**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 7 | STRAND: Measurement and Geometry | **SUB-STRAND:** **Length 2** | **WORKING MATHEMATICALLY:** **MA3-1WM, MA3-1WM, MA3-3WM** |
| OUTCOMES: MA3-9MG | **Selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length** |
| **CONTENT:**  | **Solve problems involving the comparison of lengths using appropriate units (ACMMG137)*** investigate and compare perimeters of rectangles with the same area
* determine the number of different rectangles that can be formed using whole-number dimensions for a given area
* solve a variety of problems involving length and perimeter, including problems involving different units of length, eg 'Find the total length of three items measuring 5 mm, 20 cm and 1.2 m'
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * The car park at Rouse Hill station has 32 spaces. Each space is 2.5 metres wide. What is the total width of the car spaces?
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| WARM UP / DRILL | * Counting forwards and backwards on and off the decade.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | * A farmer has a rectangular paddock. Length=9km, Width=5km. What is the perimeter of the paddock? The farmer wants to install a new fence. The cost is $10 per metre. How much does the fence cost?
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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 | Websites as per below.Range of worksheets available to practise conversions<http://www.mathworksheets4kids.com/metric.html> Reading scales and converting between measurements. <http://www.primaryresources.co.uk/maths/mathsE1.htm> |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Students will discuss the concepts of perimeter in terms of something they are familiar with – dining tables to connect to their lives.What shape is your kitchen or your dining room table? How many people can sit there?Talk about possible seating arrangements at differently shaped tables. For example, how does a square table determine how many people can sit there? How does a circle table? Draw a square on the board. If we pretend this one table, how many people can sit here? Each side will leave room for one person.What do you think will happen if I double the area, and make the area of the table 2 square units?Draw this on the board and wait for student responses.You will need to calculate the area and perimeter of each table. Give examples on board.Language: area, perimeter, multiplication, width, length | LEARNING SEQUENCERemediationS2 or Early S3 | * Geoboards or Geoboards App

Students use rubber bands on geoboards to create shapes with different perimeters that I have written on the board. For example, I’ll ask them to make a square with a perimeter of 16, a triangle with a perimeter of 12, etc. To wrap up this activity, I ask students to create four different polygons and record the perimeter of each on their small dry erase boards. |
| LEARNING SEQUENCES3 | * Straw Polygons- Investigation

Using straws cut into lengths of 2, 4, and 6 cms, along with pipe cleaners cut into 2cm pieces, students explore perimeter by making polygons with sides of various lengths. They measure and record the lengths then draw the shapes in their books, annotating the length of each side along with the total perimeter. Can you work out the area?* Name Banners

First they use the square centimetre graph paper to write out their names. Next they find the area and perimeter of each letter and add those together to find the area and perimeter of their entire name. Why do some names have a greater area?* Assessment- Problem Solving questions similar to extension but maximum 2 steps
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| LEARNING SEQUENCEExtension Early S4 | * Complete more problem solving activities using larger numbers and more steps

A farmer has a rectangular paddock. Length=2km, Width=10km. What is the perimeter of the paddock? The farmer wants to install a new fence. The cost is **$18 per metre**. How much does the fence cost?Vijay needs 15m lengths of timber, each 6 metres long, to complete the deck around his pool. What is the total length he needs to buy? |
| **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.