**LENGTH 1 – STAGE 3**

**OUTCOMES**

A student:

* MA3-1WM - describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
* MA3-3WM - gives a valid reason for supporting one possible solution over another
* MA3-9MG - selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length

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| **CONTENT** | **plan** |
| **Choose appropriate units of measurement for length (ACMMG108)** |  |
| recognise the need for a formal unit longer than the metre for measuring distance | 1 |
| recognise that there are 1000 metres in one kilometre, ie 1000 metres = 1 kilometre http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 1 |
| describe one metre as one thousandth of a kilometre (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 1 |
| measure a kilometre and a half-kilometre | 2 |
| record distances using the abbreviation for kilometres (km) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 1 |
| select and use the appropriate unit and measuring device to measure lengths and distances | 2 |
| describe how a length or distance was estimated and measured (Communicating, Problem Solving) | 2 |
| question and explain why two students may obtain different measures for the same length, distance or [perimeter](http://syllabus.bos.nsw.edu.au/glossary/mat/perimeter/?ajax" \t "_blank" \o "Click for more information about 'perimeter') (Communicating, Reasoning) CT | 2 |
| estimate lengths and distances using an appropriate unit and check by measuring | 2 |
| record lengths and distances using combinations of millimetres, centimetres, metres and kilometres, eg 1 km 200 m | 2 |

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| **Calculate the perimeters of [rectangles](http://syllabus.bos.nsw.edu.au/glossary/mat/rectangle/?ajax" \t "_blank" \o "Click for more information about 'rectangles') using familiar metric units (ACMMG109)** | 3 |
| use the term 'dimensions' to describe the 'lengths' and 'widths' of rectangles http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 3 |
| measure and calculate the perimeter of a large rectangular section of the school, eg a playground, netball courts | 3 |
| calculate perimeters of common two-dimensional shapes, including [squares](http://syllabus.bos.nsw.edu.au/glossary/mat/square/?ajax" \t "_blank" \o "Click for more information about 'squares'), rectangles, triangles and regular [polygons](http://syllabus.bos.nsw.edu.au/glossary/mat/polygon/?ajax" \t "_blank" \o "Click for more information about 'polygons') with more than four sides (ie regular polygons other than equilateral triangles and squares) | 4 |
| recognise that rectangles with the same perimeter may have different dimensions (Reasoning) CT | 3 |
| explain that the perimeters of two-dimensional shapes can be found by finding the [sum](http://syllabus.bos.nsw.edu.au/glossary/mat/sum/?ajax" \t "_blank" \o "Click for more information about 'sum') of the side lengths (Communicating) | 4 |
| explain the relationship between the lengths of the sides and the perimeters for regular polygons (including equilateral triangles and squares) (Communicating, Reasoning) CT | 4 |
| record calculations used to find the perimeters of two-dimensional shapes | 4 |

**LENGTH 2 – STAGE 3**

**OUTCOMES**

A student:

* MA3-1WM - describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
* MA3-2WM - selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations
* MA3-3WM - gives a valid reason for supporting one possible solution over another
* MA3-9MG - selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length

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| **CONTENT** | **plan** |
| **Connect [decimal](http://syllabus.bos.nsw.edu.au/glossary/mat/decimal/?ajax" \t "_blank" \o "Click for more information about 'decimal') representations to the metric system (ACMMG135)** |  |
| recognise the equivalence of [whole-number](http://syllabus.bos.nsw.edu.au/glossary/mat/whole-number/?ajax" \t "_blank" \o "Click for more information about 'whole-number') and decimal representations of measurements of length, eg 165 cm is the same as 1.65 m | 6 |
| interpret decimal notation for lengths and distances, eg 13.5 cm is 13 centimetres and 5 millimetres | 6 |
| record lengths and distances using decimal notation to three decimal places, eg 2.753 km | 6 |
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| **Convert between common metric units of length (ACMMG136)** |  |
| convert between metres and kilometres | 5 |
| convert between millimetres, centimetres and metres to compare lengths and distances | 5 |
| explain and use the relationship between the size of a unit and the number of units needed to assist in determining whether [multiplication](http://syllabus.bos.nsw.edu.au/glossary/mat/multiplication/?ajax" \t "_blank" \o "Click for more information about 'multiplication') or division is required when converting between units, eg 'More metres than kilometres will be needed to measure the same distance, and so to convert from kilometres to metres, I need to multiply' (Communicating, Reasoning) CT | 5 |
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| **Solve problems involving the comparison of lengths using appropriate units (ACMMG137)** |  |
| investigate and compare [perimeters](http://syllabus.bos.nsw.edu.au/glossary/mat/perimeter/?ajax" \t "_blank" \o "Click for more information about 'perimeters') of [rectangles](http://syllabus.bos.nsw.edu.au/glossary/mat/rectangle/?ajax" \t "_blank" \o "Click for more information about 'rectangles') with the same area CT | 7 |
| determine the number of different rectangles that can be formed using whole-number dimensions for a given area (Problem Solving, Reasoning) CT | 7 |
| 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' CT | 7 |