Unit 7: Measure – area

Lesson 1: What is area?

➜ **pages 54–56**

1. a) Answers will depend on the size of counters.
   b) This is its area.

2. a) The area of this quadrilateral is 9 dominoes.
   b) The area of this triangle is 15 buttons.

3. a) Area is the word used to describe the space inside a 2D shape.
   b) The space inside each shape should be shaded.

4. Boxes for a), b) and d) ticked (accept other answers with reasoning; for example, a child may argue that a) does not properly show area as the space taken up by each child will be different).

5. Explanations will vary, but should reference the following:
   All playing cards cover the same space but coins of different value cover different space so are not good objects to measure area.

6. This is sometimes true. It depends on the shape and its size.

Reflect

The area will vary depending on the item chosen. Explanations of how to measure area may vary; for example: The area can be measured by counting how many counters it takes to cover it.

Lesson 2: Counting squares (1)

➜ **pages 57–59**

1. A ➜ Area = 8 squares
   B ➜ Area = 3 squares
   C ➜ Area = 6 squares
   D ➜ Area = 5 squares
   E ➜ Area = 7 squares

2. a)

Shape	Area (squares)
A	5
B	4
C	9
D	6
E	9

   b) Shapes C and E have the same area.

3. The area of the piece of paper is 8 squares.

4. He has not fitted the shapes together exactly so the squares do not completely fill the space.

5. T A B L E   T O P

6. a) 1, 4, 9, 16
   b) 25, 36, 49
   Each shape is a square and so has equal sides. The sequence is the square numbers i.e. $1 \times 1 = 1$, $2 \times 2 = 4$, $3 \times 3 = 9$, $4 \times 4 = 16$, $5 \times 5 = 25$, $6 \times 6 = 36$, $7 \times 7 = 49$ …

Reflect

Explanations may vary; for example:
The area is the space a shape takes up and is measured in squares. The area of a shape can be found by counting the number of squares that can fit in it.

Lesson 3: Counting squares (2)

➜ **pages 60–62**

1. a)

Object	Area (squares)
Desk	10
Chair	5
Wardrobe	18
Mat	10
Bookshelf	7
Bed	32
Answers will vary	Answers will vary

   b) Answers will vary depending on object.

2. Rectangle A has an area of 18 squares.
   Rectangle B has an area of 10 squares.
   Area of A + B = 18 squares + 10 squares = 28 squares.
   The whole shape has an area of 28 squares.

3. Answers will vary depending on rectangles drawn. Total area will be a multiple of 3.

4. 20 squares

5. Different answers possible. Each field should have an area of 3 squares; for example:
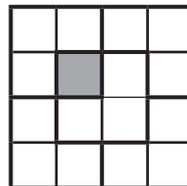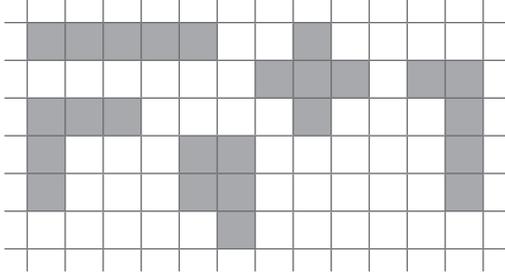

Reflect

Methods may vary; for example:
Line up the sides of the shape with the edges of the squares as much as possible. Draw around the cardboard shape and then count the number of squares within the shape outline.

Lesson 4: Making shapes

→ pages 63–65

1. Answers will vary. Children should draw five rectilinear shapes with an area of 5 squares, for example:

2. Answers will vary. Children should draw two rectilinear shapes with an area of 6 squares.

3. Ticked: 1st shape (made from four 2×2 concrete slabs) and 2nd shape (made from four 1×1 concrete slabs).

4. a) The 1st and 3rd shapes and the 2nd, 4th and 5th shapes are the same. They have included shapes which are reflections and rotations of each other.
   b) They could try turning the page to view shapes from different positions or cut the shapes out of paper to see if they fit into the area of another shape.

5. Answers will vary depending on letters and how they are drawn. Children should work out the area of letters in their name.

Reflect

Descriptions may vary; for example:

1. Make a chain of the squares.

2. Then move only 1 of the squares to begin with.

3. Then move 2 of the squares at a time, repeating with an extra square each time while checking for reflections and rotations.

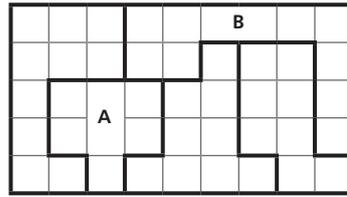## Lesson 5: Comparing area

→ pages 66–68

1. a) Answers will vary.
   b)

Player	Area of shape
Abdul	52
Bryony	38
Chloe	50

   c) Abdul has won since he has made the shape with the largest area.

2. a) and b)

   c) The area of the whole board is 45 squares.

3. a) 5 squares and 4 squares; shape on the left coloured
   b) 3 squares and 1 square; shape on the left coloured
   c) 9 squares and 10 squares; shape on the right coloured
   d) 7 squares and 7 squares; neither shape coloured (same size)

4. Sometimes true; the area of the shape depends not only on its height and width but also on its shape.

Reflect

Methods may vary; for example:
To compare the areas of two shapes, I would count the number of squares inside each shape to find out which one had the larger area.
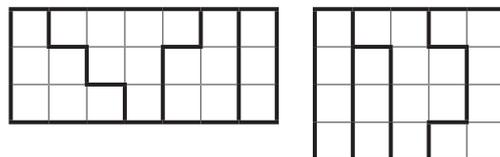
End of unit check

→ pages 69–70

My journal

Shapes will vary but are likely to be rectangles with areas of 12 squares, i.e. 1×12, 2×6 and 3×4. Look for children deciding on the measurements for their shapes by finding factors of 12 (1, 2, 3, 4, 6, 12) demonstrating understanding of the link between area and multiplication.

Power play

a)

   Students could add together the number of squares of all the pieces to find the area of the two rectangles then see how this area can be divided into 2 to give the size of the two rectangles.

b) The areas of the chocolate bars are 20 squares and 21 squares.

c) Answers will vary but look for answers explaining that the longer, narrower bar has an area of 21 squares and so is bigger than the area of the other rectangle which is 20 squares. Therefore, they would likely choose the bigger bar of chocolate!