**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK:  | STRAND: Measurement & Geometry | **SUB-STRAND:** 2D Space 2 | **WORKING MATHEMATICALLY:** MA1-1WM |
| OUTCOMES: MA1-15MG | **Manipulates, sorts, represents, describes and explores two-dimensional shapes, including quadrilaterals, pentagons, hexagons and octagons.** |
| **CONTENT:**  | **Describe and draw two-dimensional shapes, with and without the use of digital technologies*** Use the term two-dimensional to describe plane (flat) shapes
* Make representations of two dimensional shapes in different orientations using concrete materials
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | **Pre-Assessment**Matching Shapes Memory Game (IWB Whole Class)<http://primarygamesarena.com/Shapes-and-Colors-Activity3004> |
| WARM UP / DRILL | Shapes flashcards |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Draw shape/s that can be joined together to make a:* Square
* Rectangle
* Circle
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| 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 print, bags, shapes cards, hoops, dice, straws (2 different lengths), pattern blocks and flat two-dimensional shapes |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicitly communicate lesson outcomes and expectations of work quality.* **Define and reinforce metalanguage** used in the unit e.g. shapes, rectangle, square, circle, triangle, same shape, different, order, size, smallest, largest, count, curved and straight.
* **Shapes in Different Orientations**

In small groups, students are given a bag, two hoops and two sets of cards (each set representing a particular shape in different orientations). All cards are shuffled and placed in the bag, and the two hoops are labelled ‘Triangles’ and ‘Rectangles’. Students take turns to randomly select a card from their bag and place it in the appropriate hoop.*Variation:* The activity could be varied using different shapes or more than two sets of cards (and hoops). | LEARNING SEQUENCERemediation ES1 | * **iPad Shape Sort** - Sort the shapes on a Carroll diagram.

<http://wsassets.s3.amazonaws.com/ws/nso/swf/dc555942be775a51037e17595ed54d94.swf>* **Drawing and Describing Shapes**

Students are asked to draw a particular shape e.g. a circle. They are then asked to draw a different shape eg a rectangle. Possible questions include:* How did you draw the circle?
* What was different about the way you drew the rectangle?
* Can you draw another rectangle that looks different? How is it different?
* Are there other shapes that can be drawn using curved/straight lines? Can you draw some?
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| LEARNING SEQUENCES1 | * **Making Shapes:** In small groups, students are given a die and straws of two different lengths. In turn, students roll the die and make a shape with thecorresponding number of sides. Students are encouraged to make regular and irregular shapes. Students name each shape, and record their shapes in appropriate groups. Students discuss the difficulties encountered in making a shape when they roll a 1 or a 2, and develop a new rule for thegame. For example, students may decide that a turn is missed if a 1 or a 2 is rolled.
* **Assessment: - Pattern Blocks**: Students use pattern blocks to copy designs from cards, first with real blocks and then by gluing paper pattern blocks on black construction paper. Students also have the opportunity to create their own designs.
* Interactive pattern block activity - <http://www.mathplayground.com/patternblocks.html>
* **Investigation:**
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| LEARNING SEQUENCEExtension Early S2 | * **Barrier Shapes:** In pairs, each student is given an identical set of two-dimensional shapes eg 1 circle, 1 square, 3 triangles, and 2 rectangles. Student A creates a flat design using the shapes and conceals it. Student A then describes it to Student B who attempts to produce the same design. Students compare designs, swap roles and repeat the activity.

Possible questions include:* Could your partner follow your instructions?
* What shapes did you make and how did you do it?
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| **EVALUATION & REFLECTION** | **Student Engagement:****Resources:** | **Achievement of Outcomes:****Follow-up:** |