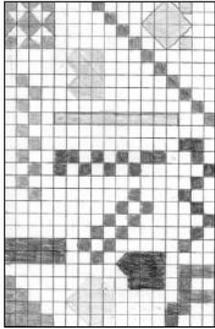


Booragul Public School NSW Syllabus for the Australian Curriculum – Measurement and Geometry

Sub Strand – Area 2			
Outcome	Teaching and Learning Activities	Notes/ Future Directions/Evaluation	Date
Stage 2 A student: <ul style="list-style-type: none"> › uses appropriate terminology to describe, and symbols to represent, mathematical ideas MA2-1WM › selects and uses appropriate mental or written strategies, or technology, to solve problems MA2-2WM › measures, records, compares and estimates areas using square centimetres and square metres MA2-10MG 	Language Students should be able to communicate using the following language: area, irregular area , measure, grid, row, column, parts of (units), square centimetre, square metre, estimate. Refer also to language in Area 1.		
<u>Ignition Activity</u> Students measure the same sized irregular shapes using a variety of smaller rectangular shapes. Discuss the results – Why is it important to use the same unit of measure?			Critical and creative thinking
<u>Explicit Mathematical Teaching</u> Compare the areas of regular and irregular shapes by informal means (ACMMG087) <ul style="list-style-type: none"> • measure the areas of common two-dimensional shapes using a square-centimetre grid overlay, eg measure the area of a regular hexagon ▫ compare how different placements of a grid overlay make measuring area easier or harder, eg (Problem Solving) ▫ develop strategies for counting partial units in the total area of the shape, eg determine two or more partial units that combine to form one whole unit (Communicating, Problem Solving) • measure the areas of irregular shapes using a square-centimetre grid overlay, eg • compare two or more areas by informal means, eg using tiles or a square-centimetre grid overlay ▫ explain why two students may obtain different measurements of the area of the same irregular shape (Communicating, Reasoning) 			
<u>Whole Class Teaching</u> How do I know? Provide students with a variety of cardboard irregular shapes and a sheet of grid paper. Have the students place the rectangles on top of the grid paper and use the grid structure to determine the total number of units covered by the rectangle. Have students share their results with others and explain how they determined the total. Discuss with students why grid paper is useful for measuring. <i>Developing Efficient Numeracy Strategies Stage 2 pp. 98-99</i>			
Area of 10 squares Students use grid paper to construct a shape that has an area of 10 square units. Students should be making shapes that are regular and irregular and comparing their areas.	~ 1 ~		

Students construct other shapes that have the same area and discuss that an area of ten square units may apply to many different shapes.



Measuring Area in the playground

Students measure defined areas in the playground using the paper square metre templates. Record the measurements and the array. Allow for 'left over' area when measuring with the square metre. Students check the measured dimensions of the area with a trundle wheel or tape measure.

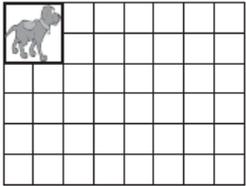
Teaching Measurement Stage 2 and Stage 3-pg 59

BSTNAPLAN Questions to do with Area

NAPLAN 2008 Question 14-Yr3

- 14 Gina has put a sticker on this grid. She wants to cover the whole grid with stickers of this size without any overlaps or gaps.

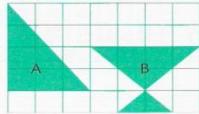
Write your answer in the box.



How many more stickers does she need? stickers

BST 2006 Question 33-Yr 3

33 Look at these two shaded shapes.



Which one of the following statements is true?

- Shape A covers the same amount of area as Shape B.
- Shape A covers less area than Shape B.
- Shape A covers more area than Shape B.

BST 2006 Question 29-Yr 3

29 Use the grid on the plastic sheet to answer this question.

What is the area of this triangle?



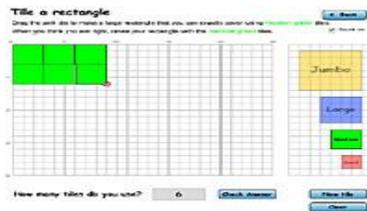
Write your answer in the box.

 cm²

Computer Learning Objects

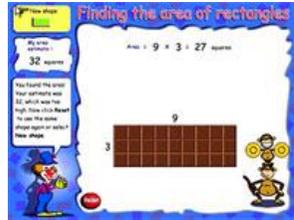
The tiler-Stages 1-3

The tiler can be used to strengthen the idea of area multiplication and the related change of units. The need to change units is a common feature of area conversion questions e.g. *How many square tiles of width 10cm would be needed to tile a floor 2m long and 1m wide?*



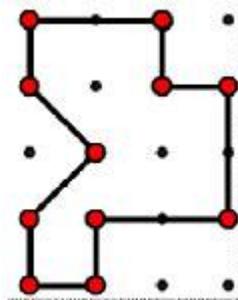
FINDING THE AREA OF RECTANGLES- STAGES 1-2

Finding the area of rectangles is designed to introduce students to the concept of area as covering a surface, and to introduce the formula for calculating the area of a rectangle.



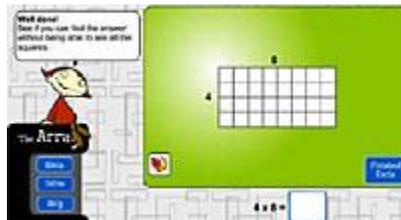
Digital geoboard

Students make shapes that have an area of 8 square units on the digital geoboard.



THE ARRAY-STAGES 1-2

'The array' is a tool that allows students to create arrays to learn their basic multiplication facts.



Reflection Time should be allowed at the end of each class lesson to revise learning outcomes shared and strategies used.

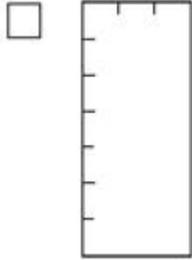
Planned Assessment

Area multiplication

Show the cardboard unit square and the “7 x 3” rectangle.

How many squares like this would you need to cover the rectangle completely?

Provide the student with a copy of the grid and ask: Can you draw what the squares would look like?



Granny's Rug" – p.132 – "Mathematics Assessment for Learning"

Granny's rug measured 1 square metre but she wanted it to be a different shape, draw a diagram of how granny's rug could look now and explain.

Calculating Area in Square Centimetres

Provide students with rectangles from the lesson How do I know? Students use a 1cm grid overlay to calculate the area of the rectangles. Students record and explain how they worked out the area.

cm² and m²

The teacher provides students with a collection of materials of various sizes. In pairs, students select the appropriate unit

(cm² and m²) and estimate the area of each item. Students check their estimates by measuring areas using square

centimetre tiles/grids or square metre templates. Students then record their results in a table.

Item	cm ² or m ²	Estimate	Measurement

Length x breadth

Students use 1 cm grid paper to draw different rectangles, each with an area of 24 cm². Students label the lengths of the sides in centimetres and discuss the relationship between the lengths of the sides and the area of the rectangles. The investigation can be extended by considering areas such as 36 cm², 20 cm², or students' own choices. Some students may wish to experiment with fractional units.

(p. 62 Teaching measurement Stage 2 and Stage 3)

