



CHS South Curriculum Intent

SUCCESSFUL: An education where imagination, curiosity and resilience enable us to ignite our learning.

CREATIVE: A shared belief that optimism, empathy and responsibility are the foundations for a respectful, safe and inclusive community.

HAPPY: Individuals who are ready to learn, practise being reflective, and are motivated to become champions.

CHS South Curriculum Area Framework for Learning – Year 8

SUBJECT	Maths
INTENT	Maths is a universal language that explains the world around us. The study of Mathematics enables you to make sense of everyday situations, forge links between topics and establish connections to real life context. Maths fosters curiosity, equipping students with various strategies to tackle problems; it empowers students with resilience to take risks, get it wrong, form a new strategy and start again, with determination and drive to reach the final answer. Maths is logical thinking, reasoning, intuition, analysis, construction, generalisation and beauty.



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Year Group	8					
Rationale/ Narrative	<p>In Year 8, students develop their skills in multiplicative reasoning, working on topics such as percentages, ratio and proportion. Many real life situations encountered are connected by the idea of proportionality. Recognising how these areas of Maths are connected by proportionality and the same underlying mathematics of multiplicative reasoning can help deepen students' understanding of these topics. Knowledge of basic algebra skills are revisited and then deepened, encountering topics such as quadratics and rearranging formulae.</p>					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KNOWLEDGE	<p><u>Ratio & Scale</u></p> <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><u>Multiplicative Change</u></p> <ul style="list-style-type: none"> Use scale factors, linking to ratio, solve simple direct proportion problems Convert between currencies, including using graphs Draw and interpret scale 	<p><u>Working in the Cartesian plane</u></p> <ul style="list-style-type: none"> Plot and interpret straight line graphs Understand and use equations of a straight line, including lines parallel to the axes Make links between direct proportion and straight lines of the form $y = kx$ Model situations by translating them into expressions, formulae and graphs 	<p><u>Brackets, equations and inequalities</u></p> <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><u>Sequences</u></p> <ul style="list-style-type: none"> Generate sequences using more complex rules, e.g. with 	<p><u>Fractions and Percentages</u></p> <ul style="list-style-type: none"> Develop understanding of fractions, decimals and percentages Evaluate percentages increases and decreases Use multipliers to solve percentage problems Express one number as a percentage of another <p><u>Standard Index Form</u></p> <ul style="list-style-type: none"> Convert between numbers in ordinary and standard form 	<p><u>Angles in parallel lines and polygons</u></p> <ul style="list-style-type: none"> Review Year 7 angles rules Understand and use angles in parallel lines Revisit geometric notation Work angles in special quadrilaterals Find and use the sum of the interior angles of a polygon Prove simple geometric facts <p><u>Area of trapezia and circles</u></p> <ul style="list-style-type: none"> Review area of shapes covered in Year 7 	<p><u>The data handling cycle</u></p> <ul style="list-style-type: none"> Understand and use primary and secondary sources of data Collect data, including questionnaires Interpret and construct statistical diagrams, including multiple bar charts Identify misleading graphs <p><u>Measure of location and dispersion</u></p> <ul style="list-style-type: none"> Revisit the median and mean, including finding the total given the mean



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	<p>diagrams and maps</p> <p><u>Multiplying and dividing fractions</u></p> <ul style="list-style-type: none"> • Multiply and divide fractions by integers • Multiply and divide fractions by fractions • Understand and use reciprocals 	<p><u>Representing Data</u></p> <ul style="list-style-type: none"> • Draw and interpret scatter graphs • Understand correlation • Draw and use lines of best fit • Understand grouped, ungrouped, discrete and continuous data • Design and use one and two way tables <p><u>Probability</u></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>brackets, squared terms, both in words and algebraically</p> <p><u>Indices</u></p> <ul style="list-style-type: none"> • Form expressions, using indices • Understand and use addition and subtraction rules 	<ul style="list-style-type: none"> • Calculate with numbers given in standard form, with and without a calculator <p><u>Number Sense</u></p> <ul style="list-style-type: none"> • Develop mental strategies • Convert between metric measures and units • Estimation including rounding to a given number of decimal places • Use the order of operations 	<ul style="list-style-type: none"> • Calculate the area of a trapezium • Calculate the area of a circle and the areas of parts of a circle • Use significant figures • Calculate the area of compound shapes <p><u>Line symmetry and reflection</u></p> <ul style="list-style-type: none"> • Recognise line symmetry in polygons and other shapes • Reflect shapes in horizontal, vertical and diagonal lines 	<ul style="list-style-type: none"> • Find the mean of grouped data • Work out the mode and modal class • Choose the appropriate average • Comparing distributions using measures
SKILLS	<p><u>Ratio, proportion and rates of change</u></p> <p>Change freely between related standard units [for example time, length, area,</p>	<p><u>Working in the Cartesian plane</u></p> <p>Move freely between numerical, algebraic, graphical and diagrammatic representations.</p>	<p><u>Expressions and Formulae</u></p> <p>Substitute numerical values into formulae and expressions, including scientific formulae.</p>	<p><u>Percentages</u></p> <p>Define percentage as 'number of parts per hundred'. Interpret diagrams as percentages and vice versa.</p>	<p><u>Angles in Parallel Lines and polygons</u></p> <p>Apply the properties if angles at a point, angles on a straight line and vertically opposite angles.</p>	<p><u>The Data Handling Cycle</u></p> <p>Describe, interpret and compare data. Construct and interpret appropriate tables, charts and diagrams.</p>



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	<p>volume/capacity, mass]</p> <p>Use ratio notation, including reduction to simplest form.</p> <p>Divide a given quantity into two or more parts.</p> <p>Understand that a relationship between two quantities can be expressed as a ratio or a fraction.</p> <p>Use compound units such as speed, unit pricing and density to solve problems.</p> <p>Solve problems involving direct and inverse proportion, including graphical and algebraic representations. Examples may include:</p> <ul style="list-style-type: none"> - Recipe problems - Best buy problems <p>Exchange rates</p>	<p>Make connections between number relationships and their algebraic and graphical representations.</p> <p>Substitute numerical values into formulae and expressions.</p> <p>Recognise, sketch and produce graphs of linear functions in the Cartesian plane.</p> <p><u>Representing Data</u> Construct and interpret appropriate tables charts and diagrams including frequency tables, bar charts, pie charts and pictograms.</p> <p>Describe mathematical relationships for bivariate data.</p>	<p>Using a variety of representations to simplify and manipulate algebraic expressions to maintain equivalence by:</p> <ul style="list-style-type: none"> - multiplying a single term over a bracket - taking out common factors - expanding products of two or more binomials. - simplifying expressions involving sums, products and powers, including the laws of indices. - Understand and use the vocabulary of inequalities. <p>Use a variety of methods to solve linear equations in one variable (including all forms that require rearrangement), including those with</p>	<p>Find a percentage of an amount with or without a calculator. Interpret percentages as a fraction or decimal. Compare two quantities using percentages, and work with percentages greater than 100%.</p> <p>Percentage increase, decrease and original value problems and simple interest in financial mathematics.</p> <p>Making use of fractions and decimal conversions.</p>	<p>Understand and use the relationship between parallel lines and alternate and corresponding angles.</p> <p>Derive and use the sum of the angles in a triangle and use it to deduce the angle sum in any polygon.</p> <p>Use standard conventions for labelling sides and angles.</p> <p><u>Area of trapezia and circles</u> Derive and apply formulae to calculate and solve problems involving perimeter and area of triangles, parallelograms, trapezia and circles.</p> <p>Efficient use of a calculator.</p> <p><u>Line symmetry and reflection</u> Describe, sketch and draw using conventional terms</p>	<p><u>Measures of Location</u> Describe, interpret and compare observed through appropriate measures of central tendency, such as the mean, mode, median and spread (range and outliers).</p>
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	<p><u>Fractions</u> Use a variety of representations to multiply and divide fractions including proper and improper fractions. Understanding of the reciprocal and its uses.</p>	<p><u>Tables & Probability</u> Record, describe and analyse the frequency of outcomes of simple probability experiments, involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale.</p> <p>Generate theoretical sample spaces for single or combined events.</p>	brackets and fractions.		<p>and notations, point, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that reflectively and rotationally symmetric.</p> <p>Identify properties of and describe the results of reflections applied to given figures.</p>	
ASSESSMENTS	<p>1 x Ratio & Scale Assessment</p> <p>1 x Multiplicative Change Assessment</p> <p>1 x Multiplying and Dividing Fractions Assessment</p> <p>1 x GL Assessment</p>	<p>1 x Working in the Cartesian Plane</p> <p>1 x Autumn Progress Test</p>	<p>1 x Brackets, Equations and Inequalities Assessment</p> <p>1 x Sequences & Indices Assessment</p> <p>1 x Fractions and Percentages Assessment</p>	<p>1 x Standard Form Assessment</p> <p>1 x Spring Progress Test</p>	<p>1 x Angles Assessment</p> <p>1 x Area of Trapezia and Circles Assessment</p> <p>1 x Line Symmetry Assessment</p>	<p>1 x Statistics Assessment</p> <p>1 x Summer Progress Test</p> <p>1 x GL Assessment</p>