



## Year 8 Maths Curriculum Map

<b>Overview</b>	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.		
<b>Year 8</b>	Autumn 1 & 2	Spring 1 & 2	Summer 1 & 2
<b>Topic</b>	Unit 1: Ration and Skills Unit 2: Multiplicative Change Unit 3: Multiplying and Dividing Fractions Unit 4: Working in the Cartesian Plain Unit 5: Representing Data Unit 6: Tables and Probability	Unit 7: Brackets, Equations & Inequalities Unit 8: Sequences Unit 9: Indices Unit 10: Fractions and Percentages Unit 11: Standard Index Form Unit 12: Number Sense	Unit 13: Angles in Parallel Lines and Polygons Unit 14: Area of Trapezia and Circles Unit 15: Line Symmetry and Reflection Unit 16: The Data Handling Cycle Unit 17: Measures of Location
<b>Assessment</b>	Assessment of all topics covered, at the end of term.		
<b>Knowledge</b>	<p>Our learners can:</p> <p>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)</p> <p>Solve problems involving direct proportion Explore conversion graphs Convert between currencies Explore direct proportion graphs (H)</p>	<p>Our learners can:</p> <p>Form algebraic expressions Use directed number with algebra Multiply out a single bracket Factorise into a single bracket Expand multiple single brackets and simplify Expand a pair of binomials (H) Solve equations, including with brackets Form and solve equations with brackets Understand and solve simple inequalities Form and solve inequalities Solve equations and inequalities with unknowns on both sides (H) Form and solve equations and inequalities with unknowns on both sides (H) Identify and use formulae, expressions, identities and equations</p> <p>Generate sequences given a rule in words</p>	<p>Our learners can:</p> <p>Understand and use basic angle rules and notation Investigate angles between parallel lines and the transversal Identify and calculate with alternate and corresponding angles Identify and calculate with co-interior, alternate and corresponding angles Solve complex problems with parallel line angles Constructions triangles and special quadrilaterals Investigate the properties of special quadrilaterals Identify and calculate with sides and angles in special quadrilaterals Understand and use the properties of diagonals of quadrilaterals Understand and use the sum of exterior angles</p>

<p>Explore relationships between similar shapes Understand scale factors as multiplicative representations Draw and interpret scale diagrams Interpret maps using scale factors and ratios</p> <p>Represent multiplication of fractions Multiply a fraction by an integer Find the product of a pair of unit fractions Find the product of a pair of any fractions Divide an integer by a fraction Divide a fraction by a unit fraction Understand and use the reciprocal Divide any pair of fractions Multiply and divide improper and mixed fractions Multiply and divide algebraic fractions</p> <p>Work with coordinates in all four quadrants Identify and draw lines that are parallel to the axes Recognise and use the line <math>y=x</math> Recognise and use lines of the form <math>y=kx</math> Link <math>y=kx</math> to direct proportion problems Explore the gradient of the line <math>y=kx</math> (H) Recognise and use lines of the form <math>y=x+a</math> Explore graphs with negative gradient (<math>y=-kx</math>, <math>y=a-x</math>, <math>x+y=a</math>) Link graphs to linear sequences Plot graphs of the form <math>y=mx+c</math> Explore non-linear graphs (H) Find the midpoint of a line segment (H)</p> <p>Draw and interpret scatter graphs Understand and describe linear correlation Draw and use line of best fit Identify non-linear relationships Identify different types of data Read and interpret ungrouped frequency tables</p>	<p>Generate sequences given a simple algebraic rule Generate sequences given a complex algebraic rule</p> <p>Adding and subtracting expressions with indices Simplifying algebraic expressions by multiplying indices Simplifying algebraic expressions by dividing indices Using the addition law for indices Using the addition and subtraction law for indices Exploring powers of powers (H)</p> <p>Convert fluently between key fractions decimals and percentages Calculate key fractions, decimals and percentages of an amount without a calculator Calculate fractions, decimals and percentages of an amount using calculator methods Convert between decimals and percentages greater than 100% Percentage decrease with a multiplier Calculate percentage increase (H) and decrease using a multiplier Express one number as a fraction or a percentage of another without a calculator Express one number as a fraction or a percentage of another using calculator methods Work with percentage change Choose appropriate methods to solve percentage problems Find the original amount given the percentage less than 100% (H) Find the original amount given the percentage greater than 100% (H) Choose appropriate methods to solve complex percentage problems (H)</p>	<p>of any polygon Understand and use the sum of the interior angles in any polygon Calculate missing interior angles in regular polygons Prove simple geometric facts (H) Construct an angle bisector (H) Construct a perpendicular bisector of a line segment (H)</p> <p>Calculate the area of triangles, rectangles and parallelograms Calculate the area of a trapezium Calculate the perimeter and area of compound shapes (1) Investigate the area of a circle Calculate the area of a circle and parts of a circle without a calculator Calculate the area of a circle and parts of a circle with a calculator Calculate the perimeter and area of compound shapes (2)</p> <p>Recognise line symmetry Reflect a shape in a horizontal or vertical line 1 (shapes touching the line) Reflect a shape in a horizontal or vertical line 2 (shapes not touching the line) Reflect a shape in a diagonal line 1 (shapes touching the line) Reflect a shape in a diagonal line 2 (shapes not touching the line)</p> <p>Set up a statistical enquiry Design and criticise questionnaires Draw and interpret pictograms, bar charts and vertical line charts Draw and interpret multiple bar charts Draw and interpret pie charts</p>
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	<p>Read and interpret grouped frequency tables  Represent grouped discrete data  Represent continuous data grouped into equal classes  Construct and interpret two-way tables</p> <p>Construct sample spaces for one or more events  Find probabilities from a sample space  Find probabilities from two-way tables  Find probabilities from Venn diagrams  Use the product rule for finding the total number of possible outcomes</p>	<p>Investigate positive powers of 10  Work with numbers greater than 1 in standard form  Investigate negative powers of 10  Work with numbers between 0 and 1 in standard form  Compare and order numbers in standard form  Mentally calculate with numbers in standard form  Add and subtract numbers in standard form  Multiply and divide numbers in standard form  Use a calculator to work with numbers in standard form  Understand and use negative indices (H)  Understand and use fractional indices (H)</p> <p>Round numbers to powers of 10 and 1 significant figure  Round numbers to a given number of decimal places  Estimate the answer to a calculation  Understand and use error interval notation (H)  Calculate using the order of operations  Calculate with money  Convert metric measures of lengths  Convert metric units of weight and capacity  Convert metric units of area (H)  Convert metric units of volume (H)  Solve problems involving time and the calendar</p>	<p>Draw and interpret line graphs  Choose the most appropriate diagram for a given set of data  Represent and interpret grouped quantitative data  Find and interpret the range  Compare distributions using charts  Identify misleading graphs</p> <p>Understand and use the mean, median and mode  Choose the most appropriate average  Find the mean from an ungrouped frequency table (H)  Find the mean from an grouped frequency table (H)  Identify outliers</p>
<p><b>Skills</b></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>		

	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).
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