**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 2 | 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 uniform informal units.** * Supports conclusions by explaining or demonstrating how answers were obtained

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| **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)**
* Uses uniform informal units to measure the capacities of containers by counting the number of times a smaller container can be filled and emptied into the container being measured.
* Record capacities by referring to the number and type of uniform informal unit used.
* Compare the capacities of two or more containers using appropriate uniform informal units.
* Recognise that containers of different shapes may have the same capacity. (Reasoning)
* Select appropriate uniform informal units to measure the capacities of containers, eg using cups rather than teaspoons to fill a bucket (Problem Solving)
* Explain the relationship between the size of a unit and the number of units needed, eg more cups than ice cream containers will be needed to fill a bucket (Communicating, Reasoning)

record capacities by referring to the number and type of uniform informal unit used  |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Worksheet: Compare different shape glasses and jars. Circle the glass or jar that would hold the most.
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| WARM UP / DRILL | * Count forward and backwards by ones from a given two-digit number.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| 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 | Metalanguage signage and environmental poster display, IWB visual presentation, Skwirk, cardboard sheets, scissors, tape, lima beans or similar packing material or sand, pencils and paper. **Teaching Measurement Early Stage 1/ Stage 1** Volume and Capacity pg 102-103 |

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| --- | --- |
| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Activities* Step 1

•Introduce the activity as measuring the capacity of cylinders and explain the term estimating and what this means.•Discuss what a cylinder is and how it can be made from cardboard.•Demonstrate how to make a cylinder.•Discuss suitable measuring material for the cylinder (no gaps).* Step 2

•Students work with a partner to make two different cylinders from their cardboard strip, one short and one tall.•Estimate which one will hold the most and record their estimates.•Choose appropriate materials for measuring the capacity of the container.•Students fill the cylinders, counting the number of units used.•Record the results by drawing the cylinders and explaining the results.•Compare with their estimates.Check that students:•Tape the cylinder firmly together.•Tape the end of the cylinder so the contents will not go straight through.•Record their estimates before measuring.•Choose suitable materials to measure.•Record the results.* Step 3

•Discuss which container held the most or least | LEARNING SEQUENCERemediationES1  | * Questioning

What is a cylinder?Where can we find cylinders in the classroom.What words describe the appearance of different cylinders?What does estimation mean? How can we check our estimates? |
| LEARNING SEQUENCES1 | * **Compare by Pouring - Cylinders**

Cut a sheet of cardboard into two equal parts. Make one tall and one short cylinder. Ensure there is tape across the bottom of the cylinders. Estimate, then measure the capacity of the two cylinders. Discuss the results.Students should:1. Compare capacities or volumes by filling or packing with identical units.2. Know that the greater capacity or volume has more units.3. Estimate the number of units and explain the estimation strategy.4. Explain that the volume of fluid does not change when poured into containers of different sizes or shapes (conservation)* Investigation: Pouring

Students measure the capacity of various containers by filling with materials such as sand or rice poured from smaller containers.e.g. A garbage bin using a bucket, a bucket using a cup, a cup using an eggcup, an eggcup using a teaspoon.* Assessment: Worksheet-Circle the container that holds the most. Using a cup for measurement, estimate and measure which container would hold the most and which would hold the least.
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| LEARNING SEQUENCEExtension Early S2 | * Investigation: As a class the students construct a cubic metre from newspaper and masking tape. Explore the concept of cubic metres.
	+ Estimate how many 3rd grade students will fit in a cubic metre
	+ Test how many 3rd grade students will fit in a cubic metre
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| **EVALUATION & REFLECTION** | Student engagement: Achievement of outcomes:Resources: Follow up: |

**TEACHING AND LEARNING EXPERIENCES**

* 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.