# Stage 1 General Mathematics

# Subject Assessment Report

## Overview

At Stage 1 the English and mathematics subjects and the Personal Learning Plan are moderated. For most schools, only the C and D grades are moderated as the C grade represents the minimum grade required for SACE completion.

Stage 1 assessment reports give an overview of how students performed at the C and D grades in their school assessments, relative to the learning requirements, assessment design criteria, and performance standards set out in the relevant subject outlines. They provide information and advice on: teacher engagement and student engagement with the assessment types, including task design; the application of the performance standards in school assessments; and the quality of student performance.

Assessment Type 1: Skills and Application Tasks

Students complete skills and applications tasks under the direct supervision of the teacher. They provide opportunities to form and test predictions. Students must be given the opportunity to form and test predictions in at least one assessment type.

Students find solutions to mathematical problems that may:

* be routine, analytical, and/or interpretative
* be posed in a variety of familiar and new contexts
* require discerning use of electronic technology

Successful achievement at the C grade

* Students who achieved at the C standard demonstrated generally component knowledge across all tasks in this assessment type.
* Students generally accurately answered the routine questions and made an attempt at more complex questions in tasks.
* Students generally used correct terminology and notations (units, $, decimal places) and showed that they understand the reasonableness of their answers.
* Students used generally effective communication skills but responses in the C grade band lacked depth and complexity.

*Application of the performance standards*

* As noted in previous subject assessment reports, a high degree of consistency of assessment decisions made relative to the performance standards across classes within schools. This provided evidence of internal school moderation processes conducted by schools where there was more than one class for this subject.
* Linking of questions to performance standards in a marking rubric or on the assessment task, enabled students to be clear about the assessment criteria.

*Task design*

* A balance of routine and complex questions is required to ensure students can achieve in the higher grade bands. When skills and application tasks consisted of too many routine questions, students were disadvantaged.
* Tasks need to provide opportunities for students to interpret results and form predictions thus address the specific features of Reasoning and Communication assessment design criteria.
* Application type questions with multiple parts to find a solution or best possible solution allowed for the student to show understanding of concepts and techniques using sound mathematical evidence.
* Students were provided with at least one opportunity to experience a non-calculator section in a skills and application task especially if students are planning to study Stage 2 in the following year.

Assessment Type 2: Mathematical Investigations

Most schools weighted this assessment type between 25 to 40%.

*Successful achievement at the C grade*

* Most students were able to logically write or explain the investigations using routine level mathematics that were generally accurate.
* Students demonstrated generally effective selection of models and algorithms.
* Students showed some interpretation of results.
* Students performed calculations competently but lacked in the communication of mathematical ideas and limitations.

*Application of the performance standards*

* Using shaded performance standards as well as feedback in the form of textboxes on mathematical investigations or a template with comments, clearly provided the student with areas for improvement and those areas where they were successful.
* Where the performance standards in tasks were clearly defined assessment judgements made were more consistent.
* Ensure RC5 and RC2 can be addressed in the mathematical investigations.

*Task design*

* Encouraging the relation to real-world mathematics helps students to understand why they are doing specific calculations and the impact that it has on their results. This also provides clear opportunities for the students to discuss assumptions and limitations.
* When students were asked to make a prediction and give some reasoning for it within the task, they were then able to make some reference to it in the conclusion or discussion.
* New investigations ideas presented included computer cabling for a school network, a coffee cooling experiment, and a statistical investigation that provided opportunities for students to analyse data to a high standard.
* The mathematical investigation tasks in general, provided opportunities for the formation and testing of predictions (RC5).
* Following the stated report genre for mathematical investigations enabled students to show evidence in either written or multimodal form.

Preparation and submission of student materials

* Schools are advised to refer to [Stage 1 moderation](https://www.sace.sa.edu.au/coordinating/admin/moderation/stage-1) and information sheet‘ [Preparing materials for Stage 1 moderation submission’](https://www.sace.sa.edu.au/documents/652891/704359/Preparing%2Bmaterials%2Bfor%2BStage%2B1%2Bmoderation%2Bsubmission.pdf/31814296-aa36-4875-a1ea-63604ddaff0d?t=1618901762870) on the SACE website for information on participation in Stage 1 moderation
* Teachers provided a copy of their current approved learning and assessment plan with the set of tasks that corresponded to the learning and assessment plan.

General comments

* Schools continue to make effective use of adopting or adapting tasks from the pre-approved learning and assessment plans available on the General Mathematics minisite.
* Teachers need to ensure they are using the correct performance standards for the subject.
* Teachers are encouraged to complete the online clarifying and benchmarking activities on the General Mathematics minisite (Stage 1 General Mathematics >Support materials). These provide an opportunity for teachers to familiarise themselves with the standards and make assessment decisions consistent with statewide standards.