Queensland Comparable Assessment Tasks (QCATs) 2010, Years 4, 6 & 9

Report to teachers

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Queensland Government
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Executive summary

This report summarises data analysis from the 2010 administration of the Years 4, 6 and 9 Queensland Comparable Assessment Tasks (QCATs) in July–November. The Queensland Studies Authority (QSA) developed centrally devised QCATs in Years 4, 6 and 9 from the English, Mathematics and Science *Essential Learnings* and *Standards*. Every P–9 school in Queensland received sufficient numbers of QCATs in Years 4, 6 and 9 in English, Mathematics and Science for every student in the school.

The purpose of the administration of QCATs is to:

- model high-quality assessments aligned to the Essential Learnings and Standards
- support teachers in making consistent judgments about the quality of student work
- provide information to students and teachers about what students know and can do.

This report analyses both the qualitative and quantitative data for each QCAT in the key learning areas (KLAs) of English, Mathematics and Science.

QCATs are an integral component of the Queensland Curriculum, Assessment and Reporting (QCAR) Framework developed by the QSA in partnership with the Department of Education and the Arts. The QCAR Framework provides for alignment of curriculum, assessment and reporting through its five interlocking components: the *Essential Learnings*, *Standards*, the Assessment Bank, QCATs, and the *Guidelines for reporting*.

QCATs provide information on student achievement in a selection of the *Essential Learnings*, as well as opportunities for teachers to understand and practise high-quality assessment as part of the QCAR Framework. Specifically, QCATs require students to solve meaningful problems using critical thinking and reasoning, and to provide evidence of what they know, understand and can do in relation to a set of *Essential Learnings.* The 2010 QCATs assessed a different selection of *Essential Learnings* from the 2008 and 2009 QCATs.

The QCAR Framework recommends moderation processes within schools and clusters of schools as a way of building consistency of teacher judgments in grading student achievement on a five-point scale of *A* to *E* grades. QCATs involve teachers making judgments about Assessable Elements (discrete, task-specific aspects of the assessment) and an overall on-balance judgment of student achievement.

Findings

Analysis of the 2010 administration of QCATs has been organised under three categories:

- student achievement
- consistency of teacher judgment
- teacher feedback on QCATs.

Student achievement

The patterns of student achievement in all QCATs showed a roughly normal distribution of results.

- Smaller proportions of students were awarded grades at the A and E ends of the five-point scale with larger proportions in the middle (the C grade).
- Girls performed better than boys.
- Non-Indigenous students performed better than Indigenous students.
- Non-ESL students performed better than ESL students noting that in Years 6 and 9 Mathematics and Science, ESL students were awarded the same or a slightly higher proportion of A grades as non-ESL students.

Consistency of teacher judgment

Data from random sampling suggests that teachers in schools generally achieved high consistency when awarding both overall grades and grades for each assessable element. Trained markers achieved very high consistency. The random sampling process highlighted that when classroom teachers were trained in the process of using the *Guide to making judgments* and engaged in consensus discussion about evidence in student work, consistency of judgments improved.

The 2010 implementation and random sampling of the QCATs highlighted two key areas for further professional development of teachers to build consistency of judgments:

- support for teachers in using the Guide to making judgments to match student evidence to task-specific descriptors
- opportunities for teachers to engage in professional discussion about the quality of student responses.

Teacher feedback on the QCATs

Teacher feedback on the QCATs collected from the survey, focus group discussion and information from trial schools was generally positive. Most teachers found the contexts of the tasks as age-appropriate and engaging for their students.

The majority of survey participants agreed that the materials provided to support implementation of the QCATs were clear and comprehensive.

The majority of teachers implemented the QCAT in two sessions or more, as recommended in the *Teacher guidelines*. However, many teachers reported that students took longer than the recommended time to complete the QCAT.

Many teachers participating in the online survey reported including the QCAT as part of their school-based assessment program. In addition many teachers indicated that information gathered from the implementation of a QCAT would help to inform their school programs and develop their professional capabilities.

There was strong feedback that the implementation of three QCATs in one term was too time-consuming, as was the grading and moderation of the Student booklets. This appears to have been compounded for some teachers by inexperience with use of the *Guide to making judgments.*

The concerns raised about QCATs highlighted the need to develop the communication strategy to further support teachers in the implementation of QCATs.

The benefit of teacher engagement in moderation processes to promote consistency of judgments recurred as a strong theme within the specific learnings from individual QCATs. (These learnings are documented in Section 4: QCATs: Commentary.) For example, teachers overcame the challenges of judging the relative worth of particular Assessable Elements through professional collaboration in moderation processes. Overwhelmingly, teachers reported significant improvement in their professional capability to make judgments about the standard of student work.

Conclusions

The significance of the 2010 administration of QCATs was threefold. It provided:

- detailed information to schools about students' knowledge, understanding and skills in relation to specific tasks
- understanding of the refinements required for the future administration of QCATs in 2011
- awareness of the moderation processes that support consistency of teacher judgments, and practical experience of these for large numbers of Queensland teachers.

Introduction

QCATs are designed to be implemented in Queensland schools in Years 4, 6 and 9 in the key learning areas (KLAs) of English, Mathematics and Science. This report informs teachers about what was learnt through the implementation of the QCATs in 2010.

2010 was the first year of full implementation by Education Queensland schools, and moderation was held for all nine QCATs. There was an increased use of QCATs in Catholic and Independent schools.

The information collected from the QCATs themselves is of most value for use within the school. The purposes of the QCATs, which are explored in Section 1: Background, are to develop consistency of teacher judgments about the quality of student achievement and provide information to schools about student learning. This information is not for use in measuring school or teacher effectiveness, or for purposes such as certification of students, or gaining funding and resourcing.

Similarly, the information forwarded by schools to the QSA is not used for a comparison of the performance of students in one school against the performance of students in other schools. Schools are not required to publish their student achievement results in annual reports or other publications, and the QSA does not disaggregate or publish any individual school, cluster or sector data.

The primary value of the information provided by the QCATs is at the school level, where, to improve teaching and learning, teachers analyse individual and class responses. The implementation of 2010 QCATs provided teachers with an opportunity to understand the role of the QCATs in this process and develop the professional skills for making consistent judgments.

Focus

This report is organised into four key sections:

1. Background — sets out the purpose, scope and administration of QCATs as part of the QCAR Framework
2. Implementation of QCATs — provides information about the administration of the 2010 QCATs
3. Key learnings — reports on information gained from the administration of the 2010 QCATs
4. QCATs: Commentaries — profiles each of the QCATs from the 2010 implementation.

1 Background

QCATs provide opportunities for teachers to understand and practise quality assessment, supported by the Queensland, Curriculum, Assessment and Reporting (QCAR) Framework. The QSA conducted the 2010 administration of the Years 4, 6 and 9 QCATs within this framework for quality assessment.

1.1 The QCAR Framework

The alignment of curriculum, assessment and reporting of achievement for students in Years 1–9 is a policy objective of the Queensland Government. The QSA, in partnership with the Department of Education and Training, developed the QCAR Framework in response to this policy objective.

The QCAR Framework has five interlocking components:

1. Essential Learnings identify what students should know, understand and be able to do.
2. Standards articulate the quality of student achievements described on a five-point scale, from A to E.
3. The Assessment Bank contains an online collection of assessments and resources linked to the Essential Learnings and Standards, as well as professional learning resources.
4. QCATs assess student achievement using authentic, performance-based tasks.
5. Guidelines for reporting outline how schools might provide information about students' learning.

A key objective of the QCAR Framework is to strengthen schools' capacity to deliver cohesive learning programs that support students in achieving deeper levels of knowledge, understandings and skills.

1.2 Purpose of QCATs

QCATs are designed to:

- provide resources to support consistency in the way teachers make judgments about the qualities in student work using the Standards
- provide a model of quality assessments aligned to a selection of the Essential Learnings and to the Standards
- provide information for students, teachers and parents/carers about student achievement in the selection of Essential Learnings with such information contributing to discussions about student learning and to plans for future learning
- support school planning by providing information about what students know, understand and can do, as well as processes needed to support consistency of teacher judgments.

1.3 Scope of QCATs

QCATs:

- involve solving meaningful problems
- emphasise critical thinking and reasoning
- provide students with an opportunity to do their best work
- produce evidence of what students know, understand and can do in relation to selected essential learnings.

1.4 Quality assurance of QCATs

The 2010 QCATs were centrally devised assessment instruments for implementation by classroom teachers. Each QCAT undergoes rigorous quality assurance to ensure the strength of:

- alignment to the curriculum
- the design elements of quality assessment (credibility, intellectual challenge, authenticity and user friendliness)

through the processes of:

- panels consisting of teachers, academics and representative stakeholders
- trials at key stages in the development of the assessment.

1.5 Assessment within the QCAR Framework

QCATs provide opportunities for teachers to enhance their understanding of assessment practices within the QCAR Framework and, specifically, to enhance teachers' ability to make consistent judgments of quality in student work.

Standards

The *Essential Learnings* specify what to teach. *Standards* indicate how well a student has achieved, by matching a degree of quality in specified dimensions across a range of work.

Standards

***Standards* describe how well a student has demonstrated their learning based on a collection of evidence.**

A standard

Evidence in a student's work typically demonstrates a very high level of knowledge and understanding of concepts, facts and procedures, and application of processes.

B standard

Evidence in a student's work typically demonstrates a high level of knowledge and understanding of concepts, facts and procedures, and application of processes.

C standard

Evidence in a student's work typically demonstrates a sound level of knowledge and understanding of concepts, facts and procedures, and application of processes.

D standard

Evidence in a student's work typically demonstrates a limited level of knowledge and understanding of concepts, facts and procedures, and application of processes.

E standard

Evidence in a student's work typically demonstrates a very limited level of knowledge and understanding of concepts, facts and procedures, and application of processes.

Teachers make judgments about student achievement by matching evidence in student work to the *Standards*. Teachers use the dimensions of Knowledge and understanding, and Ways of working, together when making these judgments. Both dimensions are important for a balanced teaching, learning and assessment program.

Assessable Elements

The *Standards* are supported by assessable elements, which are identified in the learning and assessment focus of the *Essential Learnings* for each KLA. Assessable Elements identify valued features of the KLA about which evidence is collected and assessed.

Assessable Elements are designed to guide:

- development of assessments
- selection of evidence of student learning
- judgments made about the evidence by distinguishing visible demonstrations of the learning.

Assessable Elements are drawn from the two dimensions of the *Essential Learnings*: Knowledge and understanding, and Ways of working. They can be used together or independently when designing assessment.

Task-specific Assessable Elements identify discrete aspects of the selected *Essential Learnings*. They identify how particular Assessable Elements will look in a specific assessment. Task-specific descriptors guide students on the expected quality for each task-specific Assessable Element.

Making judgments about the quality of student work

A *Guide to making judgments* accompanies QCATs to help teachers with the processes for making consistent judgments about the quality of student work.

The *Guide to making judgments*:

- specifies the task-specific Assessable Elements and descriptors
- clarifies the curriculum expectations for learning at each of the five grades (A–E) of the Standards
- supports evidence-based discussions to help students understand their strengths and areas for improvement
- provides a basis for conversation among teachers, students and parents/carers about the quality of student work
- provides opportunities for feedback to the student and development of specific learning goals.

The *Guide to making judgments* uses task-specific descriptors that are placed along a continuum and describe the degrees of quality (A–E) for each Assessable Element. Moving up the continuum, each task-specific descriptor signposts a discernable difference in the quality of the student performance.

Making a judgment about the quality of student work using the *Guide to making judgments* is a two-step process.

1. Make a judgment about the evidence related to each Assessable Element by choosing a position on each continuum that best matches the evidence in the Student booklet.
2. Make an overall on-balance judgment about the standard (A–E) of student work by considering each Assessable Element in relation to the stated focus of the assessment.

QCATs include annotated student responses. These demonstrate how the *Standards* look in student work, and support the process of matching student responses to task-specific descriptors in the *Guide to making judgments* and in making on-balance judgments.

Consistency of teacher judgment

The process of achieving consistency of teacher judgment is integral to making judgments about the quality of student responses. This involves teachers consistently applying a shared understanding of those qualities that characterise the *Standards*. Consistency of teacher judgment is achieved through engaging in professional conversations about the quality of evidence in student responses using the *Standards*, Assessable Elements, and task-specific descriptors as a common language. There are various ways of reaching consensus to improve consistency in teacher judgment.

Three common approaches are:

- Expert model — teachers grade all student responses and then submit representative samples to an expert who provides feedback and advice to teachers on their judgments.
- Calibration model — a facilitator selects samples deemed to be of a certain standard, with teachers individually grading samples and then comparing their judgments with the grade nominated for the sample.
- Conferencing model — teachers grade student responses individually and then select student samples representative of A–E qualities for later sharing and discussion of judgments with colleagues.

Schools may use aspects of each approach to achieve consistency of teacher judgments within and between schools.

Providing feedback to students

The purpose of QCATs within the QCAR framework is to support student learning. As a result, feedback to students is pivotal. Feedback to students can be developed using:

- student responses
- Guide to making judgments
- Essential Learnings and Standards
- model and Sample responses.

Assessment for learning occurs when teachers work with students to discuss information about what they were expected to know, understand and do, and how their responses were judged using the *Guide to making judgments*. The focus in such discussions is on developing learning goals and strategies to improve learning.

2 Implementation of QCATs

Teachers play a pivotal role in the successful implementation of QCATs. They choose how and when the QCATs are implemented (within the prescribed 10 school weeks), grade and evaluate student responses to the QCATs, provide feedback to students on the strengths of their performance and areas for improvement, and use the results to plan for the next stage of learning.

2.1 School preparation and implementation

Resources provided

In July 2009, to support forward planning, the QSA published the design briefs online, clearly identifying the *Essential Learnings* to be assessed by each QCAT.

The QSA distributed to all Queensland schools a package of materials relevant to each QCAT containing:

- Teacher guidelines — with information about:
  - purpose and nature of QCATs
  - a list of the Essential Learnings that form the basis of the assessment
  - how teachers should prepare themselves and their students for the QCAT
  - implementation advice
  - a model response for the QCAT to provide teachers with an example of a high-quality response for each question
  - reference to online resources relevant to the assessment, including information and a link to the Sample responses — containing two annotated responses for each standard (A–E) — advice and a link to resources on using feedback to inform future teaching and learning
  - advice about the features and use of the Guide to making judgments
- Student booklet — the assessment task to be completed by the students
- Guide to making judgments for the task (provided in the Teacher Guidelines and the Student booklet).

Suggested implementation processes

Preparation

An implementation period of 10 school weeks was available to schools. Consideration was given to the time needed to organise school programs and provide flexibility to implement the QCATs adequately.

The QSA told teachers:

- Students should have the opportunity to develop their understanding of the selected Essential Learnings well in advance of participating in the 2010 QCATs.
- Students should be oriented to the assessment including the timely revision of any relevant specific skills and engaging with the types of questions used within the QCAT.
- QCATs are designed to assess how well students know, understand and apply their learning in relation to a selection of Essential Learnings. For this reason, the QSA recommended to teachers that preparation activities should not involve rehearsal of the actual assessment.

- QCATs are designed to support school-based assessment, and teachers were encouraged to apply the principles of participation and equity. The QSA provided information for teachers on how to make adjustments for those students who required special provisions.
- it was recommended that teachers work through each student assessment before it was given to students to gain an insight into what would be required of students and to support planning for administration. Working through the assessments also helped teachers to grade student responses.

Teachers played a central role in the implementation of the 2010 QCATs. Within the Teacher guidelines provided, teachers were encouraged to make informed decisions appropriate to their school context about:

- preparing students for the assessments
- choosing how and when the assessments would be implemented
- providing sufficient scaffolding to ensure students had every opportunity to do their best work
- grading and evaluating student responses to assessments
- improving the consistency of teacher judgments
- providing feedback to students on the strengths and weaknesses of their performance
- using the information to plan for the next stage of learning.

Implementation

Teachers were told that each QCAT would take approximately 90 minutes for students to complete. In some QCATs this may be in addition to Setting the scene activities which orient the student to the assessment. The decision about length and number of sessions to implement QCATs depended on the teacher. Within a school, teachers were encouraged to work together, sharing resources to administer assessments so that all students had the opportunity to complete the QCATs under equitable conditions.

Grading student responses

Grading of student responses required teachers to match evidence in student work to the task-specific descriptors. Specifically, teachers were asked to make a judgment by indicating a position on the continuum for each Assessable Element within the QCAT, and then make an overall on-balance judgment for the QCAT by awarding an *A* to *E* grade on the five-point scale.

2.2 School participation

All schools in Queensland received QCATs in English, Mathematics and Science in Years 4, 6 and 9. Based on the data submitted to the QSA, 1030 schools completed QCATs in Year 4, 1027 in Year 6, and 296 in Year 9. Data analysis was completed for all QCATs in 2010.

Table 1: QCATs data received

School sector	Schools that submitted data		
	Year 4	Year 6	Year 9
Education Queensland	994	989	261
Queensland Catholic Education	27	28	22
Independent Schools Queensland	9	10	13
Total number of schools	1030	1027	296

2.3 Gathering information from implementation

All schools implementing QCATs were asked to submit to QSA aggregate data in the form of the number of overall on-balance *A*–*E* grades. There were no individual students' identifying labels on the data. Schools were able to breakdown their overall grades by:

- class group
- gender
- Indigenous status
- English as a Second Language (ESL) status.
- Teachers were also encouraged to complete a survey and provide feedback to the QSA on implementing the QCATs.

Table 2: QCATs data received by KLA

Schools that submitted data	Number of schools	Number of students
Year 4 English	995	37969
Year 4 Mathematics	926	37131
Year 4 Science	1000	37724
Year 6 English	996	38523
Year 6 Mathematics	922	37756
Year 6 Science	997	38215
Year 9 English	289	36349
Year 9 Mathematics	286	36230
Year 9 Science	289	35877

Table 3: Numbers of students participating in each QCAT by gender

QCAT	Male	Female	Total
Year 4 English	19135	18834	37969
Year 4 Mathematics	18715	18416	37131
Year 4 Science	19031	18693	37724
Year 6 English	19496	19027	38523
Year 6 Mathematics	19120	18636	37756
Year 6 Science	19363	18852	38215
Year 9 English	18500	17849	36349
Year 9 Mathematics	18562	17668	36230
Year 9 Science	18131	17746	35877

Table 4: Numbers of students participating in each QCAT by Indigenous status

QCAT	Indigenous	Non-Indigenous	Total*
Year 4 English	2916	34982	37969
Year 4 Mathematics	2856	34207	37131
Year 4 Science	2884	34770	37724
Year 6 English	2857	35592	38523
Year 6 Mathematics	2774	34908	37756
Year 6 Science	2790	35353	38215
Year 9 English	2382	33813	36349
Year 9 Mathematics	2360	33714	36230
Year 9 Science	2301	33428	35877

*some students' indigenous status was not indicated

Table 5: Numbers of students participating in each QCAT by ESL status

QCAT	ESL	Non-ESL	Unknown	Total
Year 4 English	2955	34945	69	37969
Year 4 Mathematics	2943	34103	85	37131
Year 4 Science	2862	34737	125	37724
Year 6 English	2720	35722	81	38523
Year 6 Mathematics	2785	34901	70	37756
Year 6 Science	2642	35504	69	38215
Year 9 English	1931	34261	157	36349
Year 9 Mathematics	1916	34171	143	36230
Year 9 Science	1956	33574	347	35877

Random sampling of school-based judgments

The QSA also gathered information from random sampling of school-based judgments of student achievement in QCATs. This sampling is one of the QSA's quality assurance procedures for the implementation of the QCATs. The principal purposes are to:

- evaluate how consistently teachers apply standards in determining overall grades of achievement in QCATs
- provide information about the quality of the assessment judgments (how teachers used the Guides for making judgments)
- identify any issues concerning the implementation of QCATs that may need further investigation.

The random sampling project checks the quality of the school-based judgments after they have been made.

During the random sampling operation, trained markers — all classroom teachers — participated in a calibration exercise then independently graded samples of student work provided by schools. Markers then met to check for comparability. If for any *Student booklet* a discrepancy occurred, they were asked to reach consensus.

Focus group discussions were held at the end of the two-day operation and markers reported their findings in relation to strengths, weaknesses and patterns of student performance across questions and Assessable Elements, use of the *Guide to making judgments* and reaching consensus.

Summary of data sources

In summary, the QSA used five sources of data to gather information on the 2010 administration of QCATs. These sources included:

- data from 1104 schools across the state — which provided information on overall grades of student achievement as well as gender, and Indigenous and ESL status
- teacher survey data — comprising 237 responses
- data from 250 schools per QCAT— drawing on completed Student booklets that supplied an overall grade as well as a grade for each assessable element
- data from double-marking approximately 80 schools per QCAT — drawing on completed Student booklets from 80 schools (selected from the sample data collected from 250 schools) which were double-marked by trained and independent —expert markers
- summaries of focus group discussions amongst the expert markers at the conclusion of the random sampling marking operation.

Analysis of these five data sources informs the next section of the report, Key learnings.

3 Key learnings

The key learnings from the 2010 administration of the QCATs relate to three significant areas:

- student achievement of overall A–E grades (as well as achievement related to gender, and Indigenous and ESL status)
- consistency of teacher judgments
- teacher feedback on QCATs.

3.1 Student achievement

Patterns in student achievement for all QCATs were calculated from the data of approximately 37 000 students at each year level from across the state. As expected, this included nearly equal numbers of male and female students, but non-Indigenous students and non-ESL students far outnumbered Indigenous and ESL students.

The patterns of student achievement shown across all QCATs were:

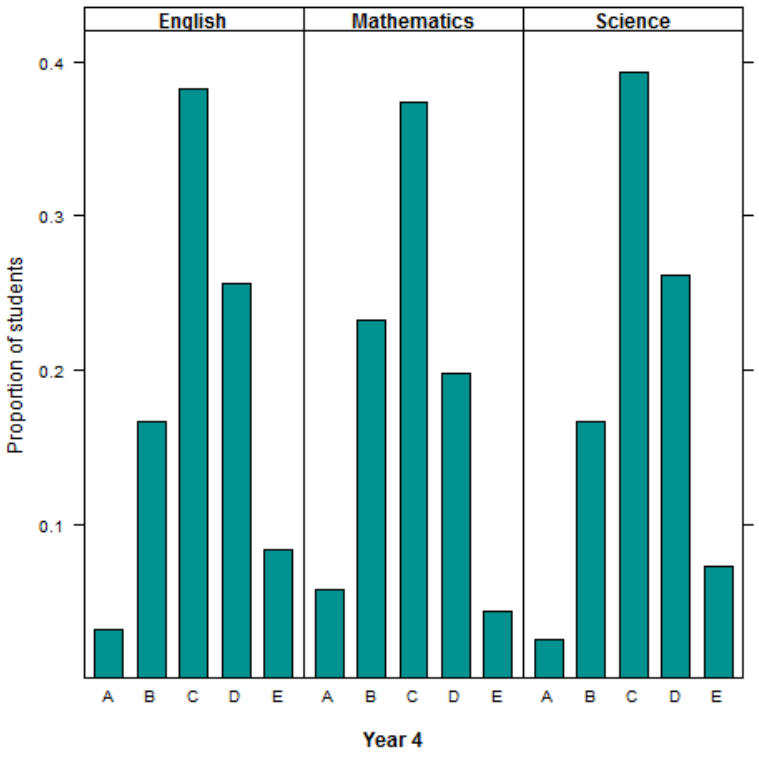
- girls performed better than boys
- non-Indigenous students achieved better results than Indigenous students
- non-ESL students achieved better results than ESL students.

Overall achievement

Figures 1–3 show the overall achievement of students in each QCAT through the distributions of overall grades. In other words, they show the proportion of students awarded each overall grade for the QCAT, out of the total number of students who completed the QCAT.

The patterns of achievement for Year 4 overall grades for English, Mathematics and Science QCATs approximate to normal distributions of student grades. The shapes of the distributions for English and Science are similar and are slightly skewed towards the lower grades, while Mathematics is skewed slightly towards the higher grades.

Figure 1: Distribution of overall grades for Year 4 QCATs



The distributions for Year 6 overall grades follow a similar trend to those in Year 4. However, the Year 9 distributions generally show a greater proportion of *B* grades than do Years 4 and 6. Years 4, 6 and 9 Mathematics show the same or greater proportion of *A* grades compared to *E* grades.

Figure 2: Distribution of overall grades for Year 6 QCATs

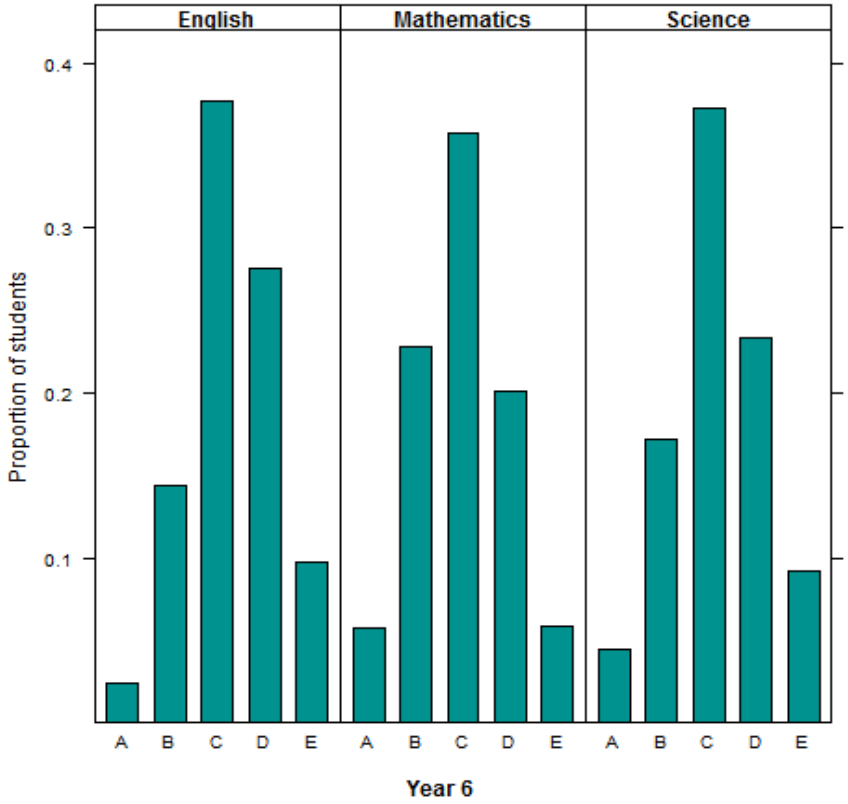
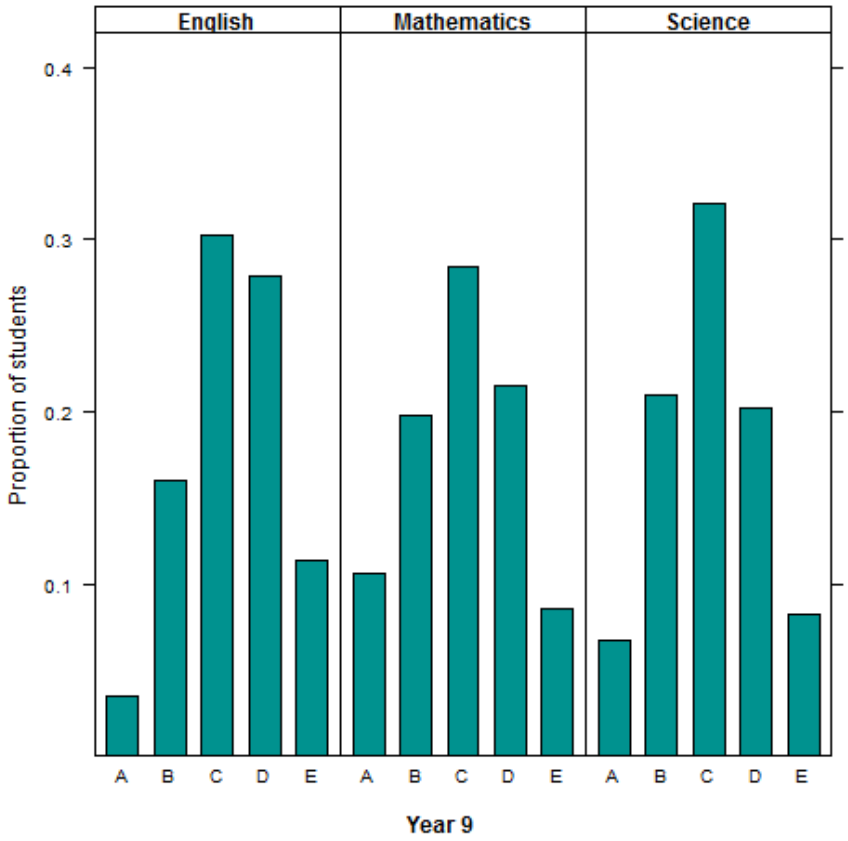


Figure 3: Distribution of overall grades for Year 9 QCATs



Student achievement and gender

Figures 4–6 illustrate performance according to gender. The graphs show that, in all KLAs and in all year levels, girls achieved higher levels than boys. That is, girls were awarded more *A*, *B* and *C* grades than boys were. It can be noted that girls outperformed boys to a greater degree in English than in the other KLAs across all year levels. Differences between girls and boys were smaller in Mathematics and Science.

Figure 4: Distribution of overall grades for Year 4 QCATs according to gender

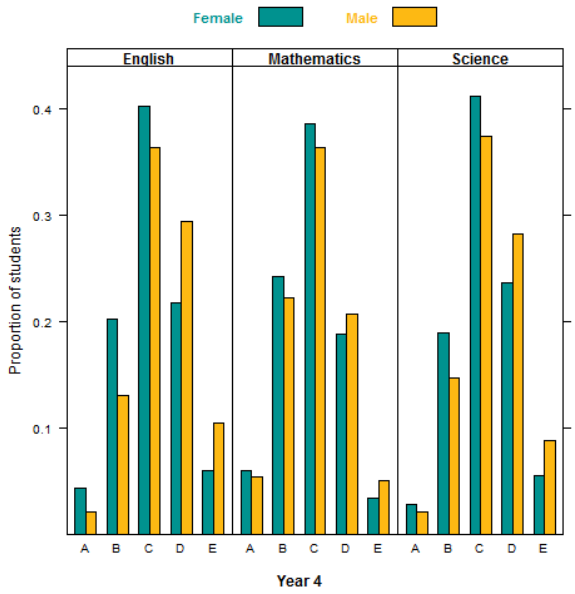


Figure 5: Distribution of overall grades for Year 6 QCATs according to gender

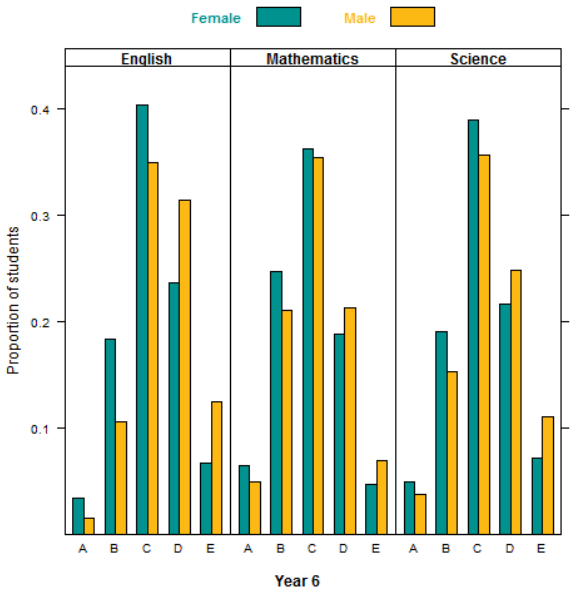
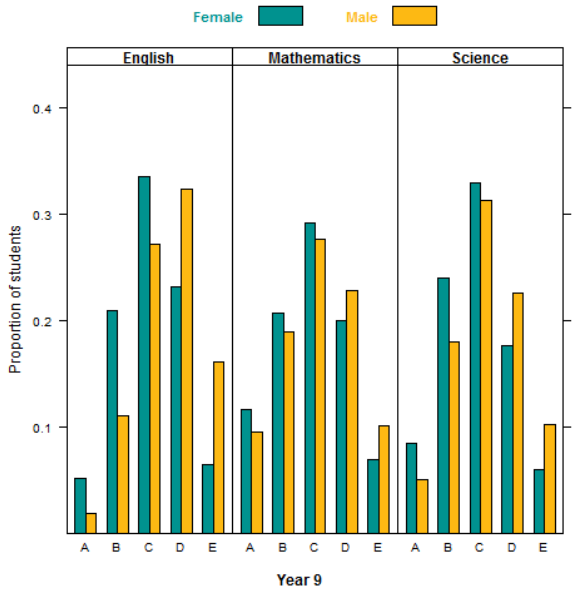


Figure 6: Distribution of overall grades for Year 9 QCATs according to gender



Student achievement and Indigenous status

When comparing overall grades awarded to Indigenous and non-Indigenous students (Figures 7–9), differences are generally large in all KLAs. This is seen across all three year levels. Smaller proportions of Indigenous students received *A*, *B* and *C* grades; and larger proportions of Indigenous students received *D* and *E* grades. Indeed, the proportion of Indigenous students with grade *E* was approximately twice that of non-Indigenous students.

Figure 7: Distribution of overall grades for Year 4 QCATs according to Indigenous status

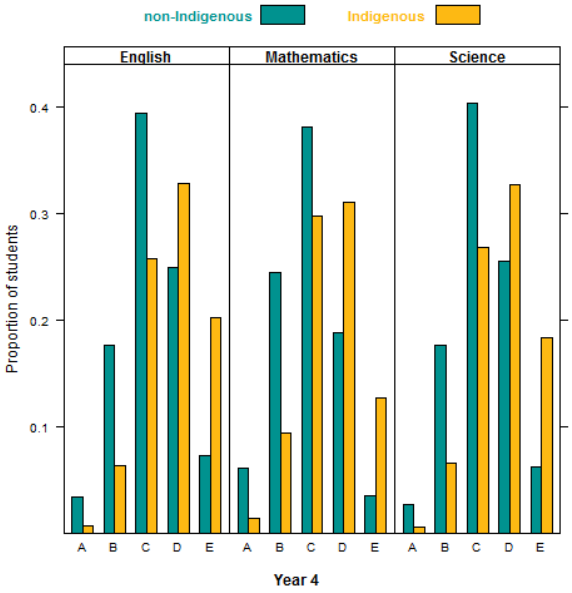


Figure 8: Distribution of overall grades for Year 6 QCATs according to Indigenous status

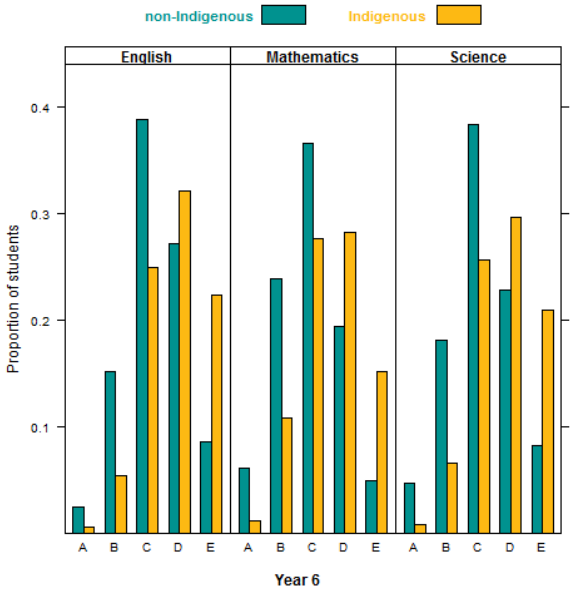
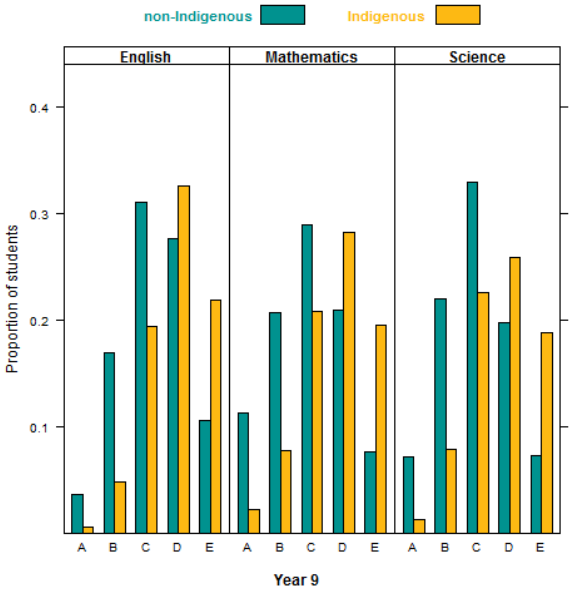


Figure 9: Distribution of overall grades for Year 9 QCATs according to Indigenous status



Student achievement and ESL status

The difference between student performance according to ESL status (Figures 10–12) followed a different pattern to those for gender or for Indigenous status, particularly in Years 6 and 9. In Year 4, non-ESL students were awarded only slightly more *A* and *B* grades than were ESL students for English and Science, and to a lesser extent in Mathematics. ESL students were awarded more *D* and *E* grades than were non-ESL students. However, in Year 6, ESL students were awarded very slightly *more A* grades than were non-ESL students in Mathematics and Science, and the same number of *A* grades in English. However non-ESL students were awarded more *B*s and *C*s in each KLA, while ESL students were awarded more *D* and *E* grades. A similar pattern of distribution was seen for Year 9 students.

Figure 10: Distribution of overall grades for Year 4 QCATs according to ESL status

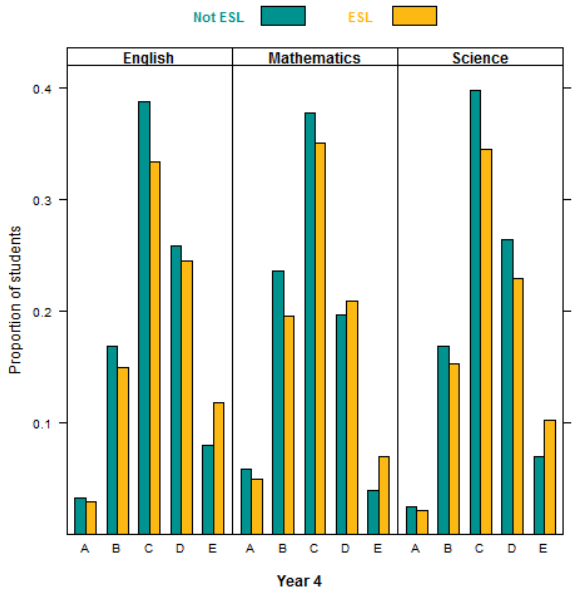


Figure 11: Distribution of overall grades for Year 6 QCATs according to ESL status

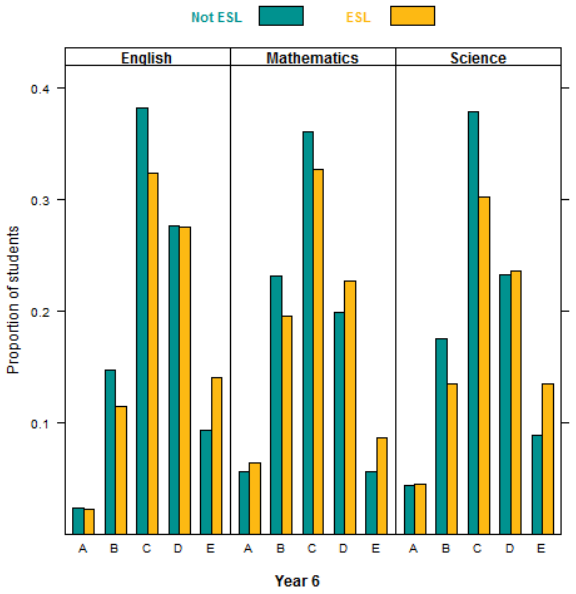
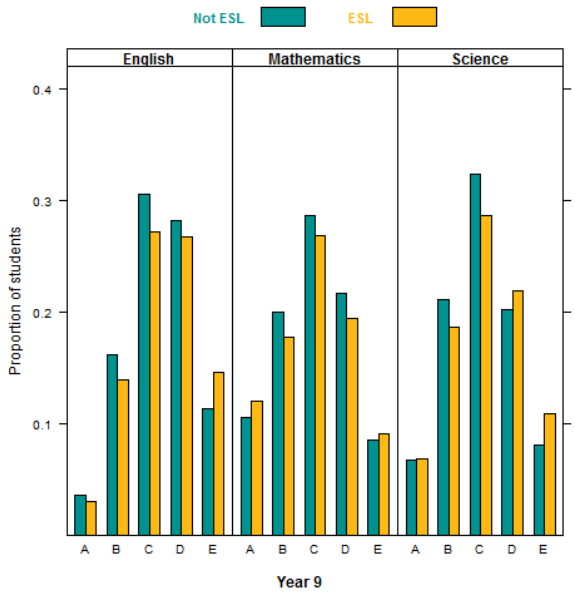


Figure 12: Distribution of overall grades for Year 9 QCATs according to ESL status



Consistency of teacher judgments

Moderation processes are essential within schools and clusters to build consistency of teacher judgments. As discussed in detail in Section 1: Background, assessment within the QCAR Framework is supported through teachers using a common *Guide to making judgments.*

The random sampling marking operation occurred for all nine 2010 QCATs. In this operation approximately 250 schools for each QCAT were randomly selected to provide five samples to represent *A*–*E* standards. The submitted data included both the overall grade and a grade for each Assessable Element. Approximately 700 schools (around 80 for each QCAT) were then double marked.

Results from the 2010 QCATs suggested that when teachers are provided with *Teacher Guidelines* for administration and a common guide for making judgments about the quality of student responses, a high level of consistency of reported results is possible.

The levels of agreement between the overall grades awarded by the trained markers and the overall grades awarded by teachers in schools were high for Years 4 and 6 and very high for Year 9. When teachers engaged in calibration and moderation training the level of agreement between markers improved markedly for both overall grades and assessable elements. For eight of the nine QCATs, trained markers reached a consistency of around 0.9 (a proportion of 1.0 being perfect correlation between markers). Refer to Section 4: QCATs: Commentaries for representations of consistency of teacher judgment data.

When discrepancies between expert markers did occur, they were not large, and, with few exceptions, discrepancies were not displaced more than one grade apart. The expert markers reported that discrepancies were concerned mostly with borderline grades. Expert markers claimed to depend heavily upon the *Guide to making judgments* to resolve differences, referring to the focus statement, task-specific Assessable Elements or key words in the descriptors. Other strategies included:

- discussion
- further analysis of the Sample responses
- consultation with a third marker.
- The common thread to all strategies, however, was the focus on sample student responses to match evidence to the task-specific descriptors.

The expert markers noted that some classroom teachers had used various other grading methods instead of or in addition to the QSA's task-specific descriptors. These included using letter or numeric grades in sub-questions or in elements smaller than the Assessable Element.

It has been suggested to teachers that rather than use letter or numeric grades for individual questions, they need to match all of the evidence in each section of the QCAT against all of the descriptors in each continuum in the *Guide to making judgments*. An on-balance judgment about each Assessable Element needs to be made before awarding an overall grade for the QCAT.

Awarding *A*–*E* grades for each question is not appropriate as not every question is designed to elicit an *A*–*E* response. Only particular questions on the QCAT target the higher-order thinking that is reflected in descriptors for higher grades.

3.2 Teacher feedback on QCATs

Specific feedback from teachers

Teacher Guidelines

The majority of teachers agreed that the document provided the information that was required, and that the instructions were clear. The inclusion of advice to teachers on an annotated Student booklet improved implementation of QCATs.

Teachers said that the *Teacher Guidelines* were not explicit about how much support should be provided to students who do complete the QCATs.

The new format for the *Teacher Guidelines* was effective in how it supported teacher delivery and linked the questions to the *Essential Learnings*.

Student booklets

The majority of teachers agreed that the *Student booklets* were adequate in:

- providing valuable insights into what students knew, understood and could do in relation to the targeted *Essential Learnings*
- cultural relevance of the contextual material
- age-appropriateness of the context
- the relevance of the material
- the level of difficulty of the questions.

Guide to making judgments

Teachers commented more about the *Guide to making judgments* than any other document.

The majority of teachers agreed that the task-specific assessable elements were clear and observable in the responses.

Some teachers identified the need for professional development in using the task-specific descriptors to identify discernable differences in student responses.

Sample responses

Teachers on the whole agreed that the *Sample responses* were adequate in terms of:

- providing clear examples of the quality expected in student work at different standards
- two sample responses were sufficient
- usefulness of the annotations.

Professional capabilities

Feedback from teachers strongly affirmed that implementing the QCATs and engaging in professional development, moderation, random sampling marking operation or trials improved their capacity to make consistent judgments about the standard of student work.

General feedback from teachers

Other comments included:

- Making judgments was a time-consuming process that needed support.
- Some judgments were too subjective with some descriptors, particularly at a higher level.
- The majority of teachers spent more than one hour preparing students for the QCAT.
- Teachers varied in the amount of time they spent on Setting the scene with the students.

- Most teachers reported that students took longer than the recommended time to complete the Student booklet.
- Overall, most teachers spent two sessions or more administering the QCAT.
- Most teachers agreed that QCATs allowed them to gather useful information about student learning.
- The moderation process was very helpful.
- QCATs provided valuable feedback to students and not just the teachers.
- Teachers need to be given time and advice for efficient moderation processes to occur.
- Teachers in distance education found some practical aspects of QCATs challenging.
- Some teachers required advice to support implementation of QCATs in multi-age classes.
- Many teachers reported that they included the QCAT as part of their school-based assessment program. Some teachers consider QCAT implementation to be an imposition but this was less of an issue in schools where the QCAT was incorporated into the assessment plan.
- Some teachers felt that moderation processes in some schools and districts were not ideal and were more of a validation process than a discussion aimed at reaching an agreement about standards of student work.
- Many teachers indicated that information gathered from the implementation of a QCAT would help to inform their school programs and develop their professional capabilities in planning, teaching, making consistent judgments, to inform knowledge of what students know and can do, and in planning strategies to improve students' learning.

4 QCATs: Commentaries

This section provides specific details about each QCAT administered in 2010 in Queensland schools. For each QCAT the following information is provided:

1. Purpose of the assessment
2. Alignment to the curriculum
3. Development and refinement
4. Student performance
5. Consistency of teacher judgment
6. Learnings based on teacher feedback

Explanatory notes:

Limited qualitative data from focus group discussion in Year 4

Feedback from the Year 4 English, Maths and Science expert marker focus sessions was incomplete due to the flooding throughout Queensland during the Random sampling operation in January 2010. Discussion of teacher feedback in the Year 4 QCATs is based on survey data, school trials and anecdotal evidence.

Graphs of overall student achievement

Graphs of overall achievement display the grades assigned by schools from across Queensland. These grades have been moderated by schools and districts to varying degrees.

Consistency of teacher judgment

The consistency between the two sorts of markers (school and expert markers) has been quantified using Krippendorff's alpha. This is a reliability coefficient developed to measure the agreement between observers, coders, judges, raters, or measuring instruments. It is widely applicable wherever two or more methods of processing data are applied to the same set of objects, units of analysis, or items, and the question is how much they agree. Krippendorff's alpha ranges between 0 (no agreement) through to 1 (perfect agreement). Figures 13 and 14 show the values for Krippendorff's alpha for:

- the two sets of comparisons (between pairs of markers, and between the consensus grade and the grade awarded by a school)
- both the overall letter grade and for the grades awarded for Assessable Elements in each QCAT.

4.1 Year 4 English QCAT

4.1.1 Purpose of the assessment

The Year 4 English QCAT gathered evidence about how students interpreted a page of text, then planned and completed a story.

Students were required to:

- interpret and answer questions about the orientation of a narrative
- plan and write the story's complication and resolution
- edit and proofread the story.

4.1.2 Alignment to the curriculum

Table 6: Alignment of the Years 4 English QCAT to the curriculum

<table>
<tr><th>Essential Learnings by the end of Year 5</th><th>Assessable Element</th><th>Task-specific Assessable Element</th></tr>
<tr><td rowspan="3">Knowledge and understanding
Reading and viewing
• Readers and viewers use a number of active comprehension strategies to interpret texts, including activating prior knowledge, predicting, questioning, identifying main ideas, inferring, monitoring, summarising and reflecting.
Writing and designing
• The purpose of writing and designing includes entertaining, informing and describing.
• Text users make choices about grammar and punctuation, to make meaning.
• Writers and designers refer to authoritative sources and use a number of active writing
• strategies, including planning, drafting, revising, editing, proofreading, publishing and reflecting.
Language elements
• Paragraphs separate ideas in texts and contain a topic sentence.
• A sentence can be simple, compound or complex.
• Sentences can indicate what is happening (verbs), who or what is taking part
• (nouns), what it looks like (adjectives), and the circumstances surrounding the action
• (prepositional phrases and adverbs).
Literary and non-literary texts
• structural features that set the scene, introduce and describe characters and plot (orientation), describe events or actions leading to a problem (complication), and describe how and why a problem is solved (resolution).
Ways of working
Interpreting texts
• identify the relationship between audience, purpose and text type
• identify main ideas and the sequence of events, and make inferences
• interpret how people, characters, places, events and things have been represented and whether aspects of the subject matter have been included or excluded
Constructing texts
• construct literary and non-literary texts by planning and developing subject matter, using personal, cultural and social experiences that match an audience and purpose.</td><td>1. Knowledge and understanding / Interpreting texts</td><td>Interprets text through an understanding of purpose, sequence, inference, grammar and representation of people and place.</td></tr>
<tr><td>2. Knowledge and understanding / Constructing texts</td><td>Plans a story, demonstrating an understanding of narrative structural features, language elements and publishing processes.</td></tr>
<tr><td>3. Knowledge and understanding / Constructing texts</td><td>Writes, edits and proofreads a story that shows planning, maintains purpose, builds from the orientation and uses language elements (paragraphs, grammar, punctuation, simple and compound sentences).</td></tr>
<tr><td colspan="3">Focus: Plan and construct a story based on a stimulus text.</td></tr>
</table>

Development and refinement

The choice of a narrative text was made for the 2010 Year 4 English QCAT to provide a contrast to the focus in 2008 and 2009 of the key elements of messaging in non-literary texts. The text stimulus used is an extract from *Home to Mother* by Doris Pilkington (2006) that is a version of *Follow the Rabbit-proof Fence* for younger readers that the famous 2002 movie is based on. It provided students with an orientation of a narrative. Feedback from trial schools revealed that students were able to engage with the characters and setting in the text to prepare them to respond to questions and to plan, edit and write a complication and resolution for the story.

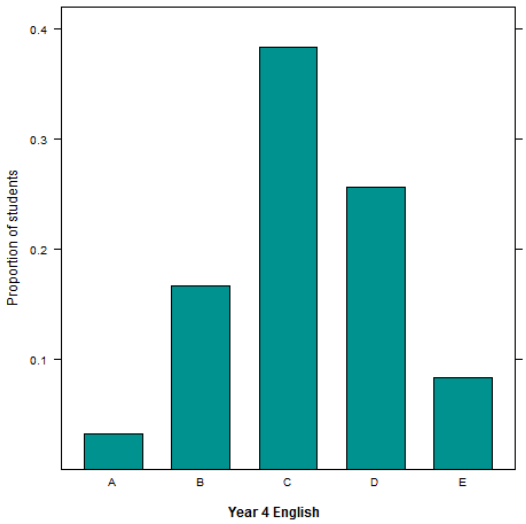
The first section of the task (Questions 1–9) gathered evidence of active comprehension strategies used by students to retrieve main ideas, make inferences, sequence events, and identify language elements in a narrative text. Questions were structured to elicit short responses from students so that sufficient time was available for planning and constructing a text.

The QCAT also targeted the planning, editing and proofreading phase of text construction. This was identified by teachers during the early development of the task as an area needing consolidation by students to improve the quality of their writing skills. In refining the task, more time was provided in the suggested implementation of the task for both the initial planning of the complication and the resolution of the story (15 minutes) as well as editing and proofreading (20 minutes). Questions were provided to support students in these stages of the writing process.

Students were required to use their knowledge and understanding of language elements and textual features of a narrative to develop a complication and resolution for the story. In constructing a text students had to build on the orientation that established a problem for the characters in the story. Questions 10–13 were developed to provide students with a clear focus before they started their writing.

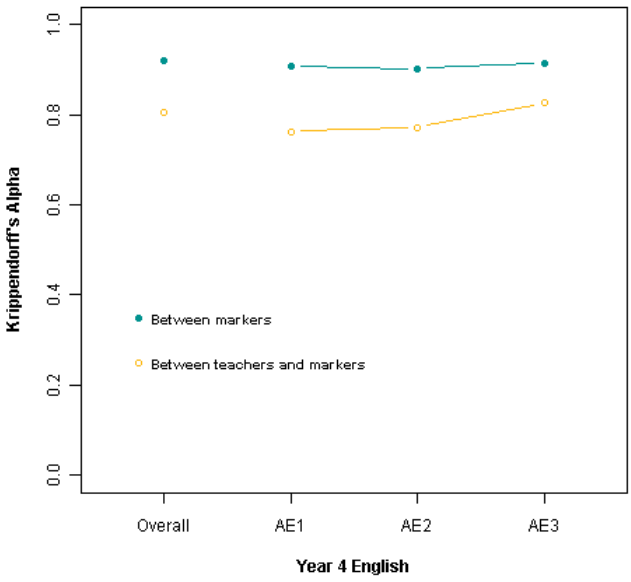
Student performance

Figure 13: Distribution of overall grades awarded for Year 4 English



Consistency of teacher judgment

Figure 14: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 4 English



Learnings based on teacher feedback

- Most teachers spent more than one hour preparing students for the QCAT.
- The great majority of teachers spent an hour or less Setting the scene.
- About a third of the students finished the QCAT in the recommended time.
- Most teachers found that the Teacher Guidelines were clear and provided sufficient information to implement the QCAT.
- About two-thirds of teachers indicated that their students found the task engaging and the context was age-appropriate.
- While a majority of teachers found that the task-specific Assessable Elements were observable in student's work, many would have appreciated greater clarity.
- Most teachers believed that the Sample responses provided clear examples of quality and that the annotations were very helpful.

Issues raised by teachers implementing the Year 4 English QCAT included:

- There is a need to make adjustments to the implementation plan for the QCAT in a distance education setting.
- The context of the orientation in the text stimulus did not motivate all students to finish the story. However, some teachers noted that their students engaged enthusiastically with the topic. Other teachers pointed out that finishing a narrative assumes a level of writing demand that may have been beyond some of their students.
- Some teachers failed to account for all the descriptors when making an overall judgment about student work during moderation. That is, they ceased applying the evidence of student's work when a student —missed" a descriptor.
- While most teachers found the Guide to making judgments effective at discerning differences in the Standards, a small number of teachers suggested that some descriptors on the Year 4 English Guide to making judgments didn't successfully indicate the difference.
- Some difficulties were experienced by teachers grading student responses to Question 7 where students were asked to identify language choices at the word level in a sentence.

Consideration may need to be given to student's grammar knowledge at both a word and word-group level in future QCATs.

- Some teachers noted that the questions dealing with specific understanding of grammar on the Year 4 English QCAT were difficult for students to answer.

4.2 Year 4 Mathematics QCAT

Purpose of the assessment

The purpose of the Year 4 Mathematics QCAT was for students to demonstrate time and mass measurement, mapping conventions including symbols, legends and compass points, and the addition and subtraction of whole numbers. Students were introduced to the assessment through a discussion of experiences when planning for and going camping.

Alignment to the curriculum

Table 7: Alignment of the Year 4 Mathematics QCAT to the curriculum

Essential Learnings by the end of Year 5	Assessable Element	Task-specific Assessable Element
Knowledge and understanding **Number** • Whole numbers, simple and decimal fractions and a range of strategies are used to solve problems. • Whole numbers (to thousands) and decimal fractions (to hundredths) can be calculated using addition and subtraction. **Measurement** • Length, area, volume, mass, time and angles can be estimated, measured and ordered, using standard and nonstandard units of measure. • Timelines, clocks, calendars and timetables are used to sequence, schedule and calculate timed events. • Standard units, including centimetre, metre, square centimetre, square metre, gram, kilogram, minute, degree, millilitre and litre, and a range of instruments are used to measure and order attributes of objects, including length, area, volume, mass, time, and angles. **Space** • Mapping conventions, including symbols, scales, legends and alphanumeric grids, are used to represent and interpret movements and to identify locations on maps and plans. • Mapping conventions, including the four major compass points, are used to give direction and movement and can be linked to turns. **Ways of working** **Thinking and reasoning** • identify and use mental and written computations, estimations, representations and technologies to generate solutions and check for reasonableness of solutions	1. Knowledge and understanding / Reflecting	Reflects on and identifies how mapping and the measurement of time and mass contribute to personal activities.
	2. Knowledge and understanding / Thinking and reasoning	Generates sequencing and scheduling solutions using timeline and calendar, and solves measuring and addition problems with mass. Interprets maps to make inferences and decisions and generate solutions.
	3. Knowledge and understanding / Communicating	Justify tent position and playground placement and give directions using everyday and mathematical language.

Essential Learnings by the end of Year 5	Assessable Element	Task-specific Assessable Element
• make statements, predictions, inferences and decisions based on mathematical • interpretations **Communicating** • communicate and justify thinking and reasoning, using everyday and mathematical • language, concrete materials, visual representations and technologies **Reflecting** reflect on mathematics and identify the contribution of mathematics to personal activities.		
Focus: Generate solutions using number, measurement and space concepts.		

Development and refinement

Refinements to the package included:

- a change to the language of some questions to improve clarity
- clearer signposting of evidence on the Guide to making judgments to reflect the continua model
- greater detail provided in annotations of the Sample responses.

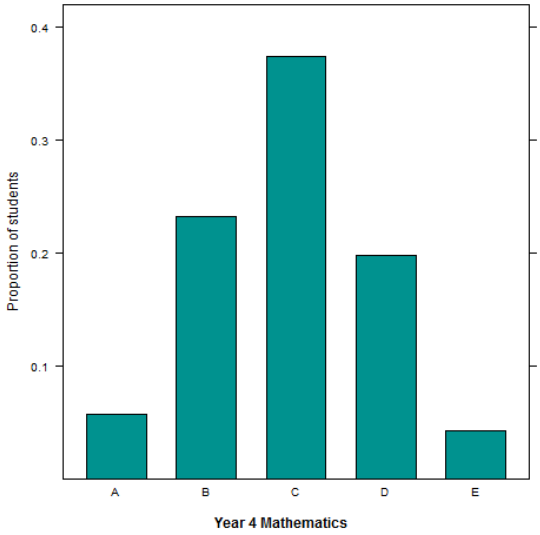
The context was well accepted through trialling and by panellists.

To minimise the literacy demand of the assessment, it was recommended that teachers read the text, including the stimulus and instructions to the students.

Student performance

- Overall the calendar work was done quite well. Question 6 was reported to be challenging for many students.
- Compass directional work was done well.
- Question 12 and different masses were demonstrated reasonably.
- Counting days across a month was a challenge for some students; there was uncertainty as to whether students were counting the days or the nights.
- The final scale was the most challenging. Students' lack of familiarity with the variety of scales may have been an issue.
- Written explanations (Questions 9–11) were challenging for many students. Having to explain (communicate their understanding) in a clear way is a skill that generally needs to be further developed in many of these students.
- Question 17 was challenging for some students because they had to apply their understanding in a new context.

Figure 15: Distribution of overall grades awarded for Year 4 Mathematics

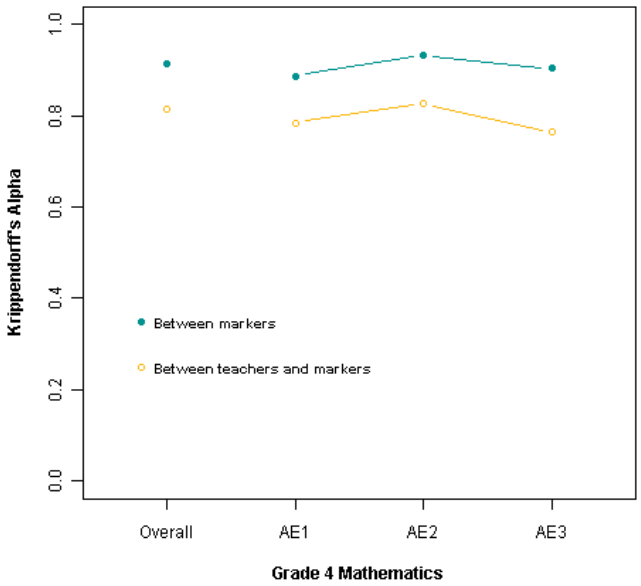


Consistency of teacher judgment

The 2010 *Guide to making judgments* combined the Assessable Elements: Knowledge and understanding, with Thinking and reasoning, and Communicating and Reflecting. This structure presented some challenges for teachers in identifying and interpreting the evidence for these Assessable Elements.

There was a high degree of consistency between the trained markers and teachers across all three Assessable Elements. Teachers and markers reached slightly higher consistency when marking Assessable Element 2 where the evidence was more concrete and differences between the descriptors were easy to identify in student responses.

Figure 16: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 4 Mathematics



Learnings based on teacher feedback

The QCAT yielded insights into what students knew and understood when using operations involving addition and subtraction, reading calibration on a timeline and weighing instruments, and using a compass and a map to find and communicate directions. All areas were generally done quite well.

Teachers reported that they:

- liked the way students were engaged in the use of calendars and calibration for timelines and weighing instruments
- valued the improved clarity provided in the *Teacher Guidelines* e.g. linked questions to the targeted curriculum
- experienced a degree of difficulty using the *Guide to making judgments* due to the combination of Assessable Elements, specifically Knowledge and understanding, with Thinking and reasoning, and Communicating and Reflecting
- observed that students struggled with communicating information or reasoning in written form (Questions 9–11) and with reading the final scale, due to its calibration (Q12)
- were a little concerned about resourcing and accessing a weighing instrument in order to complete Questions 12 and 13, particularly across multiple classes
- thought the *Sample responses* were useful
- required more time to complete the assessment.

Engagement in the QCAT trial motivated many teachers to consider the need to review their school programs to ensure that the *Essential Learnings* were fully incorporated.

4.3 Year 4 Science QCAT

Purpose of the assessment

The purpose of the assessment was to provide practical activities in which students handled materials in order to identify their properties, collect data, and draw conclusions. Students were required to identify the properties of given materials and relate properties to purpose. They used elements of a fair test to collect data and observations and compare paper planes made from two different materials, discussing the fairness of the test and drawing conclusions about the properties of each material. Students then applied their learning to plan a new investigation about flexibility and reflected on given properties to suggest a purpose for a new material.

The Student booklet is activity based and structured around —wonder" questions. Students then moved through a scientific inquiry process: making an observation about an everyday experience, predicting, planning and evaluating a fair test, collecting data and drawing conclusions.

Alignment to the curriculum

Table 8: Alignment of the Year 4 Science QCAT to the curriculum

Essential Learnings by the end of Year 5	Assessable Element	Task-specific Assessable Element
Knowledge and understanding **Natural and processed materials** • Properties, changes and uses of materials are related. • Materials are used for a particular purpose because of their specific properties. **Ways of working** Students are able to: • pose and refine simple questions, and make predictions to be tested • plan activities and investigations, identifying and using elements of a fair test • collect and organise data, information and evidence • draw conclusions that are supported by evidence, reproducible data and established scientific concepts • communicate scientific ideas, data and findings, using scientific terminology and formats appropriate to context and purpose • reflect on learning to identify new understandings and future applications.	1. Knowledge and Understanding	Identifies properties of materials and understands that materials are chosen for a purpose because of their properties.
	2. Investigating	Poses a simple question, makes a prediction to be tested, identifies elements of and plans for a fair investigation.
	3. Investigating	Collects and organises data and observations. Draws a conclusion supported by the data and the identified properties of materials.
	4. Communicating	Uses scientific terminology and appropriate formats to communicate properties of materials, observations, explanations and a method in investigations.
	5. Reflecting	Reflects on learning to evaluate a prediction and to identify a future application of a new material.
Focus: Use fair tests to relate the properties of materials to their purpose.		

Development and refinement

A properties word bank was included and discussed in Setting the scene, providing pairs of terms used to describe a selection of common properties and those relevant to the task. The *Teacher Guidelines* states that the word bank could be incorporated into prior learning experiences about materials.

Instructions for making and throwing the plane were provided in the Student booklet to encourage students to make and throw their own planes. It was intended that this would provide opportunities for students to make informed decisions about variables that may have affected the data and therefore the fairness of the investigation. The instructions were refined to become labelled diagrams in order to minimise the literacy demand required to follow them.

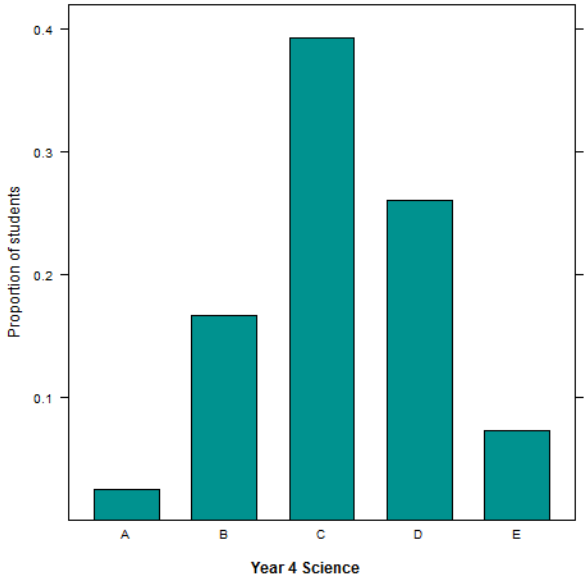
The observations table was modified to include an example of an observation that may have affected the data: ~~–~~Sometimes my feet were over the line so the plane went further". This scaffolding focused the students in collecting and recording relevant observations.

The *New ideas, new questions* section was specifically designed to include the use and choice of materials from Indigenous perspectives. The image of a shelter provided the context for students to plan an investigation to compare the flexibility of two native woods.

Student performance

It was evident that the depth of understanding of properties of materials and their link to purpose varied greatly between students. This was reflected in the limited use of precise, scientific terminology to refer to properties, and the common misuse of terms such as *hard* and *rigid*, *lightweight* and *soft*, *thin* and *flexible*. Students sometimes confused the properties of a material with those of the object. Where students were required to identify and list properties of given materials, they were more likely to make an indiscriminate list, including relevant and irrelevant properties.

Figure 17: Distribution of overall grades awarded for Year 4 Science



Expert markers reported that students appeared to have difficulty in discussing the fairness of the test when they were required to distinguish between the given plan and how they actually carried out the plan (Questions 7 and 8).

Students on the whole were able to plan an investigation by identifying variables to change, measure and control. However, many students were distracted by the image and went on to write a method to make the shelter rather than to compare flexibility of the woods. Where students did write a method to compare flexibility of the woods, very few controlled variables.

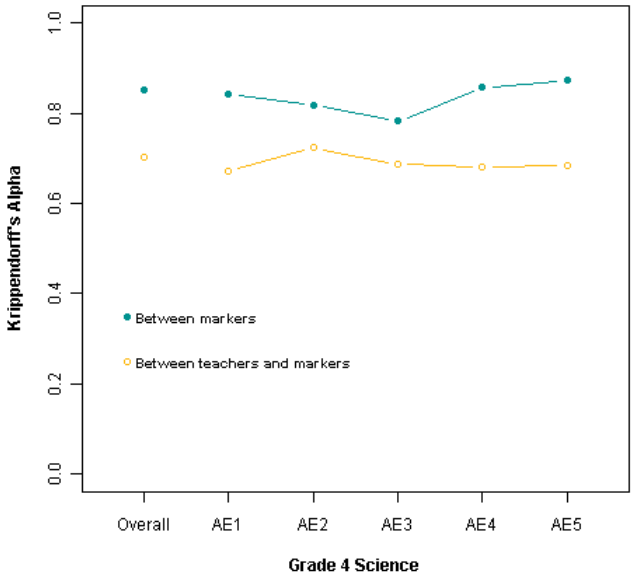
Consistency of teacher judgment

Figure 18 shows that teachers and markers had very high consistency when awarding overall grades and satisfactory consistency when awarding grades for each Assessable Element. Assessable Element 3, in which students were required to record relevant observations, link conclusions to properties, scientific ideas or theories, proved slightly more difficult for markers to grade consistently.

Very high consistency was reached where judgments were made about communication and reflection (Assessable Elements 3 and 4).

Evidence from random sampling data suggests that some schools tended to assign lower grades where expert markers awarded *A*, *B* and *C* grades, and higher grades where expert markers awarded *D* and *E* grades. This tendency pushed the distribution of reported overall grades towards the middle.

Figure 18: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 4 Science



Learnings based on teacher feedback

Teachers indicated that the context was age-appropriate and that the students found it engaging.

Teachers reported spending about the recommended time to complete the QCAT and implementation was carried out over the two or more sessions as suggested in the *Teacher Guidelines*. However, it was felt that the assessment was too long for children at Year 4 and that it was not necessary to include three contexts in the one assessment.

4.4 Year 6 English QCAT

Purpose of the assessment

The purpose of the task was to interpret and evaluate written and visual persuasive texts and construct a written argument that persuades an audience to agree with a point of view.

Students were required to:

- read and compare different persuasive texts
- identify the purpose, main ideas and language choices in written and visual texts
- interpret how readers are influenced by language choices and images in persuasive texts
- construct a written argument that persuades an audience to agree with a point of view.

Alignment to the curriculum

Table 9: Alignment of the Years 6–7 English QCAT to the curriculum

<table>
<tr><th>Essential Learnings by the end of Year 7</th><th>Assessable Element</th><th>Task-specific Assessable Element</th></tr>
<tr><td rowspan="3">Knowledge and understanding
Reading and viewing
• Words, groups of words, visual resources and images can persuade an audience to agree with a point of view by portraying people, characters, places, events and things in different ways.
• Comprehension involves drawing on knowledge of the subject matter and contextual cues to interpret, infer from and evaluate texts in community contexts.
Language elements
• Evaluative language, including adjectives, can appeal to certain groups express opinions, and represent people, characters, places, events and things in different ways.
• Paragraphs sequence information and arguments, and include topic sentences that emphasise a point or argument.
• Cohesive devices and other text connectives within and between sentences signal relationships between ideas, including cause and effect, and comparison and contrast
Writing and designing
• The purpose of writing and designing includes evoking emotion, persuading and informing.
• Writers and designers establish roles, make assumptions about their audience and position them through language choices.
Literary and non-literary texts
• Non-literary texts evaluate, inform, present arguments and persuade.
• Arguments have a particular structure, including an introduction that identifies a position, a body with details and further evidence, and a conclusion that restates the position.
Ways of working
Students are able to:
• construct non-literary texts to express meanings and messages, to identify causes and effects, and to state positions supported by evidence
• identify and demonstrate the relationship between audience, subject matter, purpose and text type
• identify main ideas and the sequence of events, make inferences and draw conclusions based on ideas and information within and across texts
• interpret and identify that readers/viewers/listeners are positioned by aspects of texts.</td><td>1. Knowledge and understanding</td><td>Uses comprehension strategies to identify the purpose, main ideas and language choices in persuasive texts.</td></tr>
<tr><td>2. Knowledge and understanding/ Constructing texts</td><td>Constructs an argument to persuade an audience to support a point of view using language elements and textual features (paragraphs, topic sentences, text connectives, evaluative language, high modality verbs and adverbs)</td></tr>
<tr><td>3. Interpreting texts</td><td>Identifies and interprets how language elements and textual features can position an audience across written and visual texts.</td></tr>
<tr><td colspan="3">Focus: Interpret and evaluate written and visual persuasive texts and construct a written argument that persuades an audience to support a point of view.</td></tr>
</table>

Development and refinement

The selection of text type for the 2010 Year 6 English QCAT was made in response to feedback from teachers to target written and visual texts that position different audiences to support a particular point of view. With this in mind the choice of a written text on an online forum and a cartoon were selected.

Early field trials of persuasive texts revealed the need to find an issue that was significant and interesting to Year 6 students from different communities. With this in mind, the influence of technology in our lives was chosen as relatable and age-appropriate.

The visual elements of the cartoon were used to provide students with the opportunity to compare the persuasive devices used to present a message about technology in our lives. Using simple images and words, students were required to identify how the message has been presented and to compare it to the message about technology presented in the online forums. Questions were structured to gather evidence of active comprehension strategies including retrieving explicitly-stated information (Questions 1–4), interpreting how language choices and images position different audiences (Questions 5–8). Teachers reported that *Interpreting texts,* in particular visual texts such as cartoons, was well-targeted as an Assessable Element as it was not targeted in school-based assessment as frequently as the Assessable Element of *Constructing texts*.

In constructing a written persuasive text, the context of school sport was chosen as a relevant topic for students across different school communities. Feedback from school trials supported the inclusion of a graphic organiser to help students to plan their writing.

Student performance

Teachers reported that students were able to achieve success with:

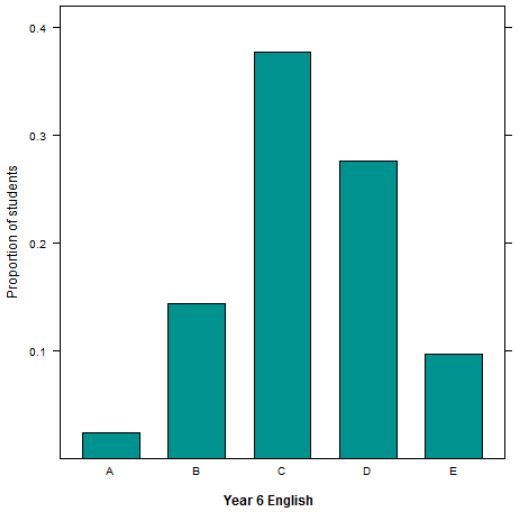
- identifying different audiences for texts
- selecting evaluative language choices used in texts to influence audiences
- identifying the visual elements used in the cartoon to persuade audiences
- constructing a persuasive text.

The context was engaging and familiar so most students responded with some level of success. In class, students had the opportunity to talk about how to put it together including textual features such as supported arguments and language choices such as adjectives. The subject matter gave them some background information they could relate to.

Teachers reported that students had difficulties with:

- justifying/explaining their opinions and responses to Questions 5, 6, 8 and 9
- identifying how the words in a cartoon influenced an audience; most attention was on the visual elements in the cartoon used to persuade an audience
- making precise language choices including using adverbs
- making precise language choices to position an audience
- Many students developed sound arguments in support or against the point of view about compulsory sport in schools but were not selective in their choice of language to persuade an audience. Audience considerations were not always strong.

Figure 19: Distribution of overall grades awarded for Year 6 English

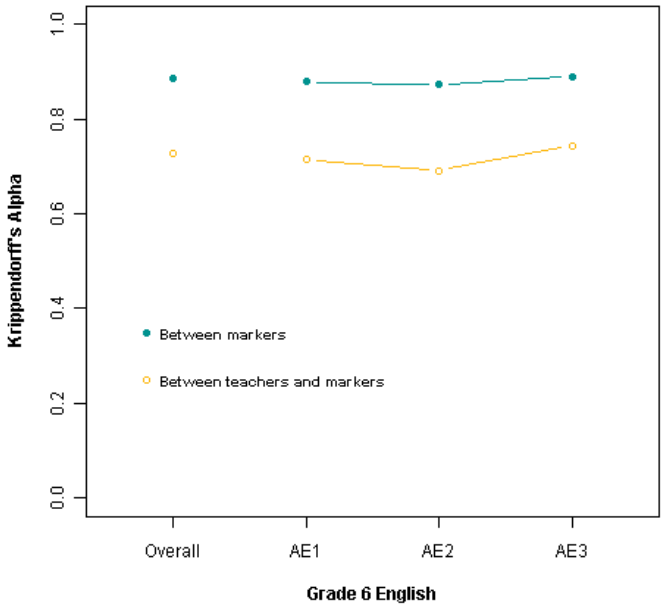


Consistency of teacher judgment

Teachers reported that they had to revisit task-specific descriptors continually in matching evidence to standards, particularly in AE1 and AE2.

AE2 was reported to be the most difficult to grade and teachers in the random sampling exercise appeared reluctant to award a grade of *A* against the descriptor of ~~-~~well- justified" if there were uneven responses across Questions 7–9.

Figure 20: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 6 English



Learnings based on teacher feedback

- Feedback from teachers revealed that the context of the influence of technology in our lives was engaging for students, who were able to consider their own position. Students were able to use contextual skills to locate the main ideas in the online forums, in particular in Questions 1 and 2. In regard to the location of particular language choices, students located the adjectives used by writers to persuade their audience in the two forums, but struggled more to locate adverbs, particularly in the second text.

- Teachers reported that students found the context of compulsory sport in schools easy to relate to in constructing a persuasive text. The context of sport in schools was engaging and familiar to student across a range of school communities so most students were able to respond with some level of success. In class, students had the opportunity to talk about how to construct a persuasive text using language elements such as text connectives and evaluative language. The plan for writing supported students in developing the textual features of a persuasive text.

4.5 Year 6 Mathematics QCAT

Purpose of the assessment

The purpose of the Year 6 Mathematics QCAT was to enable students to demonstrate how they use the Ways of working to investigate data in a variety of representations (tables, graphs, likelihood expressed as common fractions) and apply their understanding to a new application.

Students were required to:

- play a game —Flyaway home" and discuss which parts of the game rely on chance
- determine the probability of events that results from rolling two dice
- collect and analyse experimental data
- compare graphical representations of experimental data
- reflect on the effectiveness of strategies they have used
- evaluate the chances of winning using a selection of strategies provided.

Alignment to the curriculum

Table 10: Alignment of the Year 6 Mathematics QCAT to the curriculum

Essential Learnings by the end of Year 7	Assessable Element	Task-specific Assessable Element
Knowledge and understanding **Number** • Whole numbers, including positive and negative numbers, and common and decimal fractions can be ordered and compared using a number line. **Chance and data** • Events have different likelihoods of occurrence and estimates of probability can be expressed as percentages, common fractions or decimal fractions between 0 and 1. • Experimental data for chance events can be compared with theoretical probability. • Sample data drawn from a given population can be summarised, compared and represented in a variety of ways. • Measures of location such as mean, median and mode, and frequency and relative frequency, can be used to explore distributions of sample data. • Variation and possible causes of bias can be identified in data collections.	1. Knowledge and understanding	Uses possible outcomes and frequency to estimate likelihood as a common fraction. Compares and orders estimates of likelihood. Identifies and explains investigation results and differences between graphs.
	2. Thinking and reasoning	Makes and justifies a prediction of the best placement of ladybirds.
	3. Thinking and reasoning, Reflecting	Reflects on learning and applies new understandings to evaluate the effectiveness of game strategies.
	4. Communicates using mathematical language and representations to justify thinking and reasoning	Communicates using mathematical language and representations to justify thinking and reasoning.

Essential Learnings by the end of Year 7	Assessable Element	Task-specific Assessable Element
Ways of working Students are able to: • plan activities and investigations to explore concepts through selected pathways, and plan strategies to solve mathematical questions, problems and issues • select and use suitable mental and written computations, estimations, representations and technologies to generate solutions and to check for reasonableness • develop arguments to justify predictions, inferences, decisions and generalisations from solutions • evaluate thinking and reasoning, to determine whether mathematical ideas, strategies and procedures have been applied effectively • communicate thinking and justify reasoning and generalisations, using mathematical language, representations and technologies • reflect on learning, apply new understandings and identify future applications.		
Focus: Apply knowledge of chance events and variation to make predictions, explain results and evaluate game strategies.		

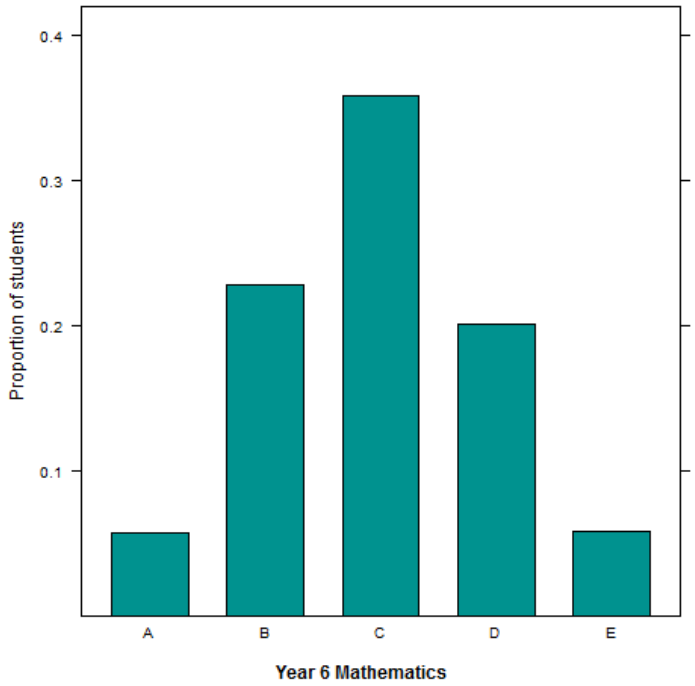
Development and refinement

In the light of feedback, and to fulfil the intention that the QCAT be an —authentic, performance-based assessment task", it was considered important that students engage in a practical chance-and-data activity. Early trials found that the game took a long time to play. To overcome this, the game rules were refined before implementation. Despite the time that was taken to play the game, feedback from teachers revealed that students enjoyed the context of playing a game to explore chance events.

Student performance

- Mathematical language limited the numbers of As awarded.
- Written language was harder to produce than spoken language.
- Linking data to justification was generally done poorly.

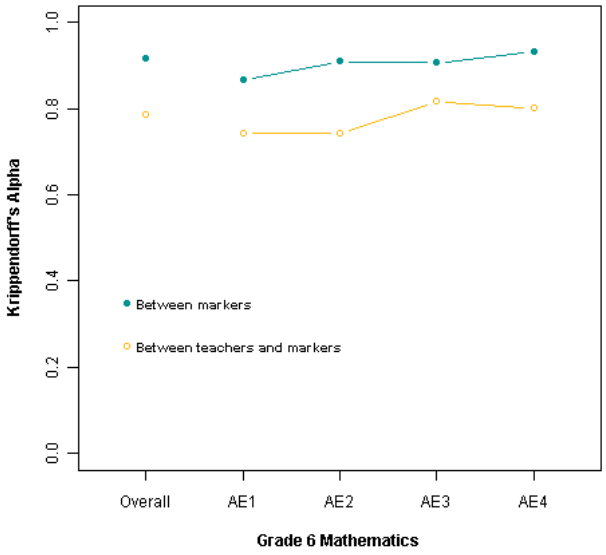
Figure 21: Distribution of overall grades awarded for Year 6 Mathematics



Consistency of teacher judgment

Random sampling data showed the consistency of teacher judgment to be high for all Assessable Elements (see Figure 22). As expected, it was even higher for trained markers who had engaged in calibration exercises and discussions about each Assessable Element. Consistency was a little lower for Assessable Element 2 (Thinking and reasoning), perhaps because this was assessed only in one question. Interestingly, this element had a high consistency between the trained markers who had the benefit of discussing mathematical arguments.

Figure 22: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 6 Mathematics



Learnings based on teacher feedback

Students found the hands-on activity engaging. Teachers noted better student performance through the use of an authentic and enjoyable task. Teachers reported that the package provided the information that was required to administer the task, was easy to implement, and that students understood what they were expected to do. The task requirements were age-appropriate, open-ended and provided access and opportunities for success for a range of learners with a variety of skill levels.

Teachers learned valuable information about their own understanding of probability. The Model response highlighted teacher misconceptions about the differences between theoretical and experimental probability. Feedback from random sampling showed that that when a teacher had misconceptions about probability and its associated language, students were awarded a lower grade.

The task also provided the opportunity for using mathematical language and data to justify an argument. Teachers noted that this type of open-ended question was difficult for many students, the linking of data to the justification was done poorly, and that this limited the amount of student work receiving an *A* grade. Feedback reveals that an emphasis on the language of probability is needed during the learning experiences.

Evaluation of findings to inform 2011 QCAT development

By restructuring the Student booklet, further assistance was provided to teachers to support the process of making on-balance judgments using the *Guide to making judgments*. Further information was also included in the *Teacher Guidelines* about the level of support to be provided for students in the open-ended questions.

4.6 Year 6 Science QCAT

Purpose of the assessment

The purpose of this task was for students to demonstrate how well they could design, carry out and interpret scientific investigations relating to forces and motion. The students completed a pre-determined investigation into how friction changed when an object slid on different surfaces, identified relevant variables in different contexts, and then designed their own investigation to compare the grip of different shoes.

Alignment to the curriculum

Table 11: Alignment of the Year 6 Science QCAT to the curriculum

Essential Learnings by the end of Year 7	Assessable Element	Task-specific Assessable Element
Knowledge and understanding **Energy and change** • The motion of an object changes as a result of the application of opposing or supporting forces. **Ways of working** Students are able to: • plan investigations, including identifying conditions for a fair comparison, variables to be changed and variables to be measured • collect and analyse first- and second-hand data, information and evidence • select and use scientific tools and technologies suited to the investigation • draw conclusions that summarise and explain	1. Knowledge and understanding	Demonstrates understanding of forces and motion.
	2. Investigating	Collects and interprets data to draw scientific conclusions. Identifies elements of a fair test when planning and analysing investigations.
	3. Communicating	Uses scientific terminology, tables and diagrams to communicate information, explanations, conclusions and the

Essential Learnings by the end of Year 7	Assessable Element	Task-specific Assessable Element
patterns in data and are supported by experimental evidence and scientific concepts • communicate scientific ideas, data and evidence, using scientific terminology suited to the context and purpose • reflect on learning, apply new understandings and identify future applications.		investigation plan.
	4. Reflecting	Reflects on learning to apply understanding to new contexts.
Focus: Design, carry out and interpret scientific investigations relating to forces and motion.		

Development and refinement

In the light of feedback, and to fulfil the intention that the QCAT be an —authentic, performance-based assessment task", it was considered important that students conduct a practical investigation which included controlling variables and collecting and interpreting data. Doing this within tight time constraints was a significant challenge, and early trials found the task took too long.

Before implementation, therefore, every aspect of the task was revised to streamline the process without losing the rigour of the assessment. Some written responses were replaced by cloze sentences or check boxes. Redundant elements of the investigation planner were removed to save time. Although there was some informal feedback that the assessment still took too long to implement, the majority of survey respondents reported completing it within the recommended time.

Another issue identified in trials was the literacy requirements of the assessment. Modifications were made to ensure that the literacy demand did not constrain students from documenting their science learning. Sentence starters were used where relevant, explanatory text was supported or replaced by graphics and, in the important final question, students were able to respond with text and/or annotated diagrams.

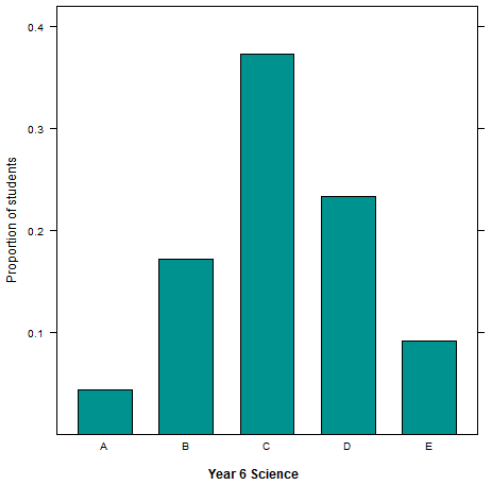
Student performance

In terms of achieving the purpose of the assessment, students generally handled the Knowledge and understanding aspects more successfully than they did with Ways of working, and particularly Investigating. Some students had difficulty devising an investigation that had all elements of a —fair test". Another problem identified by markers was students' identification of relevant variables in a given context, which is an important aspect of working scientifically.

Feedback revealed that when interpreting data and drawing conclusions, students wrote statements that did not include adequate evidence or links to data. Teachers noted that students needed more practice in writing justified arguments and using evidence to support their conclusions This aligns with National Assessment Program – Literacy and Numeracy (NAPLAN) data that indicate that students need more fluency in using conjunctions (e.g. "if", "because", —unless") to develop reasoned explanations.

The question teachers found most effective was the final one (Question 10) which asked students to select a photo of a sporting activity and explain how friction could be increased or decreased to improve performance. This question gave all students an opportunity to respond but elicited more complex, reasoned explanations from more able students, and was helpful in discriminating between *A* and *B* responses. Some students who were unable to demonstrate their understanding of forces in earlier questions were found to write valid explanations in this one.

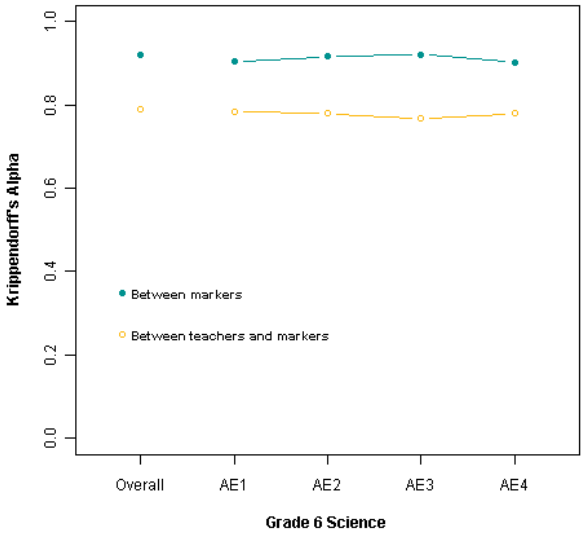
Figure 23: Distribution of overall grades awarded for Year 6 Science



Consistency of teacher judgment

Random sampling data showed the consistency of teacher judgment to be very high for all Assessable Elements (see Figure 24). As expected, it was even higher for trained markers who had engaged in calibration exercises and discussions about each Assessable Element. Consistency was a little lower for Assessable Element 3 (Communicating), perhaps because this was judged across the whole assessment rather than in specific questions. Interestingly, this element had the highest consistency between the trained markers who had the benefit of discussing a common approach.

Figure 24: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 6 Science



Learnings based on teacher feedback

Teachers generally found the practical investigations in the context of friction to be authentic and engaging for students, and that the assessment was age-appropriate. All respondents followed the advice to implement it over two or more sessions.

All survey respondents agreed that the *Teacher Guidelines* provided the advice that was needed and that the instructions were clear.

The *Guide to making judgments* provided suitable clarity for most teachers although some feedback suggested that the task-specific descriptors did not clearly define discernable differences. Most survey respondents found that the sample responses provided clarity of

expectations and the annotations were found particularly helpful. There were some comments about the time taken to mark, which was perhaps increased because the questions did not align sequentially with the assessable elements. However, grouping questions by Assessable Element would have compromised the authentic science investigation processes being modelled.

Some teachers found that Question 7, which elicited reflections of the context and students' prior learning, would have benefited from more scaffolding such as a sentence starter (e.g. —I learnt earlier…") or a framework for creating a concept map.

4.7 Year 9 English QCAT

Purpose of the assessment

The purpose of the task was to interpret how language elements and textual features in a literary text can position an audience to view characters and ideas in a particular way.

Students were required to:

- make inferences about characters and setting in a literary text
- interpret how a writer can position a reader to view characters in a particular way
- construct a text to develop a character's point of view.

Alignment to the curriculum

Table 12: Alignment of the Year 9 English QCAT to the curriculum

Essential Learnings by the end of Year 9	Assessable Element	Task-specific Assessable Element
Knowledge and understanding **Reading and viewing** • Readers and viewers draw on their prior knowledge, knowledge of language elements, points of view, beliefs and cultural understandings when engaging with a text. • Comprehension involves drawing on knowledge of the subject matter, contextual cues and intertextuality to interpret, infer from and evaluate texts in local, national or global contexts. **Language elements** • Figurative language, including onomatopoeia and alliteration, and emotive, evocative, formal and informal language, creates tone, mood and atmosphere. • Active voice and passive voice change the subject and the focus of a sentence. • Adjectives and adverbs are used to express attitudes and make judgments and/or evoke emotions. **Writing and designing** • Writers and designers establish and maintain roles and relationships by recognising the beliefs and cultural background of their audience, and by making specific language choices.	1. Knowledge and understanding	Uses comprehension strategies to identify evidence in the text and make inferences about the characters and the setting. Uses passive voice to change the subject and focus in a sentence.
	2. Interpreting texts	Interprets and analyses how language elements and textual features position an audience to view characters and ideas in a particular way.
	3. Knowledge and understanding/ Constructing texts	Manipulates language elements (figurative language, adjectives, punctuation, spelling) and textual features (active voice, third-person narrative) to construct a text that develops a character's point of view.

Essential Learnings by the end of Year 9	Assessable Element	Task-specific Assessable Element
Literary and non-literary texts • Audiences can be positioned to view characters and ideas in particular ways and these views can be questioned. • Themes are explored through the interplay of setting, plot and character, and the actions, speech, thoughts and feelings of characters. **Ways of working** Students are able to: • demonstrate and analyse the relationship between audience, subject matter, purpose and text type • recognise and select vocabulary and interpret and apply the effect of literal and figurative language • interpret and analyse how language elements and other aspects of texts position readers/viewers/listeners • construct literary texts by planning and developing subject matter, and manipulating language elements to present particular points of view.		
Focus: Interpret how language elements and textual features can position an audience to view characters and ideas in a particular way.		

Development and refinement

The choice of a literary text provided a different focus from the non-literary text selections of the 2008 and 2009 Year 9 English QCATs. Teachers reported that the text passage from the shortlisted Australian novel *The Barrumbi Kids* by Leonie Norrington provided a context that students could relate to — the interplay between a teacher working in a remote community and a student struggling to pay attention during a lesson. The text passage reveals the different perspective that each character has for each other.

The comprehension questions were divided into two sections. The first section (Questions 1–6) relied on the skills of text-retrieval and straightforward text inferences, and the second section (Questions 7–9) required students to make higher-order inferences beyond the text. It was considered useful by trial schools to divide comprehension skills into these two separate sections to support grading student responses.

Questions 1–6 were constructed to provide students with the opportunity to select evidence from the text to show the Australian bush setting and draw straightforward conclusions about the characters. In responding to Questions 1–6, students were able to identify and understand what is explicitly stated in the text.

Questions 7–9 required students to discern some messages about the text, including the theme, and the choices made by the writer to present the characters in a particular way. This section of the task was structured to be more challenging for the students so that teachers could gather evidence of higher-order inferential comprehension skills.

Feedback in trial revealed the need to provide more cues for students to respond to in Question 9. As a result of this feedback, students were asked to consider subject matter, vocabulary, grammar and punctuation when responding to this question.

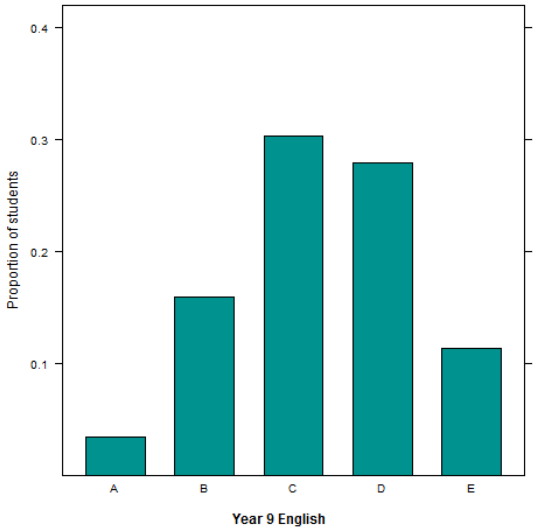
The text stimulus concentrates on the point of view of the teacher, Miss Wilson. Feedback from teachers revealed that students struggle to develop the point of view of characters when writing narratives.

In response to this identified need, in Assessable Element 3, Constructing texts, students were required to continue the story from the student Dale's point of view to reveal how he really feels about his teacher. This provided students with the opportunity to consider his thoughts and feelings in relation to the text including his relationship with his teacher and his experiences at school. Students were required to make deliberate language choices to evoke images for the reader of how Dale is feeling. Students were given the opportunity to show their skills in using figurative language as modelled in the text stimulus and targeted in Question 2. Their responses to Questions 1–9 provided them with the opportunity to prepare themselves to construct their responses.

Student performance

Teachers in the focus session agreed that the first section of the task, in particular Questions 1–4, was done very well. Students were able to retrieve and recall text-based information about the characters and the setting. Most students were able to identify valid examples from the text to support explanations about characters, either by direct quotes from the text or by indirect quotes that were expanded on in responses.

Figure 25: Distribution of overall grades awarded for Year 9 English



In responding to Question 10, students were able to use descriptive language to explore Dale's actions, thoughts and feelings and were able to maintain the textual features of an active voice and third-person narrative. Students appeared to have no problem in continuing the story using the passage from the text to get them started.

What did students appear to struggle with?

There were very few correct responses to Question 6, which required students to apply their knowledge of active and passive voice to rewrite a sentence from the text.

Students also had difficulties with supporting explanations in Questions 7–9. Some students were able to identify an idea explored through the characters but were not familiar with a theme.

Teachers in the focus session commented that Question 9 required too much unpacking of the detail in the question. Although this detail was included to help students in their responses, it was considered to be too difficult.

In Question 10, many students developed a narrative about Dale escaping from the classroom rather than exploring Dale's point of view. Some students then went on to concentrate on either

Miss Wilson or Lizzie as the main characters in their texts. The overuse of dialogue led to problems in cohesion in some texts

Consistency of teacher judgment

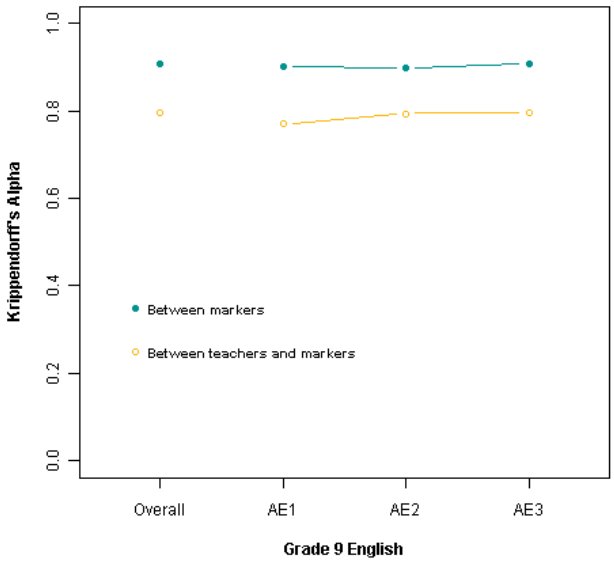
Teachers reported that the addition of a *B* descriptor in Assessable Element 1 may have helped them award a *B* rather than a *C* grade. Many felt that having a descriptor for each grade would help support decision making. Concern was raised that a grade was not awarded where there was no descriptor placed on the continuum. More support is needed in the judgment process of using a *Guide to making judgment* which is different from what many teachers use in their school assessment.

Similarly, teachers reported some reluctance in awarding a *B* grade in Assessable Element 2 where the only descriptor was a discernable difference about the identification of a theme in Question 8. Teachers felt there was insufficient detail to support awarding this grade.

Overall, teachers reported a reluctance in awarding an *A* across Assessable Elements where there were aspects of the *A* descriptors not fully met in the evidence. They were less likely to make an on-balance judgment about an *A* than other grades.

There was agreement that more support and advice from the QSA to schools was needed about using the calibration model before the implementation of QCATs. Many teachers in the focus session believed that the calibration model would save time because it focuses on establishing a common understanding of the descriptors in the *Guide to making judgments* before marking all the student responses.

Figure 26: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 9 English



Learnings based on teacher feedback

Teachers reported that the text stimulus was engaging to students, who could relate to the interplay between a teacher and a student who do not view each other in the same way. Students were able to select examples from the text to support explanations about characters when responding to questions requiring text retrieval and simple text-based inferences. However, feedback from teachers revealed that students need more practice in evaluating how a writer uses language choices and textual features to position an audience to view characters and ideas in a particular way.

Feedback from teachers revealed that more support is needed for teachers in using the *Guide to making judgment* to ensure the full range of each continuum is used in awarding individual grades and making an on-balance judgment.

Teachers reported that students need to be given more guidance in how to develop a character's point of view to connect with a reader when constructing a literary text. This may be achieved through providing clear guidelines on how to control the narrative structure to focus on characterisation.

4.8 Year 9 Mathematics QCAT

Purpose of the assessment

The purpose of the Year 9 Mathematics task was for students to demonstrate mathematical understanding and reasoning by:

- determining costs and times when buying and downloading music
- comparing different payment options when buying recording equipment
- analysing data to determine safe loudness levels when listening to music
- reflecting on understandings to plan a charity concert.

Alignment to the curriculum

Table 13: Alignment of the Year 9 Mathematics QCAT to the curriculum

Essential Learnings by the end of Year 9	Assessable Element	Task-specific Assessable Element
Knowledge and understanding **Number** • Rational numbers (integers, fractions and decimals) can be used to describe and solve problems involving rate, ratio, proportion and percentage. • Financial decisions can be made based on the analysis of short- and long-term benefits and consequences of cash, credit and debit transactions. **Measurement** • Instruments, technologies, strategies and formulas are used to estimate, compare and calculate measures and derived measures, including rate, area, duration and Australian time zone differences. **Chance and data** • Data interpretation is simplified through the use of suitable representations and descriptive statistics. **Ways of working** Students are able to: • analyse situations to identify the key mathematical features and conditions, strategies and procedures that may be relevant in the generation of a solution • select and use mental and written computations, estimations, representations and technologies to generate solutions and to check for reasonableness of the solution • use mathematical interpretations and conclusions to generalise reasoning and make inferences	1. Knowledge and understanding	Performs calculations involving cash, credit, rate and time. Analyses graphical data to make inferences about safe sound levels.
	2. Thinking and reasoning	Solves problems involving download rate, interest rate and loudness data, and justifies reasoning.
	3. Thinking and reasoning/ Reflecting	Chooses strategies and procedures to plan physical, financial and safety aspects of an outdoor concert. Justifies reasoning by reflecting on learning and applying understandings
	4. Communicating	Uses mathematical language and representations when communicating, thinking and justifying reasoning.

Essential Learnings by the end of Year 9	Assessable Element	Task-specific Assessable Element
• reflect on learning, apply new understanding and justify future applications • communicate thinking, and justify and evaluate reasoning and generalisations, using mathematical language, representations and technologies.		
Focus: Apply mathematical reasoning when buying and listening to music, and reflect on understandings to plan an outdoor concert.		

Development and refinement

Feedback from panels and trials indicated that the task was found to be engaging, relevant and challenging. Accessibility was reduced by the need to engage with a significant amount of information and by the abstract concept of decibels. The final open-ended activity was considered to draw the task together well and provide opportunities for some degree of success for all students, but the information should be made less text-dense and more accessible.

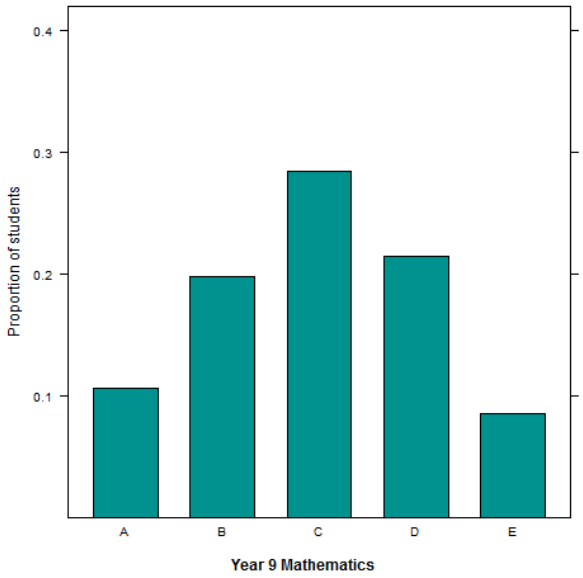
In the light of feedback, the following refinements were made before implementation:

- Busy text removed and more diagrams added to present information.
- Using a different presentation format for information and questions.
- More guidance given in the Teacher Guidelines for discussion points to assist students with accessing provided information and understanding the expectations of questions.
- Some questions reworded to improve clarity.
  e.g. Teachers to provide students with a familiar version of the simple interest formula for use in Question 9.
- Some simpler graphing interpretation questions included.
- Excess answer space reduced.

Student performance

Most students were able to achieve some success throughout the task and fewer students —threw in the towel" early than they did in past QCATs. The short, sharp nature of instructions and visual presentation of information helped in this regard. Even some of the more complex questions enabled less-able students to make progress as there was minimal unpacking required.

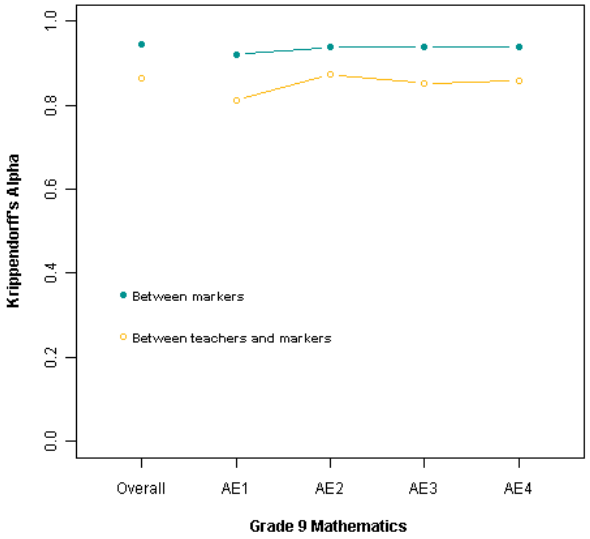
Figure 27: Distribution of overall grades awarded for Year 9 Mathematics



Consistency of teacher judgment

Teachers who were familiar with the *Guide to making judgments* found the marking to be reasonably straightforward with most uncertainties resolved through discussion with colleagues and by referring to the sample responses. It was generally found that agreement on overall grades was easier to reach than on individual Assessable Elements. The data show a very high level of consistency of judgments for each Assessable Element and when awarding overall grades.

Figure 28: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 9 Maths



Learnings based on teacher feedback

Generally, teachers and students considered that the task was meaningful and engaging, more so than the 2009 task. Teachers thought that the task was of an appropriate length and that the early section provided opportunities for success and confidence-building for less-able students. The deliberate progression from closed to open questions was considered effective for the full range of learners.

Instructions were considered to be short and sharp with much of the necessary information provided visually and well supported by implementation hints to teachers in the *Teacher Guidelines*. It was felt that this provided better opportunities to assess understanding and reasoning rather than the ability to unpack the information and questions.

Implementation was felt to be quite variable, with some teachers adhering strictly to suggested times with others giving students unlimited time to complete the task.

Teachers reported that the 2010 QCAT provided results more indicative of students' typical mathematics results than the 2009 task did, but this was clouded by different interpretations of how to use the *Guide to making judgments*. Many teachers who are familiar with this model said that the marking was not difficult and it was relatively easy to reach consensus but some found the large gaps between descriptors to be problematic. There was some reported resistance to the use of the *Guide to making judgments* and evidence of numerical marking and grading of individual questions. This reveals the need for more professional development in using the *Guide to making judgments.*

4.9 Year 9 Science QCAT

Purpose of the assessment

The purpose of the Year 9 Science task was for students to demonstrate scientific understanding and investigation skills by:

- measuring the sugar content of a soft drink and evaluating the method of measurement
- describing how our body systems work together to provide fuel for the body
- interpreting data and information to determine the effects of high-sugar drinks on health
- reflecting on how sugar may be affecting their own health.

Alignment to the curriculum

Table 14: Alignment of the Year 9 Science QCAT to the curriculum

Essential Learnings by the end of Year 9	Assessable Element	Task-specific Assessable Element
Knowledge and understanding **Life and living** • Complex organisms depend on interacting body systems to meet their needs internally and with respect to their environment. **Ways of working** Students are able to: • plan investigations guided by scientific concepts and design and carry out fair tests • research and analyse data, information and evidence • evaluate data, information and evidence to identify connections, construct arguments and link results to theory • draw conclusions that summarise and explain patterns, and that are consistent with the data and respond to the question. • reflect on different perspectives and evaluate the influence of people's values and culture on the applications of science	1. Knowledge and understanding.	Names and describes the functions of parts of the digestive system and demonstrates understandings of how digestion, circulation and respiration work together to provide fuel for the body.
	2. Investigating.	Analyses experimental evidence, graphical data and information to explain patterns and draw conclusions.
	3. Investigating	Analyses an investigation for fairness of design and implementation.
	4. Reflecting	Reflects on new understandings to suggest ways of minimising risks to health. Reflects on the influence of culture when making

Essential Learnings by the end of Year 9	Assessable Element	Task-specific Assessable Element
• reflect on learning, apply new understandings and justify future applications.		health-related choices.
Focus: Investigate the sugar content of a soft drink, analyse the effects of sugary drinks and reflect on health implications.		

Development and refinement

Feedback from panels and trials suggested that students considered the context meaningful. The application of scientific understanding to students' own lives was thought to be engaging but could also be unsettling for some students with health problems.

While it was noted that effort had been made to limit the text density and present information visually, the task was still considered to provide significant literacy barriers to some students. It was thought that the section on the digestive system needed stronger links to the rest of the task.

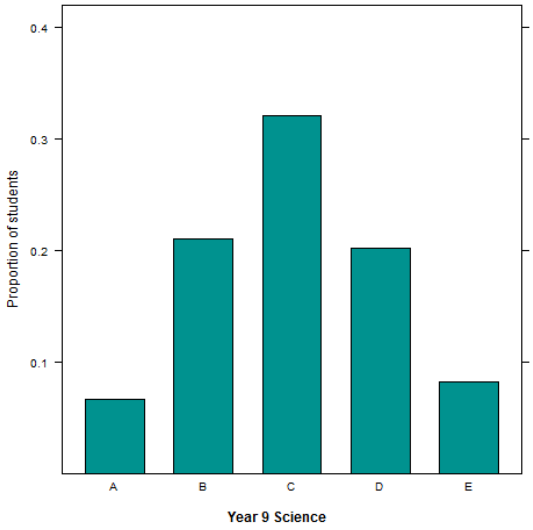
In the light of feedback, the following refinements were made before implementation:

- Reference to obesity removed from stimulus.
- Information and instructions presented visually where possible.
- Investigation referred to as a measurement rather than an experiment.
- Lead-in statement to clearly link digestive system questions to the investigation.
- Clearer differentiation between information and questions.
- Improved clarity of intent of questions.

Student performance

Almost all students were able to achieve some success in identifying variables but many had difficulty evaluating the fairness of the investigation. Most students performed well on the questions relating to sugar providing energy but quite a number had difficulty describing the functions of parts of the digestive system. In general, students were able to articulate some interpretation of the blood-glucose graph, while the questions about insulin facts were found to be quite challenging. The reflection questions provided a range of depth in responses.

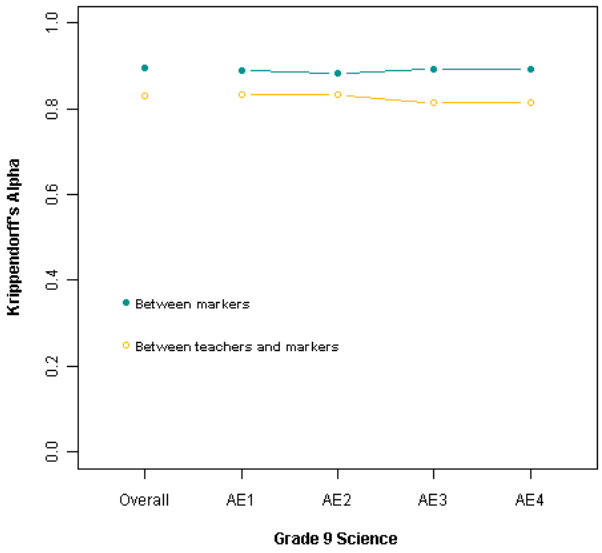
Figure 29: Distribution of overall grades awarded for Year 9 Science



Consistency of teacher judgment

Teachers who were familiar with the *Guide to making judgments* found the marking to be reasonably straightforward with most uncertainties resolved through discussion with colleagues and by referring to the sample responses. It was generally found that agreement on overall grades was easier to reach than on individual Assessable Elements. The data show a very high level of consistency of judgments for each Assessable Element and when awarding overall grades.

Figure 30: Consistency when awarding grades for overall achievement and each Assessable Element (AE) in Year 9 Science



Learnings based on teacher feedback

Teachers reported that students found the task more engaging and accessible than the 2009 QCAT. The level of scaffolding was considered appropriate, with the questions providing opportunities for most students to succeed in the earlier questions and a sufficient challenge for more capable students.

Teachers would also like more detail about the proposed QCAT in the design brief.

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