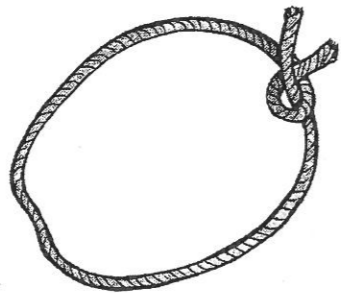# Investigation

Which shape (given a fixed perimeter) has the greatest area?
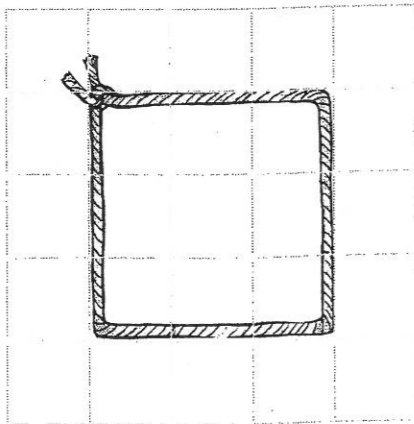
Pair activities

You will need: Five sheets of squared paper; a piece of string not shorter than 25 cm; a ruler; a pencil.

1. Lay the string in a straight line. Measure 2 cm from the one end. Make a mark. From that mark measure 20 cm. Make another mark.
2. Now tie the two ends of the string together to make a loop that is 20 cm long. Pull the knot so that the two marks touch.
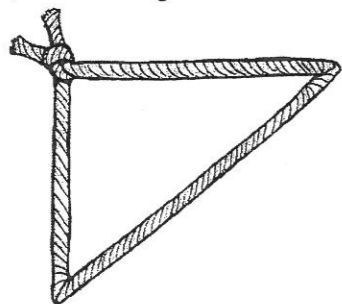

3. Use your string to make a square shape on the squared paper.
4. Use your pencil to trace an outline of the square on the paper.
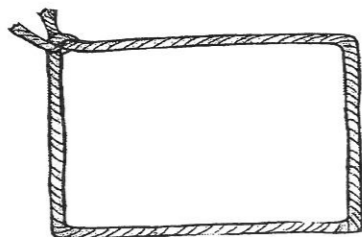

5. Work out the area of the square by counting the little blocks.
6. Now use your string to make the following shapes and draw them on the squared paper.
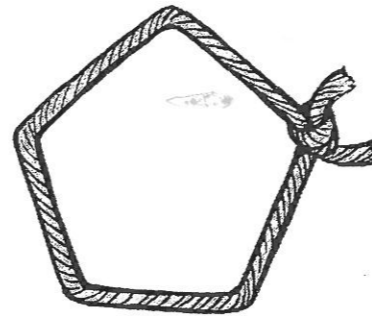
   a) a triangle   b) a rectangle

Each of these will have a **perimeter** of 20 cm. But will their **areas** be the same?
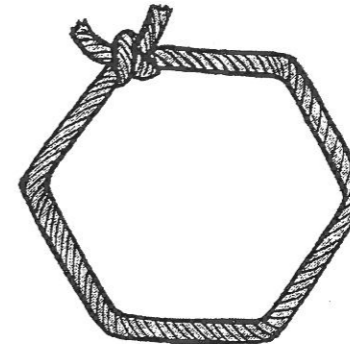

Pair activities (continued)

c) a pentagon   d) a hexagon   e) a circle

7. Work out the areas of each shape by counting the little blocks. Write the area down next to the drawing. Copy the following table in your workbook and fill it in.

Shape	Number of sides	Number of squares inside shape
Square		
Triangle		
Rectangle		
Pentagon		
Hexagon		

   a) Which shape has the fewest sides?
   b) Which shape has the smallest area (number of blocks)?
   c) Which shape has the most sides?
   d) Which shape has the greatest area?
   e) Do you notice a pattern?
   f) Go back and look at the area of the circle. Was it bigger than the area of the hexagon?

8. Can you think of a reason why traditional African huts were round? Discuss.