

# Year 10 Maths Learning Journey

## Spring Term 2

### Geometry: Circles

Core knowledge	Reference
Recognise and label parts of a circle (R) "What's the difference between a segment and a sector?"	WORKSHEET
Calculate fractional parts of a circle "What are the formulae for the area and circumference of a circle? How do you remember which is which?"	WORKSHEET
Calculate the length of an arc "Why is the perimeter of a semicircle not just half the circumference of the circle?"	WORKSHEET
Calculate the area of a sector "If the angle formed by a sector is e.g. 80 degrees, what fraction of the circle is the sector?"	<u>WORKSHEET</u>
Circle theorem: Angles at the centre and circumference (H) "How do you identify the 'angle at the centre' and the 'angle at the circumference'?"	<u>WORKSHEET</u>
Circle theorem: Angles in a semi-circle (H) "What is the 'angle at the centre' of a circle if we have a diameter?"	WORKSHEET
Circle theorem: Angles in the same segment (H) "How many 'angles at the circumference' can be drawn from a single chord? Will they all be equal in size? Why or why not?"	WORKSHEET
Circle theorem: Angles in a cyclic quadrilateral (H) "What does cyclic mean?"	WORKSHEET
Understand and use the volume of a cylinder and cone "How can Pythagoras' theorem help us to work out the perpendicular height of a cone?"	WORKSHEET
Understand and use the volume of a sphere "How many lengths do you need to know to be able to find the volume of a sphere?"	WORKSHEET
Understand and use the surface area of a sphere "How does the surface area of a sphere compare to the area of a circle?"	WORKSHEET
Understand and use the surface area of a cylinder and cone "Which is longer, the slant height or the perpendicular height of a cone? Will this always be the case?"	WORKSHEET
Solve area and volume problems involving similar shapes (R) (H) "If one sphere has a radius half the size of another sphere, what's the relationship between their surface areas?"	<u>WORKSHEET</u>

#### **Learning Checkpoints**

LC Title	Completed	Dirt
Circles		

#### Key Vocabulary:

**Arc** – Fractional part of a circumference.

- **Chord** Line going from one part of a circumference to another.
- **Cyclic** Formed within a circle or being circular by nature.

**Diameter** – Line going from one part of the circumference to another, passing through the centre.

Hemisphere – Half of a sphere.

**Isosceles** – Having a pair of equal sides/angles.

Major Sector – Sector with centre angle greater than 180 degrees.

Minor Sector – Sector with centre angle less than 180 degrees.

**Perpendicular** – Meeting at right angles.

**Radius** – Line going from the centre of a circle to the circumference.

Scale Factor – Multiplicative quantity which describes an enlargement.

**Sector** – Fractional part of a circle, formed by two radii & and arc.

**Segment** – Part of a circle formed by an arc & a chord.

**Semi-circle** – Half of a circle.

**Subtended** – To be opposite or to extend from one side of a line to another.

Surface Area – Measure of space on the surface of an object.

**Tangent** – Line touching curve in 1 location following the direction of the curve at that point.