

Year 9 Maths Curriculum Map

Overview	At this point we begin to study GCSE content. Our curriculum is tailored to meet students' needs according to prior attainment. Learners follow either the Higher or Foundation pathway, although we allow for mobility between these tiers through the course. Students will continue to develop a greater understanding of how topics relate and intertwine across the syllabus. The higher and foundation tier schemes of work are shown below – knowledge required only on the higher tier are emboldened. The final assessment at the end of the year helps us to place each student in the best class to begin KS4 study in year 10.		
Year 9	Autumn 1 and 2	Spring 1 and 2	Summer 1 and 2
Topic	Unit 1: Number Unit 2: Algebra	Unit 3: Dealing with data Unit 4: Fractions, ratio, percentage	Unit 5: Angles & trigonometry Unit 6: Graphs
Assessment	October - Unit 1 Assessment Christmas – Unit 1-2 Assessment	Easter – Unit 1-4 Assessment	End of KS3 Assessment in June – covering a broad range of mathematical skills studied throughout KS3.
Knowledge	<p>Our learners can: Understand the meaning and representation of ratio Understand and use ratio notation Solve problems involving ratios of the form 1 : n (or n : 1) Solve problems involving ratios of the form m : n Divide in a given ratio Express ratios in their simplest integer form Express ratios in the form 1 : n (H) Compare ratios and fractions Understand pi as a ratio Understand gradient as a ratio (H) Solve problems involving direct proportion Explore conversion graphs Convert between currencies Explore direct proportion graphs (H) fractions.</p> <p>Use equations to solve problems. Substitute numbers into formulae. Rearrange formulae. Distinguish between expressions, equations, formulae and identities. Find a general formula for the nth term of an arithmetic sequence. Determine whether a particular number is a term of a given arithmetic sequence.</p>	<p>Our learners can:</p> <p>Construct and use back-to-back stem and leaf diagrams. Construct and use frequency polygons and pie charts. Plot and interpret time series graphs. Use trends to predict what might happen in the future. Plot and interpret scatter graphs. Determine whether or not there is a linear relationship between two variables. Draw a line of best fit on a scatter graph. Use the line of best fit to predict values. Decide which average is best for a set of data. Estimate the mean and range from a grouped frequency table. Find the modal class and the group containing the median. Construct and use two-way tables. Choose appropriate diagrams to display data. Recognise misleading graphs. Add, subtract, multiply and divide fractions and mixed numbers. Find the reciprocal of an integer, decimal or fraction. Write ratios in the form 1 : n or n : 1.</p>	<p>Our learners can:</p> <p>Derive and use the sum of angles in a triangle and in a quadrilateral. Derive and use the fact that the exterior angle of a triangle is equal to the sum of the two opposite interior angles. Calculate the sum of the interior angles of a polygon. Use the interior angles of polygons to solve problems. Know the sum of the exterior angles of a polygon. Use the angles of polygons to solve problems. Calculate the length of the hypotenuse in a right-angled triangle. Calculate the length of a shorter side in a right-angled triangle. Solve problems using Pythagoras' theorem. Use trigonometric ratios to find lengths in a right-angled triangle. Use trigonometric ratios to solve problems. Use trigonometric ratios to calculate an angle in a right angled triangle. Find angles of elevation and angles of depression. Use trigonometric ratios to solve problems.</p>

	<p>Solve problems using geometric sequences. Work out terms in Fibonacci-like sequences. Find the nth term of a quadratic sequence. Use the difference of two squares.</p> <p>Factorise quadratics of the form $x^2 + bx + c$.</p>	<p>Compare ratios.</p> <p>Find quantities using ratios.</p> <p>Solve problems involving ratios.</p> <p>Convert between currencies and measures. Recognise and use direct proportion.</p> <p>Solve problems involving ratios and proportion. Work out percentage increases and decreases. Solve real-life problems involving percentages.</p>	<p>Know the exact values of the sine, cosine and tangent of some angles.</p> <p>Find the gradient and y-intercept from a linear equation. Rearrange equations into the form $y = mx + c$.</p> <p>Compare two graphs from their equations.</p> <p>Plot graphs with equations $ax + by = c$.</p> <p>Sketch graphs using the gradient and intercepts. Find the equation of a line, given its gradient and one point on the line.</p> <p>Find the gradient of a line through two points. Draw and interpret distance–time graphs.</p> <p>Calculate average speed from a distance–time graph.</p> <p>Understand velocity–time graphs.</p> <p>Find acceleration and distance from velocity–time graphs. Draw and interpret real-life linear graphs.</p> <p>Recognise direct proportion.</p> <p>Draw and use a line of best fit.</p> <p>Find the coordinates of the midpoint of a line segment.</p> <p>Find the gradient and length of a line segment. Find the equations of lines parallel or perpendicular to a given line.</p> <p>Draw quadratic graphs.</p> <p>Solve quadratic equations using graphs.</p> <p>Identify the line of symmetry of a quadratic graph.</p> <p>Interpret quadratic graphs relating to real-life situations. Draw graphs of cubic functions.</p> <p>Solve cubic equations using graphs.</p> <p>Draw graphs of reciprocal functions.</p> <p>Recognise a graph from its shape.</p> <p>Interpret linear and non-linear real-life graphs. Draw the graph of a circle.</p>
Skills	<p>Students will increase their resilience during the course through learning new concepts, using prior knowledge to develop mathematical fluency and applying skills to a variety of situations and problems. Our mathematical activities will have the aim of developing both skills and high aspirations in both this subject and life beyond. Resilience will also be developed within the key maths skills below (fluency, reasoning and problem solving).</p> <p>Students will be given the opportunity to work together to develop and share their ideas on topics, discuss misconceptions and how these topics can be used in real life situations. Students will develop creativity through a variety of problem-solving activities within each topic, working on independent tasks beyond the classroom using SPARX Maths, and apply the key skills (fluency, reasoning and problem solving).</p>		