**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 6 | STRAND:MEASUREMENT AND GEOMETRY | **SUB-STRAND:**  AREA 2 | **WORKING MATHEMATICALLY:**  MA1-1WM MA1-3WM |
| OUTCOMES: | | **MA1-10MG** Measures, records, compares and estimates areas using uniform informal units. | | |
| **CONTENT:** | | **Compare and order several shapes and objects based on area using appropriate uniform informal units**   * Draw the special structure (grid) of repeated units covering a surface * Explain the structure of the unit tessellation in terms of rows and columns (communicating) | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * Show me a shape using unifix cubes with an area of (teacher allocates number)? | | |
| WARM UP / DRILL | | * Put out some hoops in the room. Teacher says a number and that many children need to get in the hoop. Any left-over children are out. Take away hoops until there is only 1 winner. | | |
| 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 |
| RESOURCES | | Hoops, | | |

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| TESSELLATION  * **Introducing Area**   **Tuning in:** Area is the amount of space covered.  Which item covers the largest amount of space?  Place out various items and put them in order according to the amount of space they cover – This is the Area.  Bath towel, hand towel, envelope, cardboard, A4 paper, A3 paper, Art paper, spelling book.   * **Who covered the largest area?**   Use grid paper and work with a partner  Take turns to throw the die 5 times and put a dot on the number of squares you spin – eg Draw dots on 6 adjoining squares.  When you have finished rolling the dice count how many squares you have.  Write at the bottom: ‘Bobby’s squares covered an area of 10 squares and Sarah’s squares covered an area of 18 squares’. Add conclusion, e.g., “Therefore Sarah’s squares covered a larger area than Bobby’s.”   * **Tuning In: Tessellation – Tiling a Bathroom**   When we measure area we need to cover the whole surface.  If we use circles, do they cover the whole surface or do they leave gaps? Test and discuss.  What if we use squares? Rectangles? Triangles? Hexagons? Diamonds?   * **Activity 1:**   I want to change the tiles in my bathroom. At the moment I have square tiles but this time I would like to use a different shape. Can you tell me which shapes would be the best to use?  Give groups different shapes and get them to cover their maths book. How many shapes did you use? Did you leave any gaps? Can you work out the left over area?   * **Activity 2:**   What if I wanted an irregular shape pattern or two shapes?  Group 1: Tessellations 1 –  use an irregular ‘L’ shape to create a  tessellating pattern. Create your own tessellating pattern using two irregular shapes you can make on your shape paper.  Group 2: Tessellations 2 –  use hexagons to create a tessellating  pattern. Create your own tessellating pattern using two shapes you can make on your shape paper.  Group 3: Using two different shape  tiles, create a tessellating pattern to cover your maths book. | LEARNING SEQUENCERemediationES1 | * In small groups the children are given a shape (square, rectangle, triangle) to investigate whether it tessellates. Students trace around the shape and slide it to a new position attempting to cover the surface without leaving gapes. Students share their drawings. They group their shapes according to those that tessellate and those that do not. |
| LEARNING SEQUENCES1 | * **TESSELLATIONS**   In small groups the children select a shape (square, circle, triangle, hexagon,  rhombus, Trapezium) to investigate whether it tessellates.  Students trace around the shape and slide it to a new position attempting to cover the surface without leaving gapes. Students share their drawings. They group their shapes according to those that tessellate and those that do not.   * In pairs, students create tessellating designs using a computer-drawing program.   Students use the computer-drawing tool to make a shape and then duplicate it to see if it tessellates. Students can print their design and compare it to those made by others.   * **RECTANGLES**   Students are given 12 square tiles. They create a rectangle with an area of 12 tiles.  Students draw their rectangles on grid paper and rearrange the tiles to create as many different shapes as they can with the area remaining unchanged. Record these on grid paper. |
| LEARNING SEQUENCEExtensionEarly S2 | * **RECTANGLES (extension)**   Students are given 12 square tiles. They create a rectangle with an area of 12 tiles.  Students draw their rectangles on grid paper and rearrange the tiles to create as many different shapes as they can with the area remaining unchanged. Record these on grid paper.  Children create further shapes, selecting different units to measure area, and record them on grid paper. Students are asked about the number of units needed to cover their shapes. |
| **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.