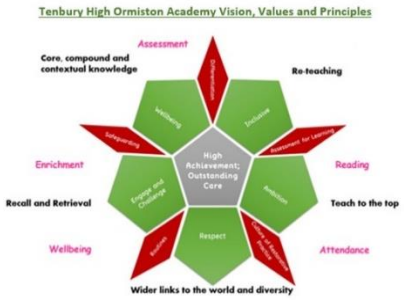
TENBURY HIGH
ORMISTON ACADEMY



Curriculum Overview for Mathematics
Year 8

Half Term 3: Properties of Shapes

Declarative Knowledge:

- Recall the side and angle properties of different types of triangles
- Explain the difference between interior and exterior angles
- Know that angles around a point sum to 360 degrees
- Recall that vertically opposite angles are equal
- Recall side and angle properties of common quadrilaterals
- Identify side and angle properties of uncommon quadrilaterals
- Identify the diagonals of a shape
- Recognise and describe quadrilaterals using properties of their diagonals
- Identify side and angle properties of uncommon quadrilaterals
- Explain the difference between interior and exterior angles
- Identify the sum of an interior and exterior angle that meet at a point
- Explain why a shape is or is not a polygon
- Identify and name a variety of regular and irregular polygons
- Explain what is meant by interior and exterior angles

Procedural Knowledge:

- Apply angle facts to calculate missing angles in triangles
- Identify the sum of an interior and exterior angle that meet at a point
- Apply angle facts to calculate missing exterior angles
- Apply knowledge of interior angles of triangles to find the sum of the interior angles of any quadrilateral
- Use angle facts to calculate missing angles in quadrilaterals
- Calculate missing angles using properties of diagonals

Modelling reading of questions by the class teacher – reading like a Mathematician and BUG
Two key words at the start of each lesson defined
Expectation of Mathematical vocabulary used in lessons

Degrees, right angle, acute angle, obtuse angle, reflex angle, geometry, geometrical parallel, exterior angle, quadrilateral, square, Rectangle, parallelogram, (Isosceles) trapezium, kite, rhombus, delta, arrowhead
triangle, scalene, right-angled, isosceles, equilateral, polygon, regular, irregular
pentagon, hexagon, octagon, decagon, dodecagon, parallel, gradient, diagonal

Notation
Dash notation to represent equal lengths in shapes and geometric diagrams Arrow notation to show parallel lines

End of unit exam completed in lesson time at the end of the unit.
There will be a feedback lesson at the end of the unit, which includes relearning tasks.

End of Term 2 exam during the formal assessment window will include content from this unit, alongside Term 1 units.

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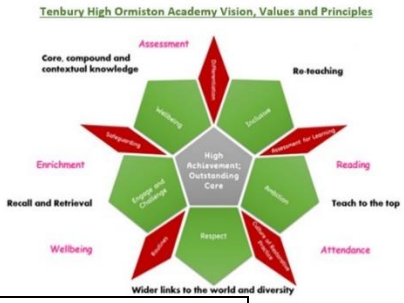
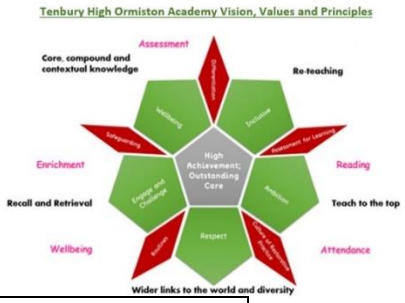


• Apply angle facts to calculate missing exterior angles • Use knowledge of triangles to identify the sum of the interior angles of a polygon • Use the sum of the interior angles to find the size of missing angles in a regular polygon • Find the size of missing angles in an irregular polygon given the sum of its interior angles • Use the formula to find the sum of the interior angles of any polygon • Use an interior angle to find an exterior angle • Find the sum of the exterior angles of any polygon • Find the size of an exterior angle of a regular polygon **Conditional Knowledge:** • Derive the formula for the sum of the interior angles of any polygon • Find the size of missing angles in an irregular polygon by first finding the sum of its interior angles • Explain why a polygon is or is not regular • Use the size of an exterior angle to find the number of sides of a regular polygon • Explain why a shape is or is not a polygon		
Half Term 4: Circles and Volume **Declarative Knowledge:** • Know circle definitions and properties, including: centre, radius, chord, diameter, circumference		Modelling reading of questions by the class teacher – teaching like a Mathematician Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons



Procedural Knowledge:

- Calculate circumference using π and d
- Calculate circumference using π and r
- Calculate the perimeter of a semi-circle
- Calculate the perimeter of composite shapes that include sections of a circle
- Calculate length of an arc with an angle that is a factor of 360^0
- Use πr^2 to find the area
- Find the area of circular compound shapes
- Find the area of sectors with angles that are factors of 360^0
- Use and apply the formula to calculate the volume of cuboids
- Calculate the surface area of prisms (including cubes and cuboids)
- Calculate the surface area of spheres and pyramids
- Calculate volume of prisms (including cubes and cuboids)
- Calculate volume of spheres, pyramids and composite solids
- Construct SSS, SAS and ASA triangles

Conditional Knowledge:

- Calculate diameter and radius given circumference
- Find radius and diameter given area
- Find the area of compound shapes including rectilinear shapes and their properties
- Find missing lengths given the volume of a cuboid
- Find missing lengths given the surface area of a cuboid
- Find missing lengths given the volume of a prism
- Find the radius/ diameter given the volume of a cylinder
- Compare lengths, areas and volumes using ratio notation

Circle
Centre
Radius, diameter, chord, circumference
Pi
(Right) prism
Cross-section
Cylinder
Polygon, polygonal
Solid
Cube, cuboid
Square millimetre, square centimetre, square metre, square kilometre
Cubic centimetre, centimetre cube
Formula, formulae
Length, breadth, depth, Height, width
SSS
SAS
ASA

Notation
π
Abbreviations of units: km, m, cm, mm, mm^2, cm^2, m^2, km^2, mm^3, cm^3, km^3

There will be a formal end of half-term exam incorporating the 2 units studied during the half-term and will recall work from Half-Term 1
We will re-teach during an Exam Review lesson after the assessment

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