**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 2 | STRAND: Measurement and Geometry | **SUB-STRAND:** Length 1 | **WORKING MATHEMATICALLY:** **MA3-1WM, MA3-3WM** |
| OUTCOMES: MA3-9MG | **Selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length** |
| **CONTENT:**  | **Choose appropriate units of measurement for length (ACMMG108)*** Measures a kilometre and half a kilometre.
* Selects and uses the appropriate unit and measuring devices to measure lengths and distances.
* Questions and explains why two different students may obtain different measures for the same length, distance or perimeter.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Ask students to list or draw places that are a kilometre or more away. Provide examples of places e.g. post office, shopping centre and ask students to list ways they could measure the distances to them.
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| WARM UP / DRILL | * Students are asked to estimate in kilometres and metres how far it is from their home to school. They then suggest ways they might check this, e.g. What devices could they use to measure the distance?
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | What is the total of 500m, 240m, 650m and 300m? In metres? In kilometres? |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* Substantive communication
 | * Explicit quality criteria
* Engagement
* High expectations
* Social support
* Students’ self-regulation
* Student direction
 | * Background knowledge
* Cultural knowledge
* Knowledge integration
* Inclusivity
* Connectedness
* Narrative
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| RESOURCES | Trundle wheelTape measuresMapping worksheet |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicitly communicate lesson outcomes and expectations for work quality.* Discuss the need for a unit longer than a metre for measuring longer distances. e.g. between towns
* Revise and define metalanguage used in the unit including explicit teaching of the prefix “kilo” meaning a thousand as in kilometre.
* 1000 metres = 1 kilometre
* Explicit teaching of use of trundle wheel to measure distances.
* Explicit teaching through modelling of reading maps using scales on maps.
 | LEARNING SEQUENCERemediationS2 or Early S3 | * **Activity:** Provide students with strings that are a metre long ask them to estimate the length of things e.g. the width of the room, the length of a hall, the width and length of the netball court. Ask students to use their tape measures/metre rulers to measure objects.
* **Activity:** Discuss results including the need for a more formal tool for measuring longer distances and reasons for differences in results. How did they measure parts of a whole metre? What problems did they have measuring large distances with devices provided? Students reflect on process in Mathematics Journals.
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| LEARNING SEQUENCES3 | * **Activity**: Students are asked to estimate the distance from places they think are about a kilometre to school, e.g. the local shop, church, their homes. Students are asked to suggest ways they might check their estimates, e.g. using car odometer, trundle wheel, maps.
* **Activity**: More Than, Less Than: Teacher provides a list of local landmarks students are asked to record whether the landmarks are less than, more than or about a kilometre from school.

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| Landmark | Less than 1 km | About 1 km | More than 1 km |
| Local Shop |  |  |  |
| Sports Oval |  |  |  |

* **Activity:** Students discussproblem with recording long distances e.g. between towns and cities. Teacher models use of scale to measure distances on a map.
* **Investigation:** In pairs students design a 1 km fun run within the school grounds. Students use a trundle wheels to check the distance of their course. Students are provided with a school map and discuss the scale they will use to record their course. They then draw and label their diagram.
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| LEARNING SEQUENCEExtension Early S4 | * **Activity:** Students are provided with maps of the local area. Using the key they design fun runs that are longer in length, e.g. 5 or 10 kilometres. Additional tasks may be added such as adding rest stops every 2 kilometres.
* **Activity:** Students are provided with a map of local area and asked to calculatedistances between landmarks, e.g.Find the distance school to the local sports oval.
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| **EVALUATION & REFLECTION** | Student engagement: Achievement of outcomes:Resources: Follow up: |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.