Area 2

Stage 3 Outcome

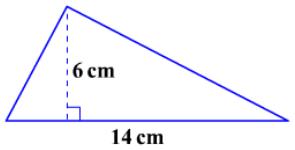
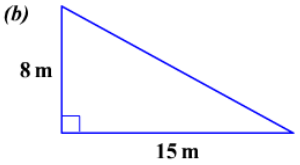
A student:

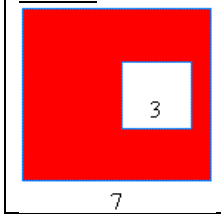
› describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM

› selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations MA3-2WM

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

Language: Students should be able to communicate using the following language: area, square centimetre, square metre, dimensions, length, width, **base (of triangle)**, **perpendicular height**.

Teaching and Learning Activities	Notes/ Future Directions/Evaluation	Date/ LAC Icons
Explicit Teaching **AREA OF A TRIANGLE** **Area of a Triangle** $= \frac{1}{2} \times \text{base} \times \text{height}$ $A = \frac{1}{2}bh$ ***Examples*** **Find the area:** ***(a)***  $A = \frac{1}{2}bh$ $= \frac{1}{2} \times 14 \times 6$ $= 42 \text{ cm}^2$ ***(b)***  $A = \frac{1}{2}bh$ $= \frac{1}{2} \times 15 \times 8$ $= 60 \text{ m}^2$ mathsonline.com		

Relationship – Rectangle to Triangle Teacher models that a triangle is simply half a rectangle. Students investigate the area of a triangle by comparing the area of a given triangle to the area of the rectangle of the same length and perpendicular height, eg use a copy of the given triangle with the given triangle to form a rectangle Students complete reflecting explaining the relationship between the area of a triangle and the area of the rectangle of the same length and perpendicular height.		Literacy Critical and creative thinking
Rectangles with the same Perimeter Students investigate and compare the areas of rectangles that have the same perimeter, eg compare the areas of all possible rectangles with whole-number dimensions and a perimeter of 20 centimetres. Students determine the number of different rectangles that can be formed using whole-number dimensions for a given perimeter		Critical and creative thinking
Word problem #1: The area of a square is 4 centimetres. What is the length of a side? **Important concept**: Square. It means 4 equal sides. Area = s × s= 4 × 4 = 16 centimetres^2 **Word problem #2:** A small square is located inside a bigger square. The length of one side of the small square is 3 centimetres and the length of one side of the big square is 7 centimetres What is the area of the region located outside the small square, but inside the big square? **Important concept**: Draw a picture and see the problem with your eyes. This is done below:  		Literacy Critical and creative thinking

The area that you are looking for is everything is red. So you need to remove the area of the small square from the area of the big square Area of big square = $s \times s = 7 \times 7 = 49$ centimetres^2 Area of small square = $s \times s = 3 \times 3 = 9$ centimetres^2 Area of the region in red = 49 - 9 = 40 centimetres^2 **Word problem #3:** A classroom has a length of 20 metres and a width of 30 metres. The headmaster decided that tiles will look good in that class. If each tile has a length of 24 centimetres and a width of 36 centimetres, how many tiles are needed to fill the classroom? **Word problem #4:** Sometimes area word problems may require skills in algebra, such as factoring and solving quadratic equations A room whose area is 24 m^2 has a length that is 2 metres longer than the width. What are the dimensions of the room? **http://www.basic-mathematics.com/area-word-problems.html**		Literacy Critical and creative thinking