



# MATHEMATICS



**N.S. Yr. 1 P.80**

**Describe and classify 3-D and 2-D shapes  
according to their properties.**

## Equipment

Paper, pencil, ruler, colouring pencils

# MathSphere

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## **Concepts**

Children should understand and use in practical situations, the following words:

***shape, pattern, flat, solid, hollow, side, edge, face, straight, curved, round, point, pointed, corner, sort, make, build, draw, cube, cuboid, sphere, cone, cylinder, circle, triangle, rectangle, square***

At this stage, work with shape should be mainly practical using real shapes, but we include here some simple pages of reinforcement and ideas for games and activities. Schools will normally be stocked with plastic or similar shapes, both 2-D and 3-D, but parents can quickly and easily make a collection of the most common shapes from empty tins and packets (including those boxes from a popular triangular chocolate bar), and cut 2-D shapes from card.

It is essential that the correct vocabulary is used. 3-D shapes have 'faces', 'edges' and 'corners' (later called 'vertices'). Do not use the word 'sides' with 3-D shapes. 2-D shapes have 'corners' or 'angles' and sides.

Eg. 'This cube has six faces and twelve edges. Do all cubes have six faces and twelve edges?'

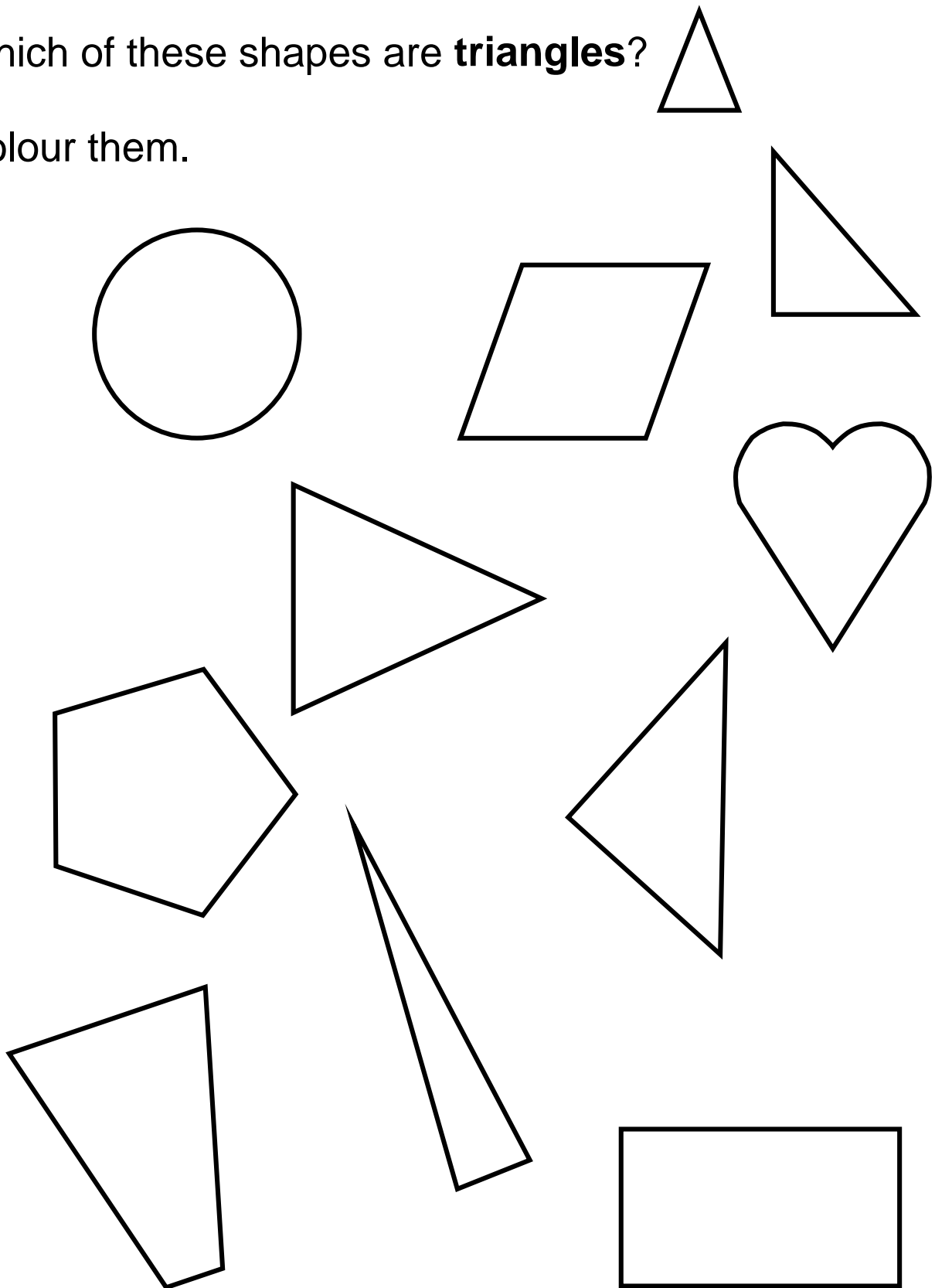
Eg. 'This triangle has three sides and three corners.'

Include much practice at filling the shapes with sand or water and pouring from one to another. This helps with an appreciation of volume, but the handling of the shapes reinforces the curvature or angularity of different shapes. Make this play fun.

2-D and 3-D shapes are all around us. Use opportunities to discuss shapes as you come across them in everyday life (clocks, bath plugs, holes in the road, fencing posts, CDs etc).

Which of these shapes are **triangles**?

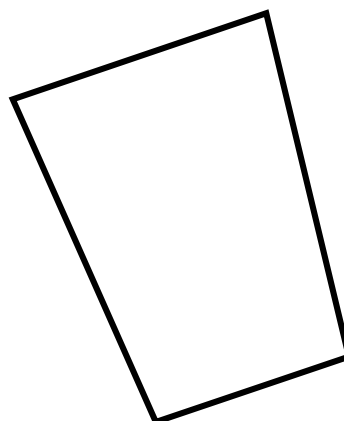
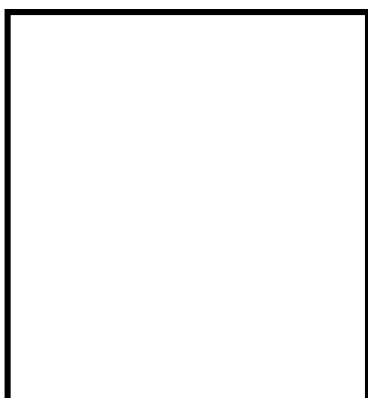
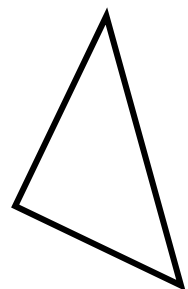
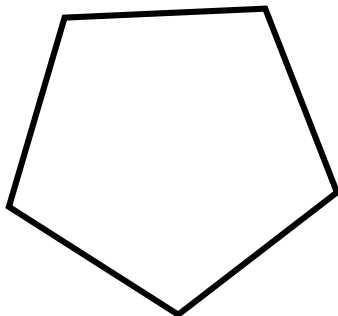
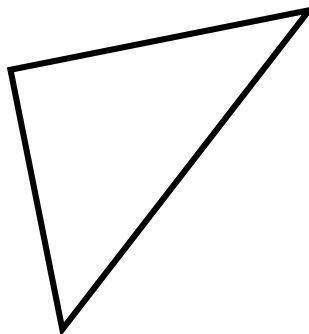
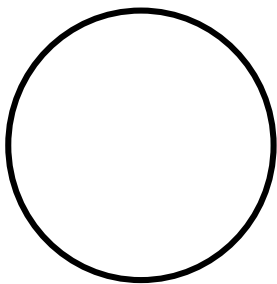
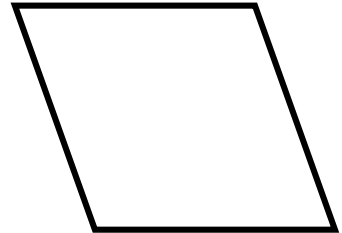
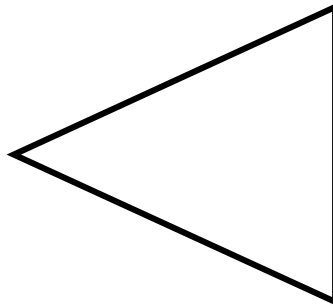
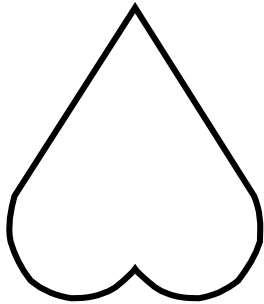
Colour them.



Which of these shapes are **triangles**?

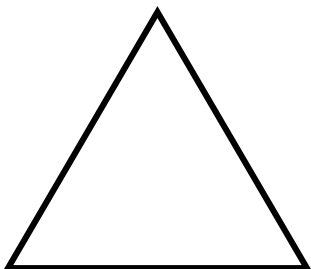
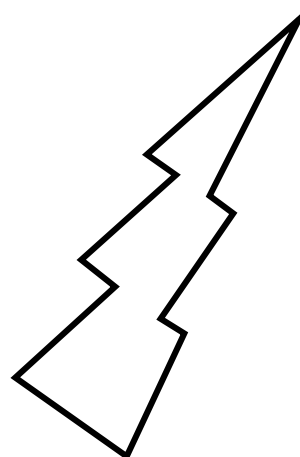
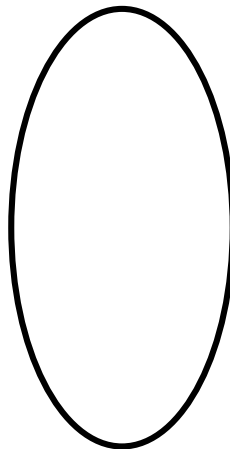
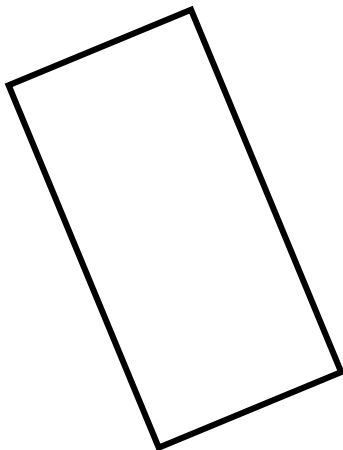
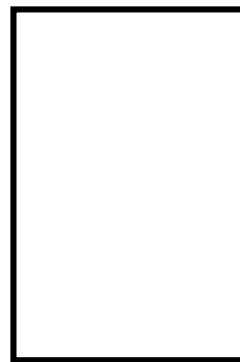
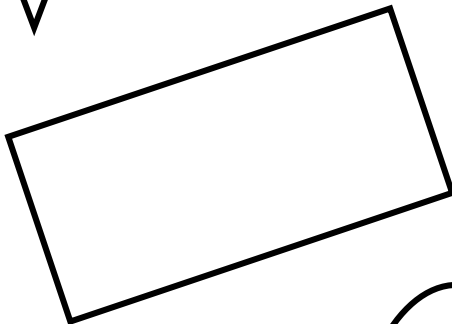
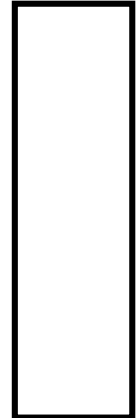
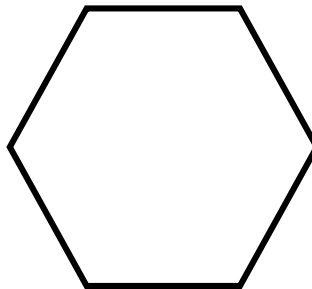
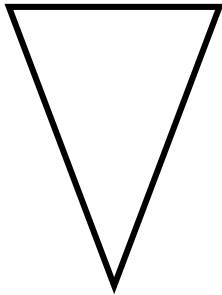


Colour them.



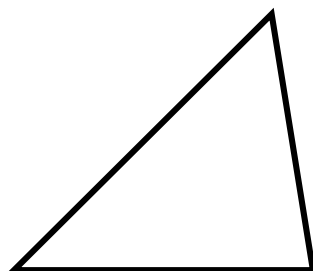
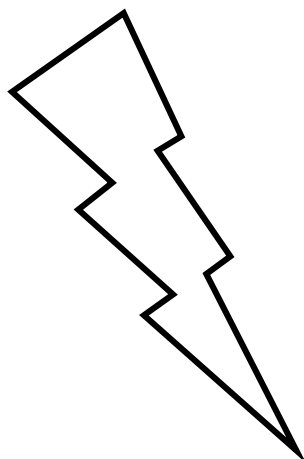
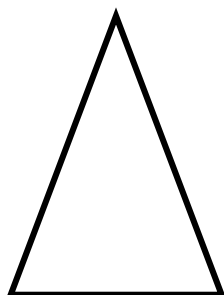
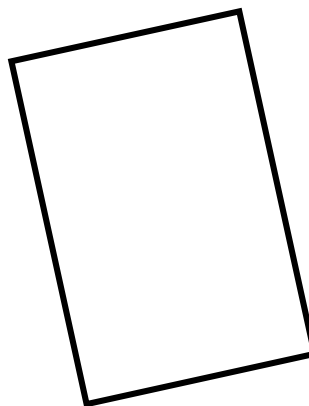
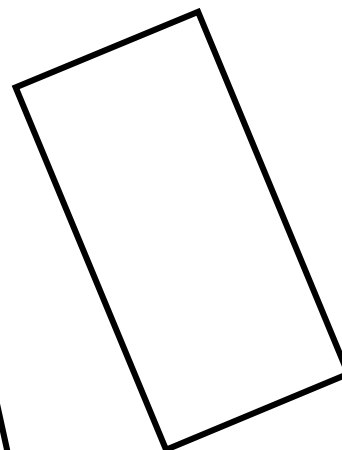
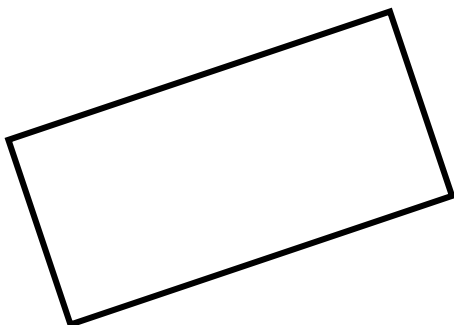
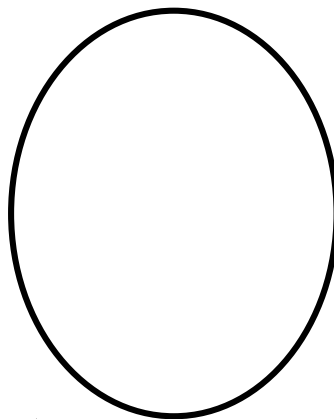
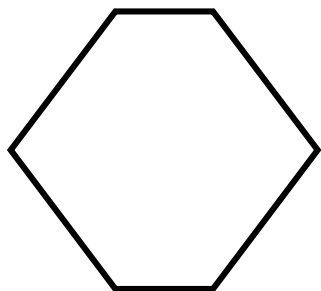
Which of these shapes are **rectangles**?

Colour them.



Which of these shapes are **rectangles**?

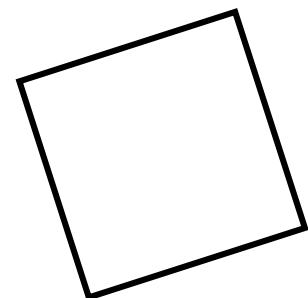
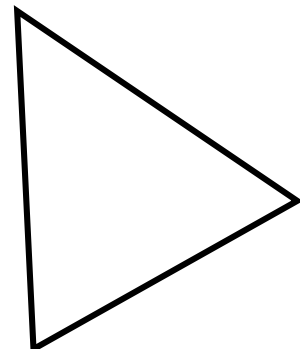
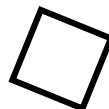
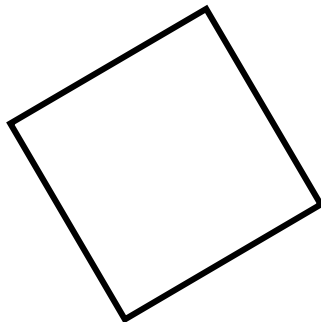
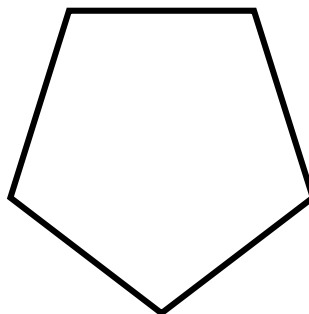
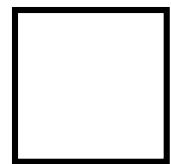
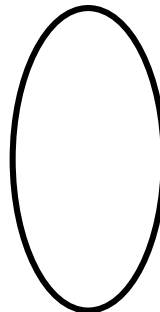
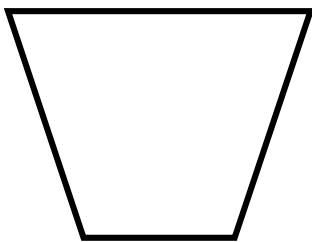
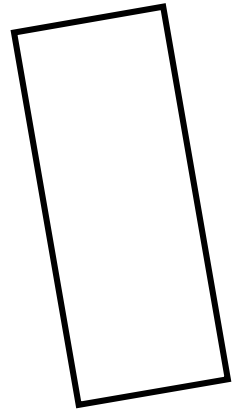
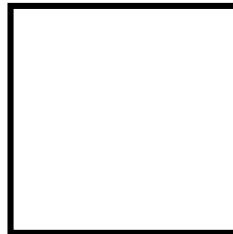
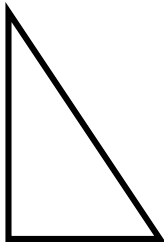
Colour them.



Which of these shapes are **squares**?



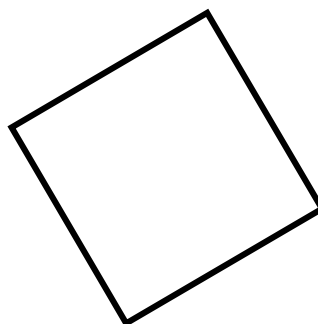
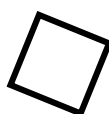
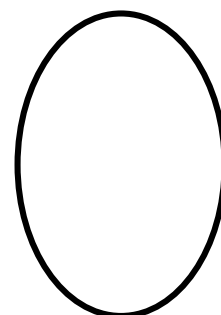
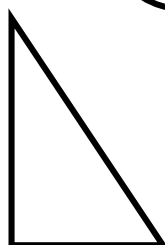
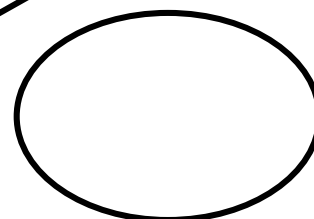
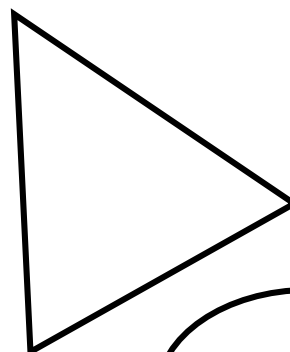
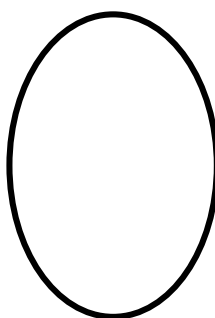
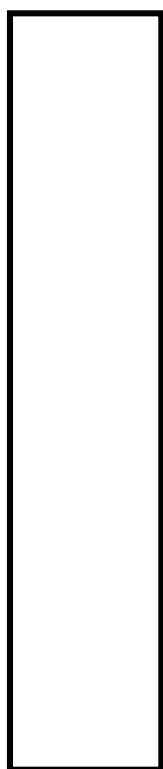
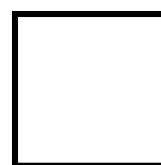
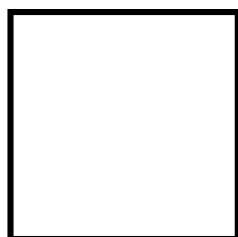
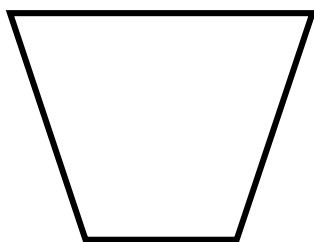
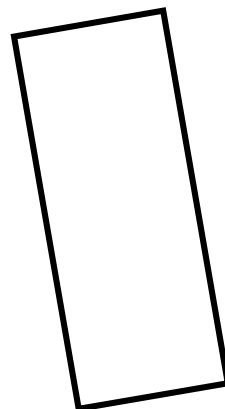
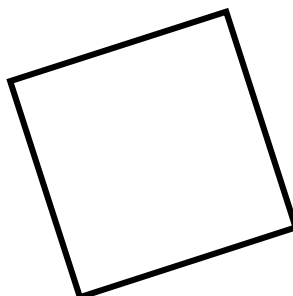
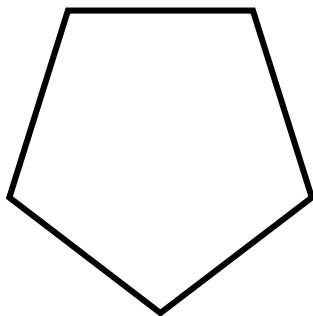
Colour them.



Which of these shapes are **squares**?

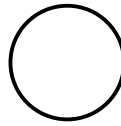


Colour them.

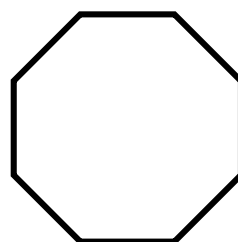
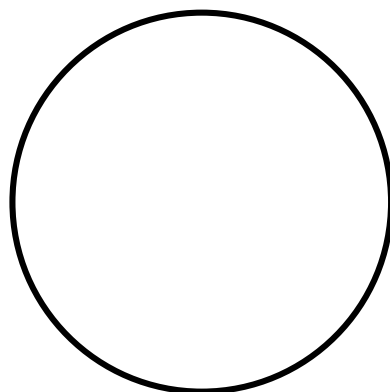
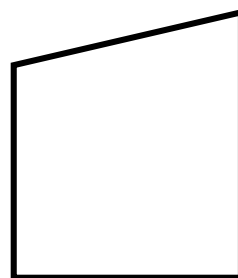
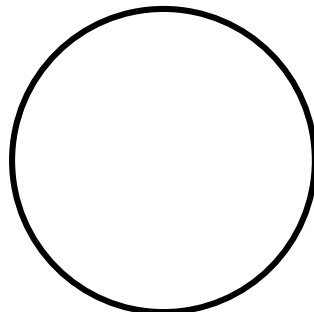
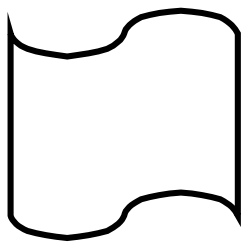
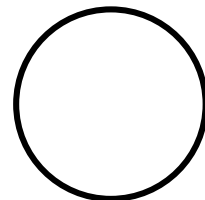
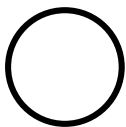
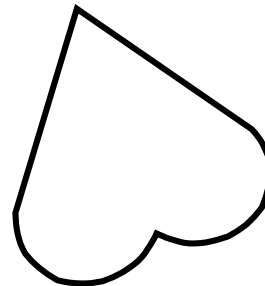
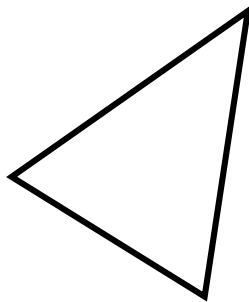
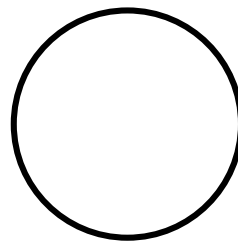
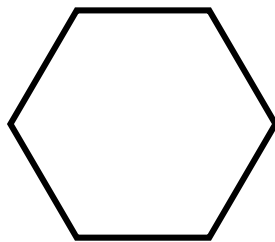
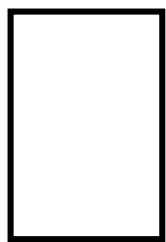




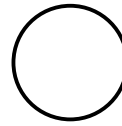
Which of these shapes are **circles**?



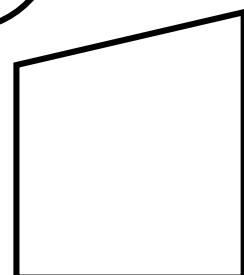
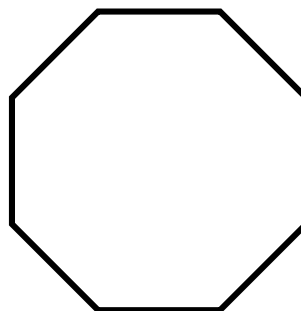
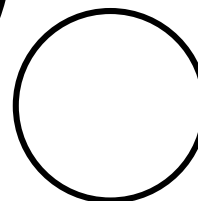
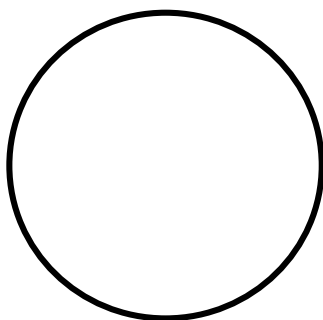
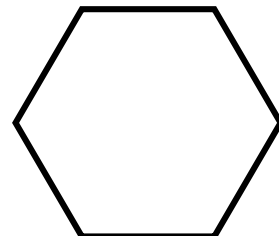
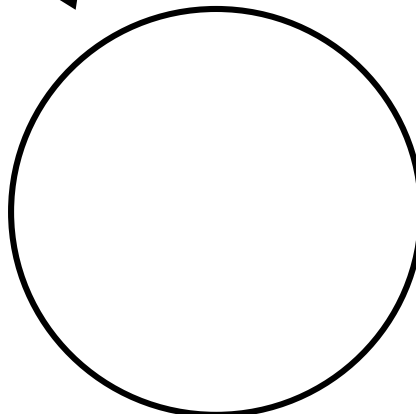
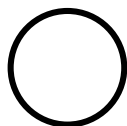
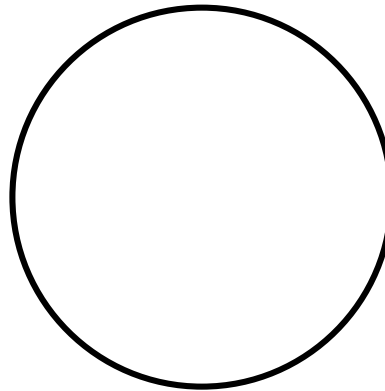
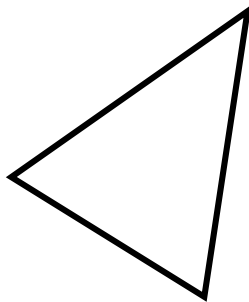
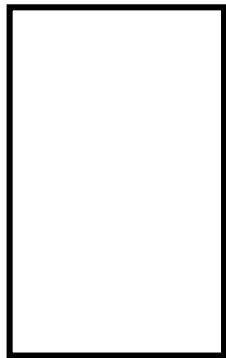
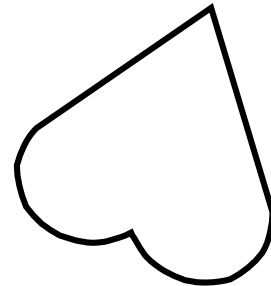
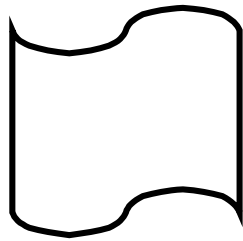
Colour them.



Which of these shapes are **circles**?



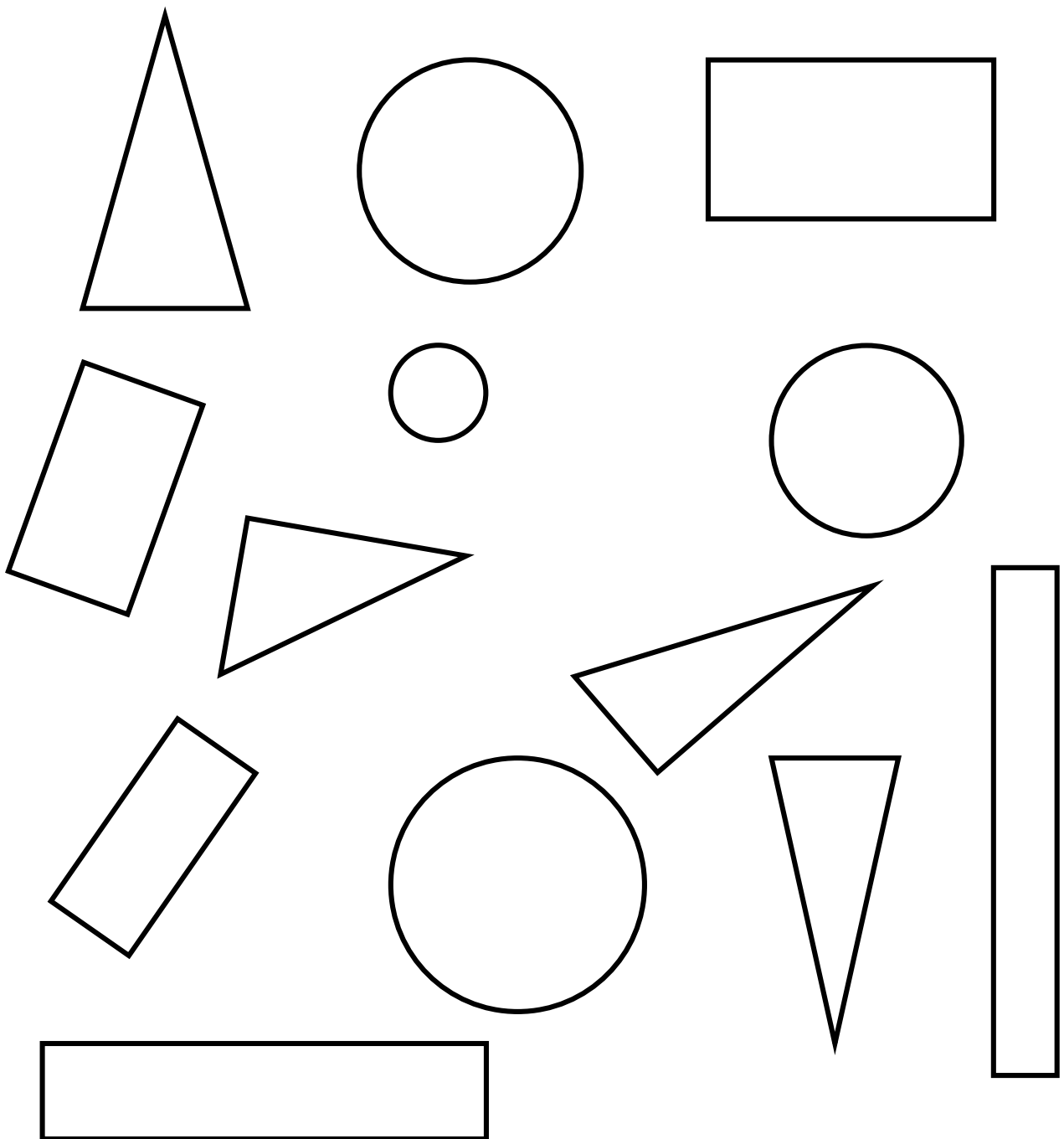
Colour them.



Colour the circles RED

Colour the rectangles GREEN

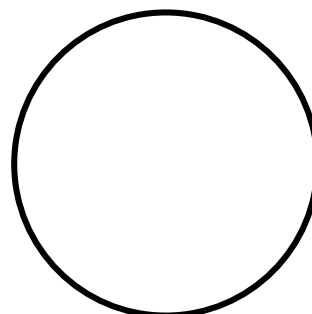
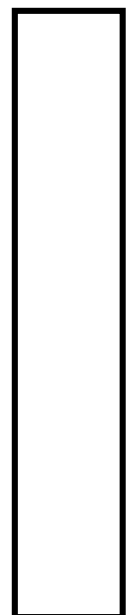
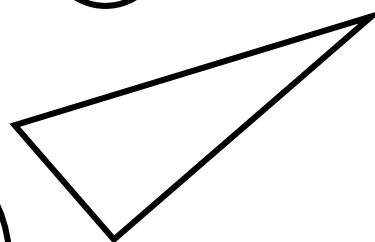
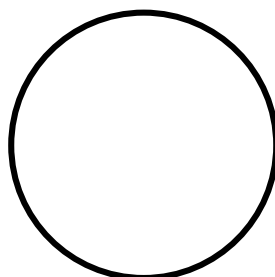
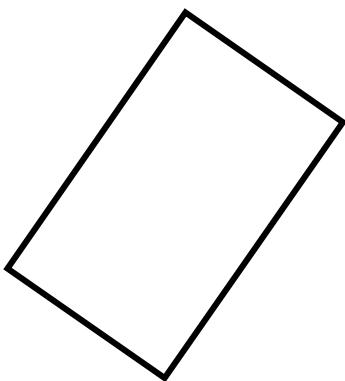
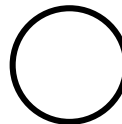
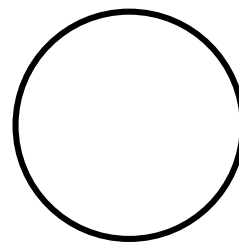
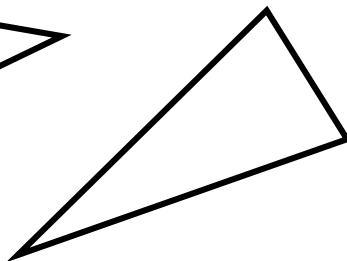
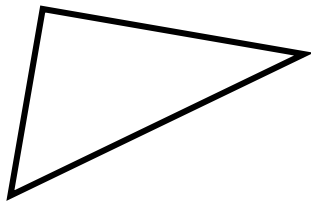
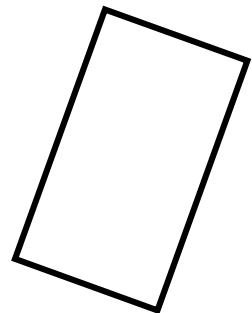
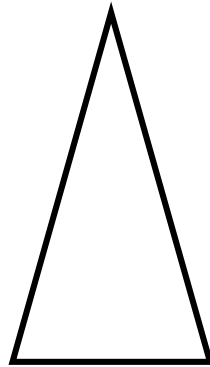
Colour the triangles BLUE



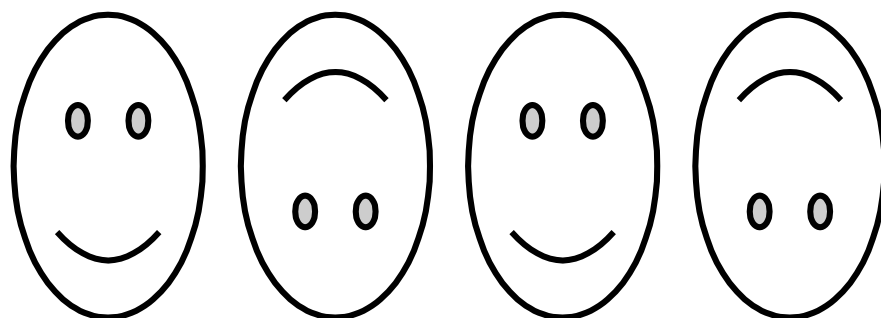
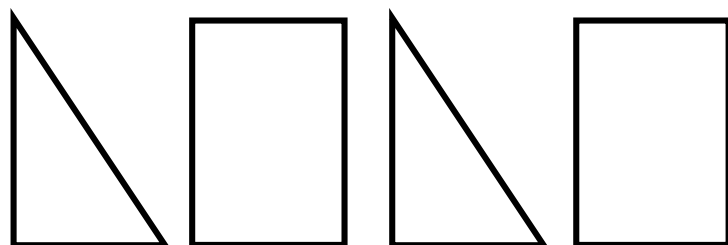
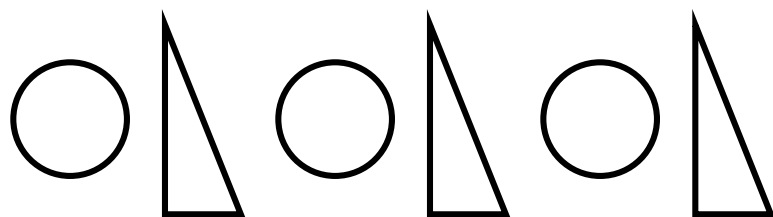
Colour the circles RED

Colour the rectangles GREEN

Colour the triangles BLUE

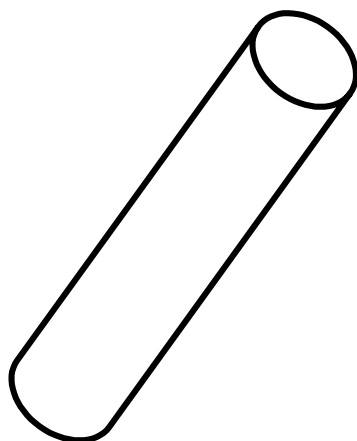
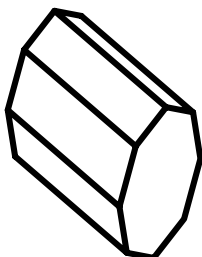
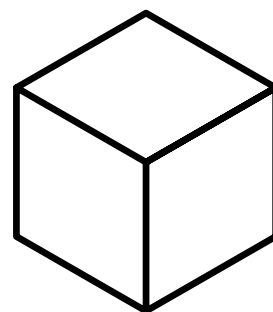
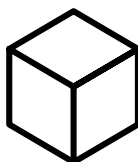
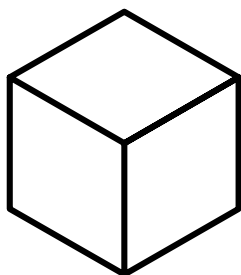
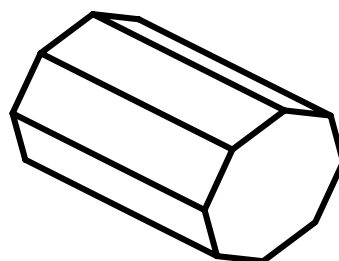
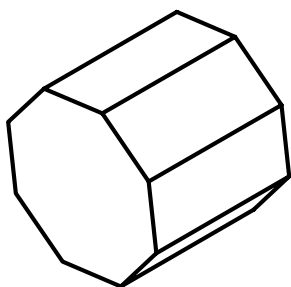
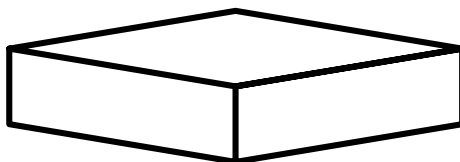
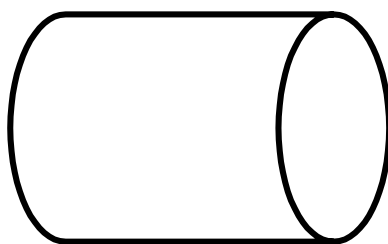
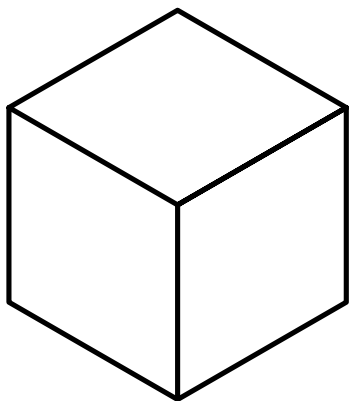


Carry on with the patterns.



Which of these shapes are **cubes**?

Colour them.



### **Suggestions for activities with 3-D shapes.**

**Throughout all this work, place great emphasis on the vocabulary of the names of the shapes plus words such as edge and face. A good grasp of the vocabulary in the early years will be a great asset in future mathematical education.**

1. Sort shapes into groups according to their properties such as:

- Do they have corners?
- Do they have a point?
- Do they have just flat faces?
- Do they have any square faces or rectangular faces?
- Do they have triangular faces?
- Do they have any round faces?
- Are their edges straight?
- Do they have more than six flat faces?
- Are they solid or hollow?

2. Hide a shape behind your back or a partner's back. Let the child or other partner ask questions until they can say what the shape is.
3. Put several shapes on a tray. Remove one when the child's eyes are closed. The child then looks and tries to say which shape is missing.
4. Put a range of shapes in order of the number of faces or edges.
5. Have a 'feely bag' in which you place a shape or shapes. The child puts his/her hand inside and tries to identify the shape.
6. Using Play dough or plasticine, copy a given shape. Copy the shape several times and make a pattern with the shapes.
7. Identify the shapes which are the same shape and size throughout their length (prisms), such as cuboids and cylinders, and those which are not, such as cones and pyramids.
8. Using hollow shapes, fill them with sand or water and pour the sand/water from one container to another.

### **Suggestions for activities with 2-D shapes.**

**Throughout all this work, place great emphasis on the vocabulary of the names of the shapes plus words such as side and angle. A good grasp of the vocabulary in the early years will be a great asset in future mathematical education.**

1. Sort shapes into groups according to their properties such as:

- Do they have angles?
- Do they have three sides?
- Do they have more than three sides?
- Are all the sides the same length?
- Are all the sides straight?
- Are the angles all the same size?
- Do they have short sides and long sides?

2. Hide a shape behind your back or a partner's back. Let the child or other partner ask questions until they can say what the shape is.
3. Put several shapes on a tray. Remove one when the child's eyes are closed. The child then looks and tries to say which shape is missing.
4. Put a range of shapes in order of the number of sides.
5. Have a 'feely bag' in which you place a shape or shapes. The child puts his/her hand inside and tries to identify the shape.
6. Using Play dough or plasticine, use cutters to make 2-D shapes or make these from pastry, cook them and eat them. Do the squares taste better than the circles? (Essential for children to be able to identify similarities - shape makes no difference to taste - as well as differences)
7. Draw the shapes onto blank playing cards (or write the names for good readers). Draw one card at random and identify the shape from a pile on the table. How quickly can the child do this?
8. Examine patterns involving shapes on tiles, curtains and clothes etc.
9. Make shapes from thin dough sausages and copy them onto paper with a pencil.