**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TERM: | WEEK: 2 | STRAND: Measurement and Geometry | **SUB-STRAND:** **Volume and Capacity 1** | **WORKING MATHEMATICALLY:**  **MA2-3WM and MA2-1WM** |
| OUTCOMES: MA2-11MG | | **Measures, records, compares and estimates volumes and capacities using litres, millilitres and cubic centimetres** | | |
| **CONTENT:** | | **Measure, order and compare objects using familiar metric units of capacity**   * Record volumes and capacities using the abbreviation for litres (L) * Compare and order two or more containers by capacity measured in litres * Estimate the capacity of a container in litres and check by measuring * Estimate the number of cups needed to fill a container with a capacity of one litre | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Arrange a number of different types of containers in order from smallest to largest in capacity | | |
| WARM UP / DRILL | | * Show a number of different pictures of different sized containers and students hold up card that says either mL or L to show what they think the container will hold | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | If one bucket holds 1and a half litres of water, how many will 5 buckets hold? | | |
| 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 |
| RESOURCES | | * Variety of different containers, water, range of different sized cups and scoops, litre containers, cards that have mL and L on them | | |

**TEACHING AND LEARNING EXPERIENCES**

|  |  |  |
| --- | --- | --- |
| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Explicitly communicate lesson outcomes and work quality  * Introduce, define and reinforce metalanguage used in the unit eg litre, millilitre, kilolitres, cubic centimetres etc * Discuss what it means to compare. What might you find out? * Revise what it means by estimate. How do you estimate? What does it mean? | LEARNING SEQUENCERemediationS1 or Early S2 | * Compare and order the capacities of two containers by measuring each container in uniform informal units * Record volume and capacity comparisons informally using drawings, numerals and words |
| LEARNING SEQUENCES2 | **Investigation:**   * How many to the litre?   - Students collect containers which have a labelled capacity of less than 1L eg 500mL, 250mL  - Students calculate how many times each container will have to be filled to make 1L, record and then check by filling with water and pouring into 1L measure   * Students work in pairs to:   - Estimate the number of cupfuls required to fill the litre container  - Discuss and record their estimates  - Measure and record the number of cupfuls required using the abbreviation (L)  - Select a different scoop or small cup and estimate, measure and record the number of cupfuls needed to fill a litre container   * Students are given a variety of unmarked containers of various shapes and sizes. Students select the container, which they think will have a capacity of 1 litre. Students test their prediction by pouring 1 litre of water into the container and record the capacity as being more than, equal to or less than 1 litre * Provide students with objects that hold mL and ones that hold L, have the students determine which measurement to measure the liquid in eg mL or L. Then have students sort objects (in both mL and L) by which holds the least to which holds the most |

|  |  |  |
| --- | --- | --- |
|  | LEARNING SEQUENCEExtensionLate S2 or Early S3 | * Students create a potion that needs to be 600mL. If it is under or over the 600mL it will explode.   - They can use 6 ingredients in the potion.  - How many mL might each ingredient be?  - None of the ingredients can equal 100mL.  - Students need to think of other numbers they could use to reach 600.  - Share their ideas with the class |
| **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.
* Assessment rubrics or marking scale should be considered.