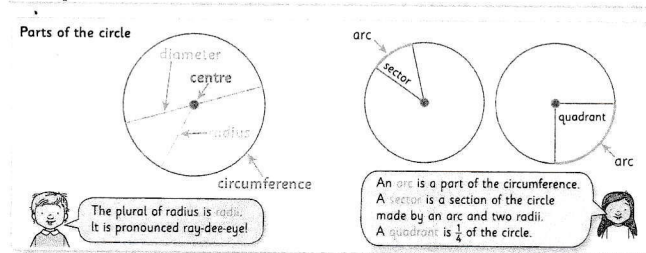


Your child will be learning about the circle over the coming days. This will be done in much greater detail than in the chapter about 2-D shapes. Your child needs to know the mathematical language associated with the circle: circle, centre, circumference, radius, radii, diameter, sector, quadrant, arc, straight lines, perimeter, one-quarter, right angle, straight angle, protractor, length, shorter, combined, compass, ruler, swivel, point, estimate, area, centimetre squares, approximate, full, half, more, less, construct, cost, discount, pattern, continue, small, medium, large, extra large.

## Properties of a circle



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## Label the circle

This activity works well if you have a regular paper plate. Have your child label the different properties of the circle on the plate.

### Notes:

- A circle can have many **radii** (radii is the plural of radius). Each radius is identical in length.
- The **diameter** divides a circle in half. The diameter must pass through the centre of the circle. A circle can have many diameters.
- The **circumference** is the correct name for the perimeter (outline) of a circle.

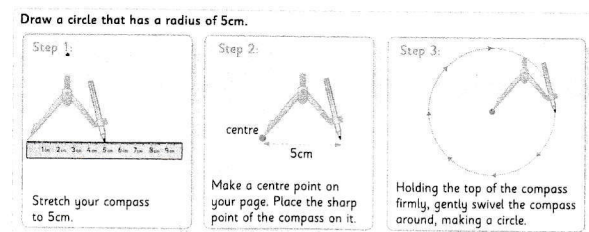
## Circle hunt

Go on a short circle hunt with your child and search for as many different circles as you can around the home, e.g. CD, plate, mirror, clock, bowl, cup, saucer, saucepan, vase.

**Extension 1:** Help your child measure the radius and diameter of each circle that you find.

**Extension 2:** Encourage your child to trace around the different circular objects to create 2-D circles.

## Use a compass



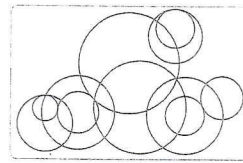
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Many children find it difficult to use a compass. Help your child use a compass by giving him/her the following instructions:

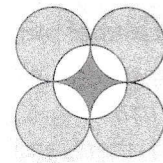
1. Place a sharpened pencil into a compass and secure it tightly.
2. Stretch the compass as wide as you wish. This will be determined by the length of the actual radius.
3. Place a small amount of pressure on the point of the compass.
4. Pinching the top of the compass with your thumb and index finger, swivel the compass around, drawing a circle.
5. The point of the compass must remain stationary at all times.

**Activity 1:** Encourage your child to draw circles of different radii/diameters, e.g. 4cm, 5cm, 5½cm.

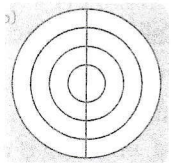
**Activity 2:** Invite your child to make interesting circle patterns and pictures, similar to the ones shown here.



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## Approximate area of a circle

Encourage your child to draw circles onto centimetre square paper (a normal sum copy will work and each small square can represent one square centimetre: 1cm<sup>2</sup>). To find the approximate area, ask your child to simply count all the full squares. S/he should also count all the ones that are at least half a square as a full square.

Estimate the area of the circle. Each square represents 1cm<sup>2</sup>.

Count....

- ✓ all the full squares.
- ✓ half squares or more than half squares as full squares.

Don't count...

- ✗ squares that are less than half a square.

Answer: Area = 16cm<sup>2</sup>

Estimating gives us the approximate area of a circle!

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## Prior knowledge

The pupil should be able to:

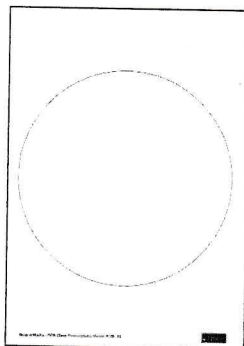
- Identify the circle and semi-circle.
- Identify the circle within 3-D shapes.
- Identify examples of circles in the environment.
- Identify lines of symmetry.
- Use a protractor to measure angles.

## Home/School links



**Home/School Links Sheet 27** can be sent home to parents when teaching pages 148–151. For maximum benefit, you may prefer to send it home at the start of the section, which deals with the circle. It encourages parents to become actively involved in the learning process.

## Collaborative work/Active learning 1



### Properties of a circle

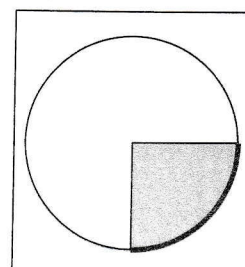
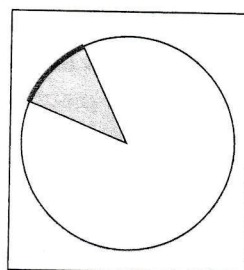
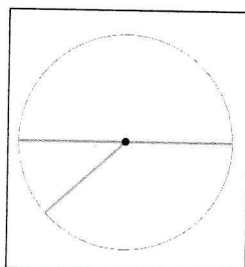
**Organisational setting:** Children work individually or in pairs

**Materials required:** Paper plates, glue, coloured paper or card, ruler, colours, circle (**PCM 74**)

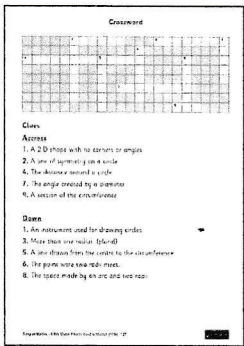
Give each child/pair a paper plate. Instruct the children to fold the plate in half. Ask: *What line are you creating? (Line of symmetry.)* Encourage the children to fold the plate in half again, creating four quadrants. The children can fold along a few more lines of symmetry – this will create a variety of diameters and radii that the children may use later in this activity.

Invite the children to unfold their paper plates. They must glue it onto a larger piece of paper or card. Using a ruler, they must mark the following properties on the paper plate: centre, radius, diameter, sector, quadrant, arc. They should use a different colour to mark each property.

**Variation:** If you don't have paper plates, give a copy of a large blank circle (**PCM 74**) to each individual or pair and continue as if working with the plate.



## Collaborative work/Active learning 2



### Crossword – Properties of a circle

**Organisational setting:** Children work in pairs

**Materials required:** Crossword (PCM 127)

Give each pair a copy of **PCM 127**. Allow time for the children to read the clues, discuss and complete the crossword which is revision of work done on the circle.

## Collaborative work/Active learning 3

### Circle hunt – Radius and diameter

**Organisational setting:** Children work in pairs or small groups

**Materials required:** Circular objects from the environment (e.g. CDs, bowls, plates, bottle lids, paper plates), ruler, paper or copies

Explain to the children that you want them to find different objects around the classroom or school that have a circular outline. The children must trace around these objects. Instruct them to measure the radius and diameter of each circle. These measurements must be marked onto the drawings.

## Collaborative work/Active learning 4

### Draw a circle without a compass

**Organisational setting:** Children work in pairs or small groups

**Materials required:** Selection of circular objects (e.g. bowls, plates, CDs, bottle tops), pencils, elastic bands or pieces of twine, paper, drawing pins

Give each pair/group two sharp pencils, a piece of paper and an elastic band or piece of twine. One child must hold Pencil A in a stationary position, marking the centre of the circle. (Alternatively, you could use a drawing pin in this position.) An elastic band should be placed near the bottom of this pencil. Pencil B should pull the elastic band, creating a radius of the circle. Keeping the elastic band taut, the child should swivel this pencil around the centre point, drawing a circle as s/he goes.

**Note:** The difficulty with this method is that you must keep an even tension on the elastic band the whole time. This is quite difficult to do. The final result is often a somewhat 'bumpy' circle. This shows the children that a compass is a much more reliable tool.