.03

District	Schools	Students	Mean	Mean SE	SD	SD SE
MAHIKENG	7	226	388	5.98	55	2.99
MAQUASSI H	11	338	405	6.85	61	3.41
MATLOSANA	18	589	429	17.89	79	9.05
METRO CENT	25	737	503	12.59	89	7.10
METRO EAST	29	925	471	9.49	81	3.81
METRO NORT	30	938	450	10.45	82	5.78
METRO SOUT	27	800	484	10.89	83	5.57
MOPANI	40	1558	405	6.41	65	4.25
MORETELE	8	254	399	13.55	66	6.81
MOSES KOTA	10	340	427	15.08	68	4.11
MOTHEO	53	1558	430	8.77	80	7.59
NAMAKWA (N	17	426	431	12.13	73	6.17
NELSON MAN	22	612	455	9.30	85	3.44
NGAKA MODI*	1	37	381	2.48	49	2.78
NKANGALA	52	1805	418	6.39	71	3.58
O R TAMBO	52	1586	416	4.46	65	1.75
OVERBERG	11	372	462	18.29	94	12.43
PINETOWN	23	695	418	6.98	70	4.56
PIXLEY KA	12	318	400	12.10	71	7.31
RAMOTSHERE	9	224	424	6.29	59	5.32
REKOPANTSW	8	218	381	9.38	64	4.87
RUSTENBURG	27	935	412	4.42	62	2.04
SARAH BAAR	8	188	406	10.38	66	4.23
SEDIBENG E	5	179	426	9.66	62	3.98
SEDIBENG W	10	329	410	27.01	86	23.27
TALEDI	12	320	404	20.07	73	9.45
THABO MOFU	37	1075	441	7.60	72	5.40
TLOKWE	10	353	422	13.50	66	5.16
TSHWANE NO	8	288	403	16.89	69	14.70
TSHWANE SO	13	456	464	22.20	100	6.55
TSHWANE WE	9	312	435	13.67	71	5.43
UGU	10	299	457	19.58	81	7.95
UMGUNGUNDL	13	395	439	15.38	78	12.14
UMKHANYAKU	20	649	407	7.53	64	3.54
UMLAZI	24	701	441	13.10	90	9.32
UMZINYATHI	13	379	421	11.34	68	3.79
UTHUKELA	15	495	423	10.30	68	3.68
VHEMBE	44	1495	408	4.86	63	2.29

District	Schools	Students	Mean	Mean SE	SD	SD SE
WATERBERG	23	805	387	5.97	59	4.79
WEST COAST	12	397	424	6.78	67	2.85
XHARIEP	9	230	415	13.51	67	4.61
ZF MGCAWU	24	729	422	5.60	64	2.59
ZULULAND	24	669	424	8.19	66	4.61



Grade 6

Table 64: *Mean Mathematics scale score, by District, Grade 6*

District	Schools	Students	Mean	Mean SE	SD	SD SE
ALFRED NZO	31	1105	520	3.74	50	1.74
AMAJUBA	7	267	540	15.20	62	8.90
AMATHOLE E	18	519	511	7.64	53	4.00
AMATHOLE W	12	374	505	4.66	47	1.87
BOHLABELA	31	1128	509	3.16	50	1.38
BOJANALA*	1	14	540	9.70	53	6.04
BUFFALO CI	22	678	553	15.76	75	16.24
CAPE WINEL	29	927	560	5.44	58	3.68
CAPRICORN	42	1675	527	5.27	59	3.55
CHRIS HANI	21	511	530	6.80	59	5.77
DITSOBOTLA	6	160	511	9.12	54	2.61
EDEN AND C	15	497	552	9.32	62	5.51
EHLANZENI	45	2052	539	5.11	62	2.96
EKURHULENI	40	1393	571	7.76	74	2.96
FEZILE DAB	30	855	541	5.53	54	3.66
FRANCES BA	37	1076	571	18.30	87	11.57
GAUTENG EA	9	265	563	17.03	71	5.91
GAUTENG NO*	3	86	622	48.54	88	32.46
GAUTENG WE	18	623	542	8.17	58	3.38
GERT SIBAN	44	1653	548	6.81	64	5.13
GREATER DE	10	286	516	9.27	51	3.55
GREATER SE	34	1181	506	4.77	56	3.76
GREATER TA	16	506	519	7.38	56	5.14
HARRY GWAL	6	179	532	15.66	55	5.65
ILEMBE	11	412	510	5.35	51	1.92
JOE GQABI	8	206	536	17.16	68	13.33
JOHANNESBU	60	2121	566	6.41	68	2.72
JOHN TAOLO	39	1202	568	12.19	83	5.26
KAGISANO M	14	534	514	12.58	69	16.55
KGETLENG R*	4	121	574	29.79	88	13.86
KING CETHS	21	766	519	2.84	51	1.24
LEJWELEPUT	36	1067	526	8.10	59	5.87
LETLHABILE	11	480	514	6.06	54	3.33
LICHTENBUR*	4	121	528	6.85	50	5.77
MADIBENG	13	450	514	9.08	60	6.27
MAHIKENG	12	407	517	5.70	51	3.16

District	Schools	Students	Mean	Mean SE	SD	SD SE
MAQUASSI H	7	247	528	18.62	62	10.52
MATLOSANA	23	827	515	5.34	53	2.19
METRO CENT	21	693	570	8.24	68	6.39
METRO EAST	28	955	559	9.14	69	6.23
METRO NORT	27	805	572	8.81	68	5.42
METRO SOUT	28	994	570	8.70	70	6.72
MOPANI	35	1501	502	5.05	57	3.48
MORETELE	6	184	519	8.19	53	3.77
MOSES KOTA	12	313	505	7.98	54	3.52
MOTHEO	51	1518	536	6.16	66	4.11
NAMAKWA (N	13	348	545	10.32	57	5.63
NELSON MAN	16	487	554	9.97	72	7.37
NKANGALA	46	1803	536	4.55	57	2.38
O R TAMBO	46	1490	517	5.24	57	5.05
OVERBERG*	4	111	544	11.18	54	2.06
PINETOWN	21	751	527	7.62	60	3.36
PIXLEY KA	13	399	571	13.69	67	3.68
RAMOTSHERE	5	214	512	8.31	48	2.06
REKOPANTSW	8	349	491	7.12	50	2.60
RUSTENBURG	22	783	522	7.25	56	2.85
SARAH BAAR	8	205	514	8.47	51	4.15
SEDIBENG E	5	149	525	11.84	48	3.00
SEDIBENG W	8	312	539	9.62	60	4.58
TALEDI	14	477	525	9.57	55	3.81
THABO MOFU	39	1090	546	6.13	59	2.98
TLOKWE	15	506	527	6.71	55	3.40
TSHWANE NO	5	187	518	12.74	58	3.01
TSHWANE SO	13	510	560	14.20	71	7.18
TSHWANE WE	8	258	582	19.31	72	6.24
UGU	12	459	520	6.27	52	2.14
UMGUNGUNDL	17	564	529	12.52	67	7.19
UMKHANYAKU	14	392	516	6.53	49	2.26
UMLAZI	22	755	544	12.45	78	10.99
UMZINYATHI	16	487	500	4.01	46	2.47
UTHUKELA	13	501	526	4.54	51	2.20
VHEMBE	38	1351	513	5.30	56	2.59
WATERBERG	24	927	511	5.05	54	2.06
WEST COAST	12	392	557	5.48	51	2.74
XHARIEP	8	203	525	4.92	46	4.69

District	Schools	Students	Mean	Mean SE	SD	SD SE
ZF MGCAWU	27	745	562	19.56	80	10.64
ZULULAND	19	602	527	12.49	64	10.75

Grade 9

Table 65: *Mean Mathematics scale score, by District, Grade 9*

District	Schools	Students	Mean	Mean SE	SD	SD SE
ALFRED NZO	13	600	570	5.72	47	2.37
AMAJUBA	8	274	561	5.97	46	2.43
AMATHOLE E	7	288	564	6.55	48	2.04
AMATHOLE W	6	208	567	11.32	49	3.61
BOHLABELA	23	651	612	14.78	73	15.01
BOJANALA*	1	32	563	2.22	31	4.51
BUFFALO CI	14	482	599	11.45	65	7.65
CAPE WINEL	25	685	606	10.78	67	7.48
CAPRICORN	29	1026	589	9.02	64	8.28
CHRIS HANI	13	512	575	12.51	61	14.32
DITSOBOTLA*	4	81	571	8.86	42	5.14
EDEN AND C	17	463	624	15.07	75	6.79
EHLANZENI	32	1132	594	6.36	56	3.26
EKURHULENI	39	1127	612	6.93	63	6.55
FEZILE DAB	25	582	608	5.50	52	3.61
FRANCES BA	16	422	630	11.56	63	4.73
GAUTENG EA	9	279	581	11.84	55	8.37
GAUTENG NO*	2	26	597	8.43	37	6.42
GAUTENG WE	17	431	609	16.31	67	9.49
GERT SIBAN	40	1264	601	5.81	62	2.97
GREATER DE	16	404	588	8.44	52	4.66
GREATER SE	27	885	589	9.82	59	8.89
GREATER TA	16	429	579	7.40	52	4.53
HARRY GWAL	10	335	575	4.86	44	2.43
ILEMBE	8	418	580	8.11	52	5.21
JOE GQABI	5	132	621	22.84	70	4.13
JOHANNESBU	61	1766	606	6.56	63	4.18
JOHN TAOLO	22	534	648	14.22	67	9.57
KAGISANO M	10	195	621	27.83	74	18.99
KGETLENG R	5	150	590	9.95	46	6.66
KING CETHS	17	629	584	7.07	52	2.33
LEJWELEPUT	30	744	589	6.92	50	3.18
LETLHABILE	8	231	583	7.44	46	3.54
LICHTENBUR*	4	88	586	22.57	78	14.80
MADIBENG	10	271	582	7.59	53	3.88

District	Schools	Students	Mean	Mean SE	SD	SD SE
MAHIKENG	13	328	605	14.51	68	7.81
MAQUASSI H	6	131	645	37.21	78	21.71
MATLOSANA	16	424	608	5.93	61	4.36
METRO CENT	27	805	597	6.72	52	3.06
METRO EAST	24	657	630	14.08	76	7.79
METRO NORT	21	714	588	5.55	48	2.01
METRO SOUT	26	870	606	6.49	59	6.09
MOPANI	40	1419	587	5.81	53	4.24
MORETELE	11	236	603	8.41	50	5.67
MOSES KOTA	16	430	580	6.10	50	2.85
MOTHEO	35	891	615	13.62	77	7.70
NAMAKWA (N	10	282	652	16.41	63	4.74
NELSON MAN	20	533	609	10.48	60	5.13
NGAKA MODI*	1	24	614	3.74	53	5.43
NKANGALA	39	1207	591	5.75	54	3.25
O R TAMBO	11	407	563	8.17	50	2.95
OVERBERG	7	158	571	7.16	42	3.03
PINETOWN	20	769	581	7.29	56	3.72
PIXLEY KA	16	449	655	12.62	81	9.40
RAMOTSHERE	10	288	589	13.52	59	14.47
REKOPANTSW	6	105	583	15.10	46	6.29
RUSTENBURG	20	522	582	5.75	49	3.52
SARAH BAAR	8	247	567	8.57	45	4.08
SEDIBENG E	5	120	664	40.24	87	14.68
SEDIBENG W	9	231	632	20.99	80	8.29
TALEDI	12	345	593	5.63	50	3.95
THABO MOFU	26	703	600	7.06	57	4.40
TLOKWE	8	203	627	49.72	83	43.97
TSHWANE NO	11	292	619	15.64	66	5.27
TSHWANE SO	16	412	594	4.23	46	2.46
TSHWANE WE	14	375	618	13.58	64	6.55
UGU	15	540	593	16.19	70	11.29
UMGUNGUNDL	14	606	582	3.82	46	1.38
UMKHANYAKU	11	332	589	18.84	70	17.34
UMLAZI	18	727	590	8.34	58	4.31
UMZINYATHI	15	560	583	12.00	70	6.55
UTHUKELA	8	278	586	24.59	70	25.24
VHEMBE	39	1240	578	5.24	52	2.08
WATERBERG	25	865	593	5.97	50	3.70
WEST COAST	13	414	602	11.59	56	7.26
XHARIEP	5	142	601	20.23	59	19.94
ZF MGCAWU	7	213	641	10.08	49	4.13
ZULULAND	18	612	570	10.41	62	8.90

Appendix 2: Supplementary tables

Readers are advised to refer to the sampling section (section 2.2) when interpreting these tables.

Contextual factors

These tables are discussed in Section10:

. Please refer to Section 10 when reviewing these tables.

Table 66: *Effect sizes for Mathematics and Reading achievement by learner wealth index, by grade and gender*

Grade	Mathematics		Reading	
	Boys	Girls	Boys	Girls
3	0.465	0.468	0.449	0.461
6	0.645	0.598	0.730	0.699
9	0.577	0.602	0.666	0.697

Table 67: *Effect sizes for Mathematics and Reading achievement by learner wealth index, by province and gender*

Province	Mathematics		Reading	
	Boys	Girls	Boys	Girls
Eastern Cape	0.379	0.341	0.460	0.418
Free State	0.293	0.329	0.335	0.395
Gauteng	0.475	0.442	0.495	0.459
KwaZulu-Natal	0.268	0.289	0.345	0.381
Limpopo	0.128	0.171	0.147	0.222
Mpumalanga	0.368	0.361	0.420	0.416
Northern Cape	0.276	0.280	0.335	0.320
North West	0.322	0.351	0.378	0.415
Western Cape	0.396	0.398	0.407	0.432

Table 68: *Effect sizes for Mathematics and Reading achievement by parental engagement index, by province*

Province	Mathematics	Reading
Eastern Cape	0.113	0.092
Free State	0.028	-0.008
Gauteng	-0.009	-0.020
KwaZulu-Natal	0.127	0.107
Limpopo	0.174	0.148
Mpumalanga	0.076	0.046
Northern Cape	0.009	0.000
North West	0.102	0.092
Western Cape	-0.114	-0.114

Table 69: *Effect sizes for Mathematics and Reading achievement by parental engagement index, by grade and gender*

Grade	Mathematics		Reading	
	Boys	Girls	Boys	Girls
3	0.064	0.017	0.067	0.023
6	0.002	-0.051	-0.003	-0.069
9	-0.197	-0.259	-0.221	-0.283

Table 70: *Effect sizes for Mathematics and Reading achievement by parental engagement index, by province and gender*

Province	Mathematics		Reading	
	Boys	Girls	Boys	Girls
Eastern Cape	0.070	0.143	0.053	0.111
Free State	0.067	-0.015	0.032	-0.060
Gauteng	0.032	-0.062	0.032	-0.090
KwaZulu-Natal	0.105	0.136	0.078	0.114
Limpopo	0.186	0.153	0.158	0.120
Mpumalanga	0.105	0.038	0.071	0.007
Northern Cape	0.002	0.005	-0.010	-0.014
North West	0.067	0.107	0.057	0.096
Western Cape	-0.097	-0.133	-0.098	-0.141

Table 71: *Positive educational environments index: proportion of learners, Grade 3*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I enjoy coming to school	16.41	5.98	8.17	69.44	13.93
I feel safe in my school	13.43	9.93	13.34	63.30	17.66
My teachers care about me	13.69	7.96	10.44	67.91	18.23
My teachers encourage me to work hard	13.64	7.64	9.99	68.73	17.32
I enjoy learning at school	12.34	6.82	8.52	72.33	16.55
I like my teachers	11.57	6.13	8.09	74.21	17.20
My parent(s)/guardian(s) think it is important that I do well at school	11.54	6.08	7.66	74.72	18.02
Someone at home helps me with my homework	14.07	6.75	9.72	69.47	16.89
My parent(s)/guardian(s) ask me about what I am learning at school	11.64	8.38	12.62	67.36	17.98
My parent(s)/guardian(s) read to me when I was younger	14.27	8.71	12.62	64.39	17.95

Table 72: *Positive educational environments index: proportion of learners, Grade 6*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I enjoy coming to school	7.05	5.23	14.02	73.71	5.30
I feel safe in my school	6.36	7.95	20.77	64.91	7.15
My teachers care about me	7.06	8.34	21.15	63.44	7.88
My teachers encourage me to work hard	6.84	6.59	14.10	72.47	8.26
I enjoy learning at school	5.50	5.24	12.52	76.74	7.52
I like my teachers	5.55	5.70	15.73	73.03	7.99
My parent(s)/guardian(s) think it is important that I do well at school	5.19	4.32	8.17	82.32	8.15
Someone at home helps me with my homework	8.92	7.57	18.93	64.58	7.55
My parent(s)/guardian(s) ask me about what I am learning at school	6.44	7.33	19.86	66.37	8.03
My parent(s)/guardian(s) read to me when I was younger	10.02	8.68	20.59	60.72	7.55

Table 73: *Positive educational environments index: proportion of learners, Grade 9*

	Disagree a lot	Disagree a little	Agree a little	Agree a lot	Invalid or Missing
I enjoy coming to school	3.94	5.29	21.05	69.71	2.83
I feel safe in my school	4.55	8.44	27.44	59.57	4.16
My teachers care about me	4.44	8.98	33.89	52.68	5.02
My teachers encourage me to work hard	2.87	3.81	15.02	78.31	4.74
I enjoy learning at school	2.83	4.14	17.25	75.78	4.49
I like my teachers	3.08	5.94	25.91	65.08	4.89
My parent(s)/guardian(s) think it is important that I do well at school	1.86	1.95	8.46	87.73	4.91
Someone at home helps me with my homework	13.41	9.87	28.83	47.90	4.56
My parent(s)/guardian(s) ask me about what I am learning at school	6.14	7.16	25.42	61.28	4.79
My parent(s)/guardian(s) read to me when I was younger	12.62	9.85	24.56	52.97	4.68

Table 74: *Effect sizes for Reading and Mathematics achievement by positive educational environment index, by province*

Province	Mathematics	Reading
Eastern Cape	0.155	0.137
Free State	-0.021	-0.041
Gauteng	-0.079	-0.100
KwaZulu-Natal	-0.083	-0.059
Limpopo	0.185	0.187
Mpumalanga	-0.071	-0.054
Northern Cape	-0.016	-0.022
North West	0.233	0.233
Western Cape	-0.257	-0.264

Table 75: *Effect sizes for Reading and Mathematics achievement by positive educational environment index, by grade and gender*

Grade	Mathematics		Reading	
	Boys	Girls	Boys	Girls
3	0.135	0.197	0.126	0.190
6	-0.115	-0.122	-0.109	-0.141
9	-0.277	-0.291	-0.326	-0.370

Table 76: *Effect sizes for Mathematics and Reading achievement by positive educational environment index, by province and gender*

Province	Mathematics		Reading	
	Boys	Girls	Boys	Girls
Eastern Cape	0.183	0.107	0.171	0.070
Free State	-0.025	-0.034	-0.040	-0.071
Gauteng	-0.079	-0.107	-0.120	-0.129
KwaZulu-Natal	-0.084	-0.104	-0.053	-0.102
Limpopo	0.161	0.181	0.156	0.171
Mpumalanga	-0.048	-0.119	-0.049	-0.105
Northern Cape	0.010	-0.049	-0.003	-0.064
North West	0.309	0.158	0.299	0.164
Western Cape	-0.227	-0.290	-0.252	-0.303

Table 77: *Effect sizes for Reading and Mathematics achievement by attitudes towards Mathematics and Reading indices, by grade and gender*

Grade	Mathematics		Reading	
	Boys	Girls	Boys	Girls
3	0.215	0.169	0.145	0.146
6	0.178	0.190	-0.028	0.027
9	0.184	0.210	-0.052	-0.063

Table 78: *Effect sizes for Mathematics and Reading achievement by attitudes towards Mathematics and Reading indices, by province and gender*

Province	Mathematics		Reading	
	Boys	Girls	Boys	Girls
Eastern Cape	0.493	0.484	0.094	0.095
Free State	0.658	0.451	-0.138	-0.031
Gauteng	0.580	0.499	-0.121	-0.033
KwaZulu-Natal	0.383	0.378	-0.097	-0.019
Limpopo	0.623	0.572	0.056	0.145
Mpumalanga	0.476	0.392	-0.130	-0.019
Northern Cape	0.560	0.441	-0.041	-0.018
North West	0.891	0.581	0.140	0.117
Western Cape	0.561	0.383	-0.111	-0.112

Table 79: *Effect sizes for Mathematics and Reading achievement by Language and Mathematics classroom practices indices, by grade and gender*

Grade	Mathematics		Reading	
	Boys	Girls	Boys	Girls
3	-0.077	-0.079	-0.115	-0.125
6	-0.068	-0.064	-0.210	-0.205
9	-0.059	-0.160	-0.252	-0.317

Table 80: *Effect sizes for Mathematics and Reading achievement by Language and Mathematics classroom practices indices, by province and gender*

Province	Mathematics		Reading	
	Boys	Girls	Boys	Girls
Eastern Cape	0.497	0.561	0.345	0.337
Free State	0.003	0.006	-0.092	-0.147
Gauteng	0.000	-0.113	-0.110	-0.215
KwaZulu-Natal	-0.275	-0.254	-0.235	-0.244
Limpopo	-0.003	-0.083	0.006	-0.055
Mpumalanga	-0.042	-0.179	-0.108	-0.191
Northern Cape	-0.035	-0.103	-0.114	-0.203
North West	0.160	0.098	0.044	0.027
Western Cape	-0.087	-0.150	-0.306	-0.323



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