**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 2 | STRAND: MEASUREMENT & GEOMETRY | **SUB-STRAND: VOLUME AND CAPACITY 2** | **WORKING MATHEMATICALLY:** **MA1-1WM, MA1-2WM, MA1-3WM** |
| OUTCOMES: MA1 – 11MG | **Measures, records, compares and estimates volumes and capacities using uniform informal units** |
| **CONTENT:**  | **Compare and order several objects based on volume and capacity using appropriate uniform informal units (ACMMG037)*** Compare and order the volumes of two or more models by counting the number of blocks used in each model
* Recognise that models with different appearances may have the same volume (reasoning)
* Record volume and capacity comparisons informally using drawings, numerals and words, and by referring to the uniform informal unit used
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Discuss does the IWB/white board take up more space in the room than the whiteboard marker.
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| WARM UP / DRILL | * Musical chairs – children sit down when you say an odd number or multiple of 2, 4 etc
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Emily has an I pad and Will has a laptop. Which object has the largest volume and why? |
| 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 | Blocks, lego bricks, duplo bricks, multilink, centicubes, cartons, isometric dot paper, work books and computers. Study ladder : Measure volume using informal units <http://www.studyladder.com.au/learn/search/course/mathematics> |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Volume refers to the amount of space occupied by an object or substance.* Discuss the term volume.
* Demonstrate constructing two different models using the same number of identical cubes.
* Discuss with students the volumes of the two models. Question the students: “Can you tell the volume by just looking at the models? How can you check?”
* Model adding an extra cube to one model and discuss which has the largest volume. Why?
* Instruct the students to break into small groups to complete the first activity: compare and order the volumes of two or more models.
 | LEARNING SEQUENCERemediationES1  | * Students find three objects in the classroom that take up more space than the whiteboard duster and three that take up less space and place them either side of sign which says:
* Students to build various structures using blocks, cardboard cartons and boxes, eg, a town, a bridge, a garage. Encourage students to discuss their structures and the materials they used. Encourage students to compare structures and count the number of boxes used in each.

Takes up more room than |
| LEARNING SEQUENCES1 | * **Investigation: Compare and order the volumes of two or more models.** Students work in groups using the same cubes to construct their own models. They then select two or three partners from the group and compare models. Students estimate which model has the larger volume and then check by counting the unit blocks in each model. Students are asked display their models next to each other in order from smallest to largest volume.
* Assessment: Students will draw two models and record the number of cubes used in each and state which has the smallest/largest volume.
* Students to complete the following activity using Study Ladder <http://www.studyladder.com.au/learn/search/course/mathematics> Measure volume using informal units. 2 activities. (Year 2 compare the volume of 2 stacks)
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| LEARNING SEQUENCEExtension Early S2 | * Students investigate the number of different models that can be made using one, two, three or four cubes. Results can be recorded in tabular form and then draw their models on isometric dot paper.
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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.
* Assessment rubrics or marking scale should be considered