Subject prototype | version: 1 | date: 10/10/2025

SUBJECT: General Mathematics

What is a subject prototype?

A subject prototype is used to test key ideas, learning design and assessment approaches, and how these enable the key drivers. Feedback from teachers and experts helps to shape the development of the new subject as part of the co-design process.

**** FIRST ITERATION ** NOT FOR IMPLEMENTATION ****

Key driver(s):	**Principle/technique/method:**
Metacognition, Deep Authentic Learning, Agency	1. Scenario Based Modelling 2. Socratic Dialogue

Prototype description

Scenario Based Modelling

- This prototype was designed to test whether using real world scenarios supported students to identify key mathematical relationships, apply appropriate techniques and metacognitive processes by reflecting on reasoning and decisions.
- Teachers created a range of real-world scenarios for students to respond with reason to. The scenarios were designed to mirror real-world decision-making. Framing "real life" as more than just traditional contexts like buying a car or home. Instead, scenarios were posed in more 'messy' situations that reflected the realities of decision-making - situations with purpose and constraints, with no single correct answer. Done in a supervised, timed environment - students prioritised the modelling, decision-making and reasoning process of the task, rather than highly curating their communication format.

Socratic Dialogue

- This prototype was designed to test an approach to student revision that focused on conceptual understanding and problem-solving processes.
- Teachers engaged students in question-and-answer oral assessments to elicit and unpack the level of students' understanding of the relevant concepts as well as the thinking processes during the investigation. Students discussed their thought processes and reasons behind the decisions they made in a 3-minute discussion with the teacher.

What we learnt

Impact

- Metacognition was activated, especially when students were prompted to reflect during the task
- DAL was enabled when scenarios were grounded in real world contexts that required genuine decision-making
- Some students thrived in what-if scenarios
- Teachers were able to capture diverse evidence, including messy maths

Challenges

- The level of agency depended on how open ended the scenario was and how much scaffolding teachers provided
- Metacognition was limited when reflection occurred weeks later
- Teacher led assessment design influenced student outcomes, impacting the level of student initiative, especially when making real world connections
- Meaningful dialogue was impacted by time constraints and preparation

Deep Authentic Learning

Student Agency

Natural Evidence of Learning

Metacognition

Capabilities

Government of South Australia

South Australian Certificate of Education