

# Years 9–10 assessment techniques and conditions

## Mathematics

This document outlines assessment techniques and response conditions to achieve range and balance within an assessment program. Schools consider the local context, and the age and capabilities of the students, when selecting appropriate assessment techniques and response conditions.

Techniques	Project — Problem-solving and modelling task	Examination
Description	A problem-solving and modelling task assesses students' abilities to respond to a specific scenario or situation that highlights a real-life application of mathematics. It is an assessment developed in response to a mathematical investigative scenario or context.	An examination assesses students' responses that are produced independently, under supervised conditions and in a set timeframe. An examination ensures student authorship.
	<p>A problem-solving and modelling task requires students to:</p> <ul style="list-style-type: none"> <li>• analyse information and data</li> <li>• process information</li> <li>• interpret and synthesise data</li> <li>• explain relationships to develop and support mathematical arguments</li> <li>• reflect on and evaluate data, propositions, results and conclusions</li> <li>• communicate ideas.</li> </ul> <p>Students typically work on guided problem-solving and modelling tasks. The teacher influences the concepts and techniques chosen, and/or the model students use to solve the problem. The teacher provides guidance, and all stages of the problem-solving and modelling approach are used.</p>	<p>An examination requires students to respond to one or more assessment items. These items are based on questions or tasks that are typically unseen. Questions or tasks may be based on stimulus material. Stimulus material may be seen or unseen.</p> <ul style="list-style-type: none"> <li>• Seen questions, statements or stimulus materials should be provided with sufficient time for students to adequately engage with the materials.</li> <li>• Unseen questions, statements or stimulus materials should not be copied from information or texts that students have previously been exposed to, or have directly used, in class.</li> </ul>
Formats (examples only)	<p>Formats include:</p> <ul style="list-style-type: none"> <li>• written               <ul style="list-style-type: none"> <li>– case study</li> <li>– feasibility study</li> <li>– report</li> <li>– journal</li> <li>– proposal, e.g. to a company or organisation</li> </ul> </li> </ul>	<p>Formats include:</p> <ul style="list-style-type: none"> <li>• short response items               <ul style="list-style-type: none"> <li>– single word, term, multiple choice, sentence or short paragraph responses</li> <li>– calculating using algorithms</li> <li>– drawing, labelling or interpreting graphs, tables or diagrams</li> <li>– justifying solutions using appropriate mathematical language where</li> </ul> </li> </ul>



Techniques	Project — Problem-solving and modelling task	Examination
	<ul style="list-style-type: none"> <li>• spoken/signed or multimodal               <ul style="list-style-type: none"> <li>– presentation</li> <li>– virtual model or simulation</li> </ul> </li> <li>• practical               <ul style="list-style-type: none"> <li>– mathematical investigation</li> <li>– field activity</li> <li>– construction of 2D or 3D models.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• applicable               <ul style="list-style-type: none"> <li>– interpreting ideas and information</li> </ul> </li> <li>• extended response items               <ul style="list-style-type: none"> <li>– constructing, using, interpreting or analysing data, graphs, tables or diagrams</li> </ul> </li> <li>• response to stimulus.</li> </ul>
Conditions	<p>Suggested time:</p> <ul style="list-style-type: none"> <li>• 3 weeks (including 3 hours of class time)</li> </ul> <p>Suggested length:*</p> <ul style="list-style-type: none"> <li>• written responses 600–800 words               <ul style="list-style-type: none"> <li>– up to 6 pages (including tables, figures and diagrams)</li> </ul> </li> <li>• spoken/signed responses 4–5 minutes</li> <li>• multimodal responses 5–6 minutes.</li> </ul>	<p>Suggested time:</p> <ul style="list-style-type: none"> <li>• up to 90 minutes, plus 5 minutes perusal               <ul style="list-style-type: none"> <li>– the number of short response items should allow students to complete the response in the set time.</li> </ul> </li> </ul> <p>Suggested length:*</p> <ul style="list-style-type: none"> <li>• 400–600 words               <ul style="list-style-type: none"> <li>– short response 25–100 words per item.</li> </ul> </li> </ul>

Notes
Responses may be written, spoken/signed or multimodal (integrating visual, print and/or audio features), recorded or live.
* Length of student responses should be considered in the context of the assessment. Longer responses do not necessarily provide better quality evidence of achievement.

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