**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 4 | STRAND: Measurement and Geometry | **SUB-STRAND: Volume and Capacity 1** | **WORKING MATHEMATICALLY:**  **MA1-1WM, MA1-3WM** |
| OUTCOMES: MA1-11MG | | **Measures, records, compares and estimates volumes and capacities using informal units.** | | |
| **CONTENT:** | | **Measure and compare the [capacities](http://syllabus.bos.nsw.edu.au/glossary/mat/capacity/?ajax" \t "_blank) of pairs of objects using uniform [informal units](http://syllabus.bos.nsw.edu.au/glossary/mat/informal-unit/?ajax" \t "_blank) (ACMMG019)**   * Estimate volumes of containers by referring to the number and type of uniform informal unit used and check by measuring. * Explain a strategy used for estimating a volume (Communicating, Problem Solving) * Predict the larger volume of two or more containers and check by measuring using uniform informal units. (Reasoning) * Estimate the volume of a pile of material and check by measuring eg., estimate how many buckets would be used to form a pile of sand | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Worksheet: Order 3 teddy bears and 3 parcels of different sizes from smallest to largest. | | |
| WARM UP / DRILL | | * Provide a collection of objects for students to estimate, to the nearest ten, the number of objects in a collection and check by counting. Practice rounding to ten. | | |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION | | * 12 eggs can fit into the carton. If there a 6 eggs in the carton, how many more can be put into the carton? 12-6=6 | | |
| 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 | | Tennis balls, saucepan, colander, shoe box, sand, large bowl, small bowl, cup | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| * Step 1   •Introduce the activity as finding the volume of containers using tennis balls.  •Discuss the different utensils that are going to be used to fill the containers. • Whole class discussion on the importance of correct measuring.  * Step 2   •Students work in a small group to find the volume of each container using tennis balls.  •Each time students choose a new container they should estimate the number of tennis balls the container may hold.   * Check that students:   • Fill their informal measuring unit consistently.  • Understand how to count: multiplication or skip counting.   * Step 3   • Discuss the suitability of the informal units chosen.  • Survey the class as to which utensil held the most/least tennis balls. | LEARNING SEQUENCERemediationES1 | * Worksheet- ordering objects from smallest to largest. |
| LEARNING SEQUENCES1 | * Which container has the larger volume?   Using tennis balls, students estimate then count how many tennis balls will fit into various containers.   1. Predict whether a saucepan, colander or shoe box will hold the most tennis balls. 2. Estimate first, then measure the volume of each container. 3. Students recognise that the larger container has a greater volume than the smaller containers.  * Investigation:   Provide two piles of wet sand large and small. Students estimate which pile has the greatest volume. Students make moulds out of each pile and record the number of cups used to place the sand into the mould and compare this to their estimates. Check students understand that the large pile of sand has a bigger volume than the small pile.   * Assessment: Arrange three objects of similar shape in order of volume, e.g. three balls of different sizes, three slices of bread of different thicknesses. |
| LEARNING SEQUENCEExtensionEarly S2 | * Discussion   Compare the findings. Did everyone get the same results? Why was this? |
| **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.