**AREA 1 – STAGE 3**

**(8 WEEKS OF PLANNING)**

**OUTCOMES**

A student:

* MA3-1WM - describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
* MA3-10MG - selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles

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| **CONTENT** | **Plan** |
| **Choose appropriate units of measurement for area (ACMMG108)** |  |
| recognise the need for a formal unit larger than the square metre | 1 |
| identify situations where square kilometres are used for measuring area, eg a suburb CT | 1 |
| recognise and explain the need for a more convenient unit than the square kilometre | 1 |
| recognise that there are 10 000 square metres in one hectare, ie 10 000 square metres = 1 hectare | 2 |
| equate one hectare to the area of a [square](http://syllabus.bos.nsw.edu.au/glossary/mat/square/?ajax" \t "_blank" \o "Click for more information about 'square') with side lengths of 100 m (Communicating) | 2 |
| relate the hectare to common large pieces of land, including courts and fields for sports, eg a tennis court is about one-quarter of a hectare (Reasoning) | 2 |
| determine the dimensions of different [rectangles](http://syllabus.bos.nsw.edu.au/glossary/mat/rectangle/?ajax" \t "_blank" \o "Click for more information about 'rectangles') with an area of one hectare (Problem Solving) CT | 3 |
| record areas using the abbreviations for square kilometres (km2) and hectares (ha) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 3 |
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| **Calculate the areas of rectangles using familiar metric units (ACMMG109)** |  |
| establish the relationship between the lengths, widths and areas of rectangles (including squares) CT | **4** |
| explain that the area of a rectangle can be found by [multiplying](http://syllabus.bos.nsw.edu.au/glossary/mat/multiplication/?ajax" \t "_blank" \o "Click for more information about 'multiplying') the length by the width (Communicating, Reasoning) | **4** |
| record, using words, the method for finding the area of any rectangle, eg 'Area of rectangle = length × width' http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | **4** |
| calculate areas of rectangles (including squares) in square centimetres and square metres | **5** |
| recognise that rectangles with the same area may have different dimensions (Reasoning) CT | **5** |
| connect [factors](http://syllabus.bos.nsw.edu.au/glossary/mat/factor/?ajax" \t "_blank" \o "Click for more information about 'factors') of a number with the [whole-number](http://syllabus.bos.nsw.edu.au/glossary/mat/whole-number/?ajax" \t "_blank" \o "Click for more information about 'whole-number') dimensions of different rectangles with the same area (Reasoning) CT | **5** |
| record calculations used to find the areas of rectangles (including squares) | **6** |
| apply measurement skills to solve problems involving the areas of rectangles (including squares) in everyday situations, eg determine the area of a basketball court | **6** |
| measure the dimensions of a large rectangular piece of land in metres and calculate its area in hectares, eg the local park E | **6** |

**MISSING PLANS**

**AREA 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
* MA3-10MG - selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles

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| CONTENT | plan |
| **Solve problems involving the comparison of areas using appropriate units (ACMMG137)** |  |
| investigate the area of a triangle by comparing the area of a given triangle to the area of the [rectangle](http://syllabus.bos.nsw.edu.au/glossary/mat/rectangle/?ajax" \t "_blank" \o "Click for more information about 'rectangle') of the same length and perpendicular height, eg use a copy of the given triangle with the given triangle to form a rectangle | **7** |
| explain the relationship between the area of a triangle and the area of the rectangle of the same length and perpendicular height (Communicating, Reasoning) CT | **7** |
| establish the relationship between the base length, perpendicular height and area of a triangle CT | **7** |
| record, using words, the method for finding the area of any triangle | **7** |
| investigate and compare the areas of rectangles that have the same [perimeter](http://syllabus.bos.nsw.edu.au/glossary/mat/perimeter/?ajax" \t "_blank" \o "Click for more information about 'perimeter'), eg compare the areas of all possible rectangles with [whole-number](http://syllabus.bos.nsw.edu.au/glossary/mat/whole-number/?ajax" \t "_blank" \o "Click for more information about 'whole-number') dimensions and a perimeter of 20 centimetres CT | **8** |
| determine the number of different rectangles that can be formed using whole-number dimensions for a given perimeter (Problem Solving, Reasoning) CT | **8** |
| solve a variety of problems involving the areas of rectangles (including [squares](http://syllabus.bos.nsw.edu.au/glossary/mat/square/?ajax" \t "_blank" \o "Click for more information about 'squares')) and triangles CT | **8** |

**MISSING UNITS**