



Year 8 Maths Curriculum Map

Overview	The Scheme of Work in Year 8 builds and extends from Year 7. Key foundation concepts are revisited and embedded with the number strand, whilst algebraic fluency is expanded and developed. In the statistics strand, students begin to use their prior knowledge to compare and draw conclusions from data. New key facts are met and utilised in shape and space.		
Year 8	Autumn 1 & 2	Spring 1 & 2	Summer 1 & 2
Topic	Unit 1: Developing Number Unit 2: Area & Volume Unit 3: Statistics, graphs & charts Unit 4: Expressions & equations	Unit 5: Real life graphs Unit 6: Decimals & ratio Unit 7: Lines & angles	Unit 8: Calculating with fractions Unit 9: Straight line graphs Unit 10: Percentages, decimals, fractions
Knowledge	<p>Our learners can:</p> <ul style="list-style-type: none"> Use written methods to add and subtract with decimals. Calculate mentally. Calculate with money. Estimate answers to calculations. Add, subtract, multiply and divide positive and negative numbers. Calculate using squares, square roots, cubes and cube roots. Use index notation for powers of numbers. Estimate the square root of a number. Use mental methods to calculate combinations of powers roots and brackets. Substitute numbers into formulas involving power, roots and brackets. Use index notation. Write a number as a product of its prime factors. Use prime factor decomposition to find the HCF and LCM. <p>Derive and use the formula for the area of a triangle.</p> <p>Find areas of compound shapes.</p> <p>Calculate areas of parallelograms & trapezia.</p> <p>Calculate the volume of cubes and cuboids.</p> <p>Sketch nets of 3D solids.</p> <p>Calculate the surface area of cubes and cuboids.</p>	<p>Our learners can:</p> <ul style="list-style-type: none"> Read values from conversion graphs. Plot conversion graphs from a table of data. Interpret distance-time graphs. Plot distance-time graphs from descriptive text. Use distance-time graphs to solve problems. Plot line graphs from tables of data. Interpret line graphs. Reading values from real-life graphs. Describe trends and making predictions based on information presented graphically. Draw, use and interpret conversion and real-life graphs. Discuss and interpret linear and non-linear graphs. Use graphs to solve problems and make predictions. <p>Round whole numbers and decimals.</p> <p>Write large numbers as a decimal number of millions.</p> <p>Order positive and negative decimals.</p> <p>Use the symbols $>$ and $<$ between two negative decimals.</p> <p>Multiply larger numbers.</p>	<p>Our learners can:</p> <ul style="list-style-type: none"> Add and subtract fractions with any size denominator. Multiply integers and fractions by a fraction. Use appropriate methods for multiplying fractions. Convert fractions to decimals. Write one amount as a fraction of another. Find the reciprocal of a number. Divide integers and fractions by a fraction. Use strategies for dividing fractions. Use the four operations with mixed numbers. <p>Recognise when values are in direct proportion.</p> <p>Plot graphs and read values to solve problems.</p> <p>Plot a straight-line graph and work out its gradient.</p> <p>Plot the graphs of linear functions.</p> <p>Find midpoints of line segments.</p> <p>Write the equations of straight line graphs in the form $y = mx + c$</p> <p>Identify and describe practical examples of direct proportion.</p> <p>Solve problems involving direct proportion with or without a graph.</p> <p>Recall equivalent fractions and decimals.</p>

	<p>Interpret simple pie charts. Calculate angles and draw pie charts. Draw and interpret two-way tables. Calculate the mean from a simple frequency table. Tally data into a grouped frequency table, design a grouped frequency table, using $a \leq x < b$ notation, find modal class and estimate range. Draw and interpret stem and leaf diagrams with different stem values. Find mode, median and range from stem and leaf diagrams, and compare them for different data sets. Compare data using averages and range, including mean calculated from frequency table. Compare data using the shape of a line graph or pie chart. Draw line graphs to compare sets of data. Decide on the most appropriate average to use. Draw scatter graphs. Describe types of correlation. Draw a line of best fit by eye on a scatter graph. Identify graphs and charts that are misleading.</p> <p>Understand & simplify algebraic powers. Substitute values into formulas involving powers. Expand brackets. Make and simplify algebraic expressions. Factorise expressions. Find the inverse of a function. Solve simple equations using function machines. Solve real life problems using equations. Solve two-step equations using function machines. Solve equations using the balancing method. Solve equations with the unknown number on both sides.</p>	<p>Multiply decimals with up to two decimal places. Multiply any number by 0.1 and 0.01. Add and subtract decimals of any size. Multiply and divide by decimals. Dividing by 0.1 and 0.01. Use ratios involving decimals. Solve proportion problems involving decimals. Use unit ratios.</p> <p>Match quadrilaterals to their descriptions. Use known facts about quadrilaterals to solve problems. Use alternate angles to find unknown angles. Solve geometrical problems using side and angle properties of triangles and quadrilaterals. Identify corresponding angles. Solve problems using properties of angles in parallel and intersecting lines. Calculate the interior and exterior angles of a polygon. Find unknown angles by forming and solving equations. Solve geometrical problems showing reasoning.</p>	<p>Recognise recurring and terminating decimals. Order fractions by converting them to decimals or equivalent fractions. Recall equivalent fractions, decimals and percentages. Use different methods to find equivalent fractions, decimals and percentages. Use the equivalence of fractions, decimals and percentages to compare proportions. Work out one number as a percentage of another. Work out percentage increase and decrease. Use a multiplier to calculate percentage increase and decrease. Use the unitary method to solve percentage problems. Use strategies for calculating fractions and decimals of a given number. Use mental strategies of conversion and equivalence of fractions, decimals and percentages to solve word problems mentally.</p>
<p>Skills</p>	<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.</p> <p>Students will develop creativity through a variety of problem solving activities within each topic, working on independent tasks beyond the classroom using HegartyMaths, and apply the key skills (fluency, reasoning and problem solving).</p>		