**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 8 | STRAND: Measurement and Geometry | **SUB-STRAND:** 3D Space 2 | **WORKING MATHEMATICALLY:** MA2-1WM ,&MA2-3WM  |
| OUTCOMES: MA2- 14MG | **Makes, compares, sketches and names three dimensional objects , including prisms, pyramids, cylinders, cones and spheres and describes their features**  |
| **CONTENT:**  |  **Investigate and represent three dimensional objects using drawings*** Draw different views of an object constructed from connecting cubes on isometric dot paper.
* Interpret given isometric drawings to make models of three dimensional shapes.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | Using centicubes, make different shapes using four cubes. See how many ways the cubes can be joined. |
| WARM UP / DRILL | Make models using two, then, three, four and five cubes. Set a time limit. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | A stack of blocks was made, glued together and then painted on the outside. Eight of the blocks were painted on exactly two sides. What might the stack look Iike?The shape does not have to be regular. The children may have to discuss what 'exactly twosides means. |
| 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 | CenticubesIsometric dot paper3D puzzles |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Using website interactive maths.wikispaces.com demonstrate how to draw 3D shapes on isometric dot paper on the interactive whiteboard.* Allow students to come out to the front and have a go.
* Explain how depth can be added for the 3D effect.
 | LEARNING SEQUENCERemediationS1 or Early S2 | * Follow step by step instructions on how to construct a prism.
* Make prisms out of centicubes.
* Describe its properties
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| LEARNING SEQUENCES2 | * The teacher will provide pictures of models on isometric dot paper and the students will construct them out of centicubes.
* When confident, make models using two to five cubes and draw them using the isometric dot paper.
* **Investigation:** Using foam puzzles such as Dime Build Up Blocks, investigate the way a 3D model can be formed by combining other 3D models.
* **Assessment:** Make different arrangements of four cubes. Sketch the models.
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| LEARNING SEQUENCEExtension Late S2 or Early S3 | * Solve various 3D puzzles. There are commercially produced 3D puzzles that can be used.
* Alternatively, make more complex models using centicubes and sketch them from various viewpoints eg. Top view, side view etc.
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| **EVALUATION & REFLECTION** | **Student engagement:** **Achievement of Outcomes:****Resources:** **Follow up:** |