**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 2 | STRAND:Measurement and Geometry | **SUB-STRAND:**  Area | **WORKING MATHEMATICALLY:**  MA1-1WM |
| OUTCOMES: MA1 - 10MG | | Measures, records, compares and estimates areas using uniform informal units | | |
| **CONTENT:** | | **Measure and compare areas using uniform [informal units](http://syllabus.bos.nsw.edu.au/glossary/mat/informal-unit/?ajax" \t "_blank" \o "Click for more information about 'informal units')**  \* predict the larger of the areas of two surfaces of the same general shape and compare these areas by cutting and covering  \* use uniform informal units to measure area by covering the surface in rows or columns without gaps or overlaps  \* select and use appropriate uniform informal units to measure area  \* explain the relationship between the size of a unit and the number of units needed to measure an area | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | * **What can it be?**   The teacher poses the problem: ‘I measured an item from our room and found that it had an area of 10 tiles. What could it be?’ Students brainstorm items that it might be and then, in pairs, use tiles to measure the area of the items. A class list of items with an area of 10 tiles is compiled. Students discuss how they chose which items to measure.  Possible questions include:  . Can you compare how you measured the area of the book and the desk?  . Which was easier? Why?  . Which unit have you found to be more accurate? Why? | | |
| WARM UP / DRILL | | * **ROTE COUNTING**   These ideas are designed to help students learn the number names in the correct sequence. Have students -  • count forwards and backwards, one to nine  • count on from a given number  • count from one to a given number  • stand in a line and call out their position number  • count with a partner, each calling a number alternately  • continue counting from where the teacher stops. | | |
| 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 | | Rectangles printed on paper or cardboard, shapes copied on opposite sides of paper, grid overlays (different shapes), various sized  tables, tiles, rectangle/square cut-outs, tracing paper. | | |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Explicitly Teach: Measuring area by placing identical informal units in rows or columns without gaps or overlaps  Counting informal units to measure area and describing the part left over  Estimating, comparing and ordering two or more areas using informal units  Drawing the spatial structure (grid) of the repeated units  Describing why the area remains constant when units are rearranged  Recording area by referring to the number and type of units used eg the area of this surface is 20 tiles.   * **IWB: Shape manipulation.**   Students move smaller shapes around the board to overlap/cover a larger (locked) shape.  Extend using irregular shapes. | LEARNING SEQUENCEPre Foundation Skills | * **Find a Bigger Area**   In pairs, students draw a shape on paper and are asked to find three areas that are bigger, smaller or about the same size. Students discuss how they compared the areas. The teacher models comparing by superimposing one shape over another. Students’ responses are listed in a table. (Adapted from CMIM) |
| LEARNING SEQUENCEES1 | * **Grid Overlays**   Students measure the area of a handprint using a grid overlay made from an overhead transparency. They then record the type of grid and the measurement in a table. Students repeat the activity using different grids eg Students discuss which type of grid was the best and why.  Students use a similar table to record measurements of the areas of other shapes eg -  Grid Unit Estimate Area of Handprint  Small square  Triangle  Hexagon   * **Rectangles**   Students are given 12 square tiles. They create a rectangle with an area of 12 tiles. Students draw their rectangles on grid paper then rearrange  the tiles to create as many different shapes as they can, with the area remaining unchanged. They record them on grid paper. Students discuss strategies used to create their shapes.  *Extension:* Students create further shapes, selecting different units to measure area, and record them on grid paper eg = 1 unit, ¡ = 1 unit. Students are asked about the number of units needed to cover their shapes.  **Investigation:**   * **Conservation**   Students are provided with two identical shapes. One shape could be mounted on cardboard and covered with plastic. The students are asked to cut the other shape into two, three or four pieces.  Students predict whether the pieces will fit on top of the first shape and explain why they think so. It is important that the students are not corrected if they believe the shape will not fit, but rather allowed time for investigation.  Students test their prediction by covering the cardboard shape. |
| LEARNING SEQUENCEExtensionS2 | * **Area of 10 squares**   Students use grid paper to construct a shape that has an area of 10 square units. Students construct other shapes that have the same area and discuss that an area of ten square units may apply to many different 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.