

Year 8 Curriculum Overview [2022-2023]

Subject – Maths

	Knowledge & Understanding			Literacy Skills Opportunities for developing literacy skills	Employability Skills [if any]	Assessment Opportunities
	Composites	Components [includes understanding of KEY concepts & subject specific vocab]	Formal Retrieval [if any]			
HT1 Proportional reasoning	<u>Ratio and scale</u> (Weeks 1 and 2)	<ul style="list-style-type: none"> Understand ratio and its link to multiplication Use ratio notation Reduce ratios to simplest form Solve ratio problems Calculate the circumference of a circle <p>Ext</p> <ul style="list-style-type: none"> Express any ratio in the form 1:n 	<ul style="list-style-type: none"> Mathsbox skills check 10 questions – once per week and one set for HWK – once a week Skills check tested once per half term in class Retrieval starters used 	<ul style="list-style-type: none"> Key words – learned and understood Encourage use of subject language Questioning Pupil explanations and reasoning 	<ul style="list-style-type: none"> Chef Working in the catering industry Business Architecture Surveyor Financial Currency exchange Hairdressers Medical 	<ul style="list-style-type: none"> End of block formative assessment
	<u>Multiplicative scale</u> (Weeks 3 and 4)	<ul style="list-style-type: none"> Use scale factors, linking to ratio, to solve simple direct proportion problems Convert between currencies, including using graphs Draw and interpret scale diagrams and maps <p>Ext</p> <ul style="list-style-type: none"> Explore direct proportion graphs 				<ul style="list-style-type: none"> End of block formative assessment
	<u>Multiplying and dividing fractions</u> (Weeks 5 and 6)	<ul style="list-style-type: none"> Multiply and divide a fraction by an integer Multiply and divide a fraction by a fraction Understand and use the reciprocal 				<ul style="list-style-type: none"> End of block formative assessment

		<p>Ext</p> <ul style="list-style-type: none"> • Multiply and divide mixed numbers • Multiply and divide simple algebraic fractions <p>Adding and subtracting fractions</p> <ul style="list-style-type: none"> • Understand representations of fractions • Convert mixed numbers and improper fractions • Understand and use equivalent fractions • Add and subtract fractions with the same and a different denominator • Add and subtract a combination of fractions and decimals • Add and subtract improper fractions & mixed numbers <p>Ext Add and subtract simple algebraic fractions</p>			<ul style="list-style-type: none"> • Business • Construction work • Retail • Hotel and catering 	
<p>HT2 Representation</p>	<p>Working in the cartesian plane (Weeks 7 to 9)</p>	<ul style="list-style-type: none"> • Plot and interpret straight line graphs • Understand and use the equations of a straight line, including lines parallel to the axes • Make links between direct proportion and straight lines in the form $y = kx$ • Model situations by translating them into expressions, formulae and graphs <p>Ext</p> <ul style="list-style-type: none"> • Find the mid-point of a line segment • Explore gradient • Explore non-linear graphs 	<ul style="list-style-type: none"> • Mathsbox skills check 10 questions – once per week and one set for HWK – once a week • Skills check tested once per half term in class • Retrieval starters used 	<ul style="list-style-type: none"> • Key words – learned and understood • Encourage use of subject language • Questioning • Pupil explanations and reasoning • Law • Medical 	<ul style="list-style-type: none"> • Jobs that require a statistics background • Data Analyst 	<ul style="list-style-type: none"> • End of block formative assessment

	<p><u>Representing data</u> (weeks 10 and 11)</p>	<ul style="list-style-type: none"> • Draw and interpret scatter graphs • Understand correlation • Draw and use lines of best fit • Understand grouped and ungrouped, discrete and continuous data • Design and use one and two-way tables 				<ul style="list-style-type: none"> • End of block formative assessment
	<p><u>Tables & probability</u> (week 12)</p>	<ul style="list-style-type: none"> • List outcomes using sample space diagrams for one and two events • Find probabilities using tables and Venn diagrams <p><u>Ext</u></p> <ul style="list-style-type: none"> • Use the product rule for counting 				<p>Summative end of term assessment</p>

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HT3 Algebraic Techniques	<u>Brackets, equations and inequalities</u> (Weeks 1 to 4)	<ul style="list-style-type: none"> Expand, and factorise into, single brackets Form and use expressions, formulae and identities Form and solve equations and inequalities with and without brackets Distinguish between equations, expressions, formulae and identities <p>Ext: Expand a pair of binomials</p> <ul style="list-style-type: none"> Solve equations and inequalities with unknowns on both sides 	<ul style="list-style-type: none"> Mathsbox skills check 10 questions – once per week and one set for HWK – once a week Skills check tested once per half term in class Retrieval starters used 	<ul style="list-style-type: none"> Key words – learned and understood Encourage use of subject language Questioning Pupil explanations and reasoning 	<ul style="list-style-type: none"> Medical 	<ul style="list-style-type: none"> End of block formative assessment
	<u>Sequences</u> Week 5	<ul style="list-style-type: none"> Generate sequences given a word Generate a sequence given a simple rule Find the rule for the nth term of a linear sequence <p>Ext: Generate sequences given a complex algebraic rule</p>				<ul style="list-style-type: none"> End of block formative assessment
	<u>Indices</u> Week 6	<ul style="list-style-type: none"> Adding and subtracting expressions with indices Simplifying algebraic expressions by multiplying and dividing indices Use the addition and subtractions laws for indices <p>Ext: Explore powers of powers</p>				<ul style="list-style-type: none"> End of block formative assessment

HT4 Developing number	<u>Fractions and percentages</u>	<ul style="list-style-type: none"> Convert fluently between key fractions, decimals and percentages, and calculate them without a calculator Calculate fractions, decimals and percentages of amounts using calculator methods Calculate percentage increase and decrease using a multiplier Express one number as a fraction or percentage of another Use percentage change <p>Ext: Use reverse percentages to find the original amount</p>	<ul style="list-style-type: none"> Mathsbox skills check 10 questions – once per week and one set for HWK – once a week Skills check tested once per half term in class Retrieval starters used 	<ul style="list-style-type: none"> Key words – learned and understood Encourage use of subject language Questioning Pupil explanations and reasoning 	<ul style="list-style-type: none"> Business Retail Computing Textiles 	<ul style="list-style-type: none"> End of block formative assessment
	<u>Standard index form</u>	<ul style="list-style-type: none"> Convert between numbers in ordinary and standard form Compare numbers given in standard form Mentally calculate with numbers in standard form Use the four operations with standard form <p>Ext Understand and use fractional and negative indices</p>				<ul style="list-style-type: none"> End of block formative assessment
	<u>Number sense</u>	<ul style="list-style-type: none"> Develop mental strategies Convert between metric measures and units Use estimation, including rounding to a given number of decimal places Use the order of operations <p>Ext: Convert between units of area and volume and Use error interval notation</p>				<p>Summative end of term assessment</p>

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HT5 Developing geometry	<u>Angles in parallel lines and polygons</u>	<ul style="list-style-type: none"> • A review of basic angle facts • Understand and use angles in parallel lines and angles • Revisit geometric notation • Work out angles in special quadrilaterals • Find and use the sum of interior and exterior angles of a polygon • Prove simple geometric facts <p><u>Ext</u></p> <ul style="list-style-type: none"> • Perform standard constructions including perpendiculars <p><u>Angles</u></p> <ul style="list-style-type: none"> • Understand angles as a measure of turn • Classify, measure and draw angles between 0 and 360 degrees • Identify parallel and perpendicular lines • Recognise properties and types of shapes. E.g. Triangles and quadrilaterals • Identify polygons up to Decagons. 	<ul style="list-style-type: none"> • Mathsbox skills check 10 questions – once per week and one set for HWK – once a week • Skills check tested once per half term in class • Retrieval starters used 	<ul style="list-style-type: none"> • Key words – learned and understood • Encourage use of subject language • Questioning • Pupil explanations and reasoning 	<ul style="list-style-type: none"> • Construction • Surveyor • Architecture • Carpet fitter • Decorator 	<ul style="list-style-type: none"> • End of block formative assessment

		<ul style="list-style-type: none"> Construct triangles using a compass (SSS, SAS, ASA) <p>Ext: Construct perpendicular and angle bisectors and understand and construct loci.</p> <ul style="list-style-type: none"> Understand and use the sum of angles around a point and on a straight line. Understand and use the equality of vertically opposite angles. Know and apply the sum of angles in a triangle and in a quadrilateral. Use this skill and apply to problem solving questions. Find and apply the sum of angles in a polygons. Investigate and use angles in parallel sides. Use known facts to obtain simple proofs. 				
	<u>Area of trapezia and circles</u>	<ul style="list-style-type: none"> Review of shape work covered in year7 Calculate the area of a trapezium Calculate the area of a circle, and the area of parts of a circle Use significant figures Calculate the area of compound shapes 				<ul style="list-style-type: none"> End of block formative assessment
	<u>Line symmetry and reflection</u>	<ul style="list-style-type: none"> Recognise line symmetry in polygons and other shapes Reflect shapes in horizontal, vertical and diagonal lines Reflect shapes using equations of lines 				<ul style="list-style-type: none"> End of block formative assessment

<p style="text-align: center;">HT6 Reasoning with data</p>	<p><u>The data handling cycle</u> (Weeks 1 to 4)</p>	<ul style="list-style-type: none"> • Understand and use primary and secondary sources of data • Collect data, including using questionnaires • Interpret and construct statistical diagrams including multiple bar charts • Construct and interpret pie charts • Compare distributions using charts • Identify misleading graphs <p>Pie charts from year 7</p> <ul style="list-style-type: none"> • Interpret and draw pie charts. 	<ul style="list-style-type: none"> • Mathsbox skills check 10 questions – once per week and one set for HWK – once a week • Skills check tested once per half term in class • Retrieval starters used 	<ul style="list-style-type: none"> • Key words – learned and understood • Encourage use of subject language • Questioning • Pupil explanations and reasoning 	<ul style="list-style-type: none"> • Data Analyst • Statistician 	<ul style="list-style-type: none"> • Summative end of term assessment
	<p><u>Measures of location</u> (Weeks 5 and 6)</p>	<ul style="list-style-type: none"> • Revisit the median and mean, including finding the total given the mean • Find the mean of grouped data • Work out the mode and modal class • Choose the appropriate average • Comparing distributions using measures <p><u>Ext</u></p> <ul style="list-style-type: none"> • Find unknown data values given the mean or changes in the mean • Explore histograms for unequal groups • Find the median from a table of values 				