Maths - Year 6

Geometry 2: Circles

Key Vocabulary

Turn	Move in a circular direction wholly or partly round an axis or point.
Angle	An amount of turn or rotation.
Circumference	The distance around a circle.
Diameter	The longest distance across a circle, drawn through the centre.
Radius	A straight line from the centre to the edge of a circle.
Sector	A part of a circle.
Equidistant	At equal distances.
Polygon	A flat geometric shape with straight sides.
Non-polygon	Shapes that are not polygons.
Symmetry	Objects or images with halves that mirror each other are symmetrical, e.g. butterflies, tennis courts.

Mathematical Skills

- Describe the properties of a circle, e.g. it is a 2D shape, but not a polygon.
- Can write a formula to show that the diameter is twice the length of the radius.
- Explain that the angle at the centre of a circle is one full turn or 360°.
- Understand that the circumference of a circle is always a little more than three times the length of the diameter

Mathematical Methods

- Understanding the parts and properties of a circle.
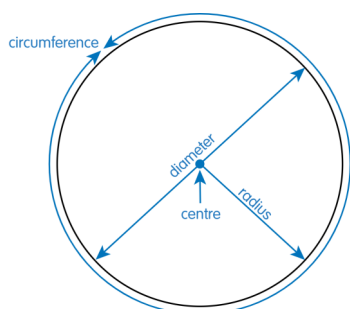
$$d = 2r \text{ and } r = \frac{1}{2} d \text{ or } r = d \div 2$$

- Investigating the relationship between circumference and diameter.

Object	Circumference, C cm	Diameter, d cm	$C \div d$ (to 2 d.p.)
tin can	23·8	7·4	3·22
CD	38·4	12·0	3·20
flower pot (base)	80·8	25·3	3·19
plate	83·2	26·7	3·12

$C \div d \approx 3 \cdot 14$ so $C \approx 3 \cdot 14d$

- Using the relationship between circumference and diameter e.g. using the diameter of a circle to calculate the circumference.

$$C \approx 3 \cdot 14d$$

- Solving problems using the relationship between circumference and diameter e.g. designing a new running track.
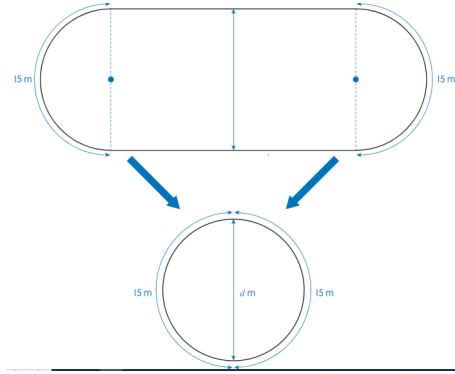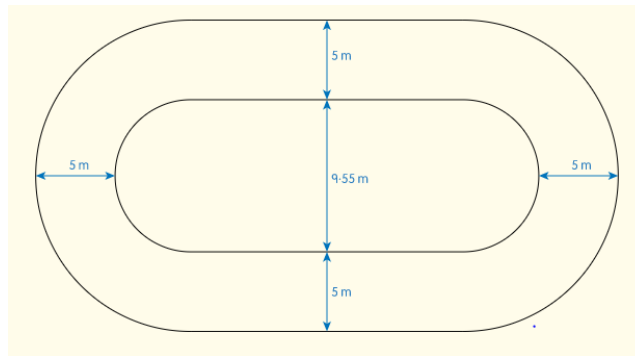
Circumference, *C*, of the circle is 15 × 2 = 30 m.
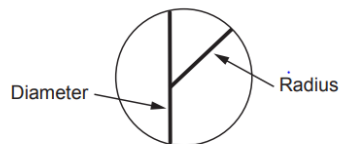
$C \approx 3 \cdot 14d$

$30 \approx 3 \cdot 14d$

$d \approx 30 \div 3 \cdot 14$

Circle's diameter is approximately 9·55 m.

Can you..?

- Bob has labelled the parts of a circle. Do you agree with his labels? Can you explain why?

Diameter — Radius

- Can you explain the relationship between the diameter and radius of any circle?

- Alexi measures the radius of a circle as 19mm. Can you identify the length of the diameter?
Explain your thinking.