

## Year 9 Mathematics department scheme of work

Chapter	Title	Objectives	Resource links:
1	Whole numbers and decimals	<ul style="list-style-type: none"> <li>• Multiply and divide by 10, 100, 0.1 and 0.01.</li> <li>• Round positive whole numbers to the nearest 10, 100 or 1000.</li> <li>• Round decimals to the nearest whole number or one decimal place.</li> <li>• Use the BIDMAS rules to do a calculation in the correct order.</li> <li>• Find factors, multiples and test numbers for divisibility.</li> <li>• Identify prime numbers and write a number as the product of its prime factors.</li> <li>• Find lowest common multiples (LCM) and highest common factors (HCF). Order decimals.</li> </ul>	<a href="#">1 - Whole numbers and decimals</a>
2	Measures and area	<ul style="list-style-type: none"> <li>• Convert one metric unit to another.</li> <li>• Know rough metric equivalents of some imperial units. Calculate the area of a rectangle.</li> <li>• Deduce and use the formula for the area of a triangle. Calculate the area of a parallelogram.</li> <li>• Use <math>\pi</math> (pi) to calculate the circumference of a circle.</li> </ul>	<a href="#">2 - Measures, perimeter and area</a>
3	Expressions and formulae	<ul style="list-style-type: none"> <li>• Simplify expressions by collecting like terms.</li> <li>• Expand brackets.</li> <li>• Substitute values into expressions with brackets.</li> <li>• Substitute into formulae.</li> <li>• Rearrange basic formulae.</li> <li>• Form expressions.</li> </ul>	<a href="#">3 - Expressions and formulae</a>

4	Fractions, decimals and percentages	<ul style="list-style-type: none"> <li>• Add and subtract fractions.</li> <li>• Find the fraction of a quantity.</li> <li>• Multiply and divide integers by fractions.</li> <li>• Convert fractions to decimals.</li> <li>• Compare fractions and decimals.</li> <li>• Find the percentage of a quantity.</li> <li>• Find a percentage increase or decrease.</li> <li>• Write one number as a percentage of another. Calculate percentage changes.</li> </ul>	<a href="#">4 - Fractions, decimals and percentages</a>
5	Angles and 2D shapes	<ul style="list-style-type: none"> <li>• Identify alternate and corresponding angles.</li> <li>• Use side and angle properties of triangles to solve problems.</li> <li>• Use the angle sum of a triangle and properties of exterior and interior angles to solve problems.</li> <li>• Use the angle sum of a quadrilateral.</li> <li>• Recognise, name and classify different quadrilaterals.</li> </ul>	<a href="#">5 - Angles and shapes</a>
6	Graphs	<ul style="list-style-type: none"> <li>• Plot coordinates in all four quadrants.</li> <li>• Identify and draw horizontal and vertical lines on a graph. Construct tables of values for graphs.</li> <li>• Draw and understand straight line graphs.</li> <li>• Identify the point where two straight lines intersect.</li> <li>• Read and interpret real life graphs.</li> <li>• Understand and draw time series graphs.</li> </ul>	<a href="#">6 - Graphs</a>
7	Calculations	<ul style="list-style-type: none"> <li>• Use mental methods to add, subtract, multiply and divide whole numbers.</li> <li>• Use columns to add and subtract whole numbers or decimals.</li> <li>• Use long multiplication.</li> <li>• Multiply numbers with one decimal place by a single-digit number.</li> <li>• Use short and long division.</li> <li>• Round numbers and use rounding to make estimates.</li> <li>• Interpret the remainder in a division calculation.</li> </ul>	<a href="#">7 - Mental calculations</a>
8	Statistics	<ul style="list-style-type: none"> <li>• Identify primary and secondary data.</li> </ul>	<a href="#">8 - Statistics</a>

		<ul style="list-style-type: none"> <li>• Plan how to collect data and use a suitable method to collect it.</li> <li>• Construct frequency tables for discrete data.</li> <li>• Interpret and draw bar charts.</li> <li>• Draw pie charts.</li> <li>• Find the mode, median, mean and range of a set of data.</li> <li>• Construct and interpret scatter graphs.</li> <li>• Construct and use stem-and-leaf diagrams.</li> </ul>	
9	Transformation and symmetry	<ul style="list-style-type: none"> <li>• Recognise reflection and rotational symmetry of 2D shapes. Reflect shapes in mirror lines.</li> <li>• Use vectors to translate shapes in any direction.</li> <li>• Rotate shapes about a centre of rotation.</li> <li>• Enlarge shapes using whole number and fractional scale factors.</li> <li>• Enlarge shapes through a centre of enlargement.</li> <li>• Use and draw scale drawings.</li> </ul>	<a href="#">9 - Transformations and symmetry</a>
10	Equations	<ul style="list-style-type: none"> <li>• Understand what an equation is.</li> <li>• Calculate the unknown value in equations.</li> <li>• Use balancing to solve equations.</li> <li>• Solve equations with unknowns on both sides.</li> <li>• Write equations from real-life situations.</li> </ul>	<a href="#">10 - Equations</a>
11	Powers and roots	<ul style="list-style-type: none"> <li>• Identify and understand square numbers.</li> <li>• Calculate and estimate square roots.</li> <li>• Know the meaning of an index.</li> <li>• Find numbers written in index form.</li> <li>• Multiply and divide numbers by powers of 10.</li> <li>• Write numbers in standard form.</li> </ul>	<a href="#">11 - Written and calculator methods</a>
12	Constructions	<ul style="list-style-type: none"> <li>• Use a protractor to draw acute and obtuse angles.</li> <li>• Construct a triangle given two angles and the side between them (ASA).</li> <li>• Use a ruler and compasses to construct the perpendicular bisector of a line.</li> <li>• Use a ruler and compasses to bisect an angle.</li> </ul>	<a href="#">12 - Constructions</a>

		<ul style="list-style-type: none"> <li>• Construct a triangle given two sides and the angle between them (SAS). Construct a triangle given three sides (SSS).</li> <li>• Use bearings to specify a direction.</li> </ul>	
13	Sequences	<ul style="list-style-type: none"> <li>• Identify and use term-to-term rules.</li> <li>• Generate sequences using term-to-term rules.</li> <li>• Find and use position-to-term rules.</li> <li>• Find and use the nth term.</li> </ul>	<a href="#">13 - Sequences</a>
14	3D shapes	<ul style="list-style-type: none"> <li>• Describe properties of solid shapes. Construct and use nets of solid shapes.</li> <li>• Use plans and elevations.</li> <li>• Find the volume of a cuboid.</li> <li>• Find volumes of shapes made from cuboids.</li> <li>• Find the surface area of a cuboid.</li> </ul>	<a href="#">14 - 3D shapes</a>
15	Ratio and proportion	<ul style="list-style-type: none"> <li>• Simplify equivalent ratios.</li> <li>• Divide an amount in a given ratio.</li> <li>• Use multipliers to solve ratio and proportion problems. Express an amount as a percentage of another amount. Compare simple proportions by converting to percentages. Solve problems involving direct proportion.</li> <li>• Make financial decisions.</li> </ul>	<a href="#">15 - Ratio and proportion</a>
16	Probability	<ul style="list-style-type: none"> <li>• Understand and use the probability scale from 0 to 1.</li> <li>• Find the probabilities for mutually exclusive events.</li> <li>• Find probabilities based on equally likely outcomes.</li> <li>• Use a sample-space diagram to show the possible outcomes of two events.</li> <li>• Find and interpret probabilities based on experimental data.</li> <li>• Use Venn diagrams to find probabilities.</li> </ul>	<a href="#">16 - Probability</a>