



Mathematics Year 8

Mathematics is an interconnected subject in which students need to be able to move fluently between representations of mathematical ideas. The programme of study is organised into apparently distinct domains, but students should build on key stage 2 and connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge in science, geography, computing and other subjects.

The curriculum is taught through the six mathematical strands of: Number and Ratio, Algebra, Geometry and Measures, Statistics and Probability

	Autumn 1a	Autumn 1b	Spring 2a	Spring 2b	Summer 3a	Summer 3b
<p>CONTENT</p> <p><i>Declarative / core / powerful Knowledge – ‘Know What’</i></p>	<p>Algebra: Brackets and Expressions</p>	<p>Number Properties and Fractions</p>	<p>Estimation and Circles</p>	<p>Angles and Polygons</p>	<p>Probability</p>	<p>Ratio and Proportion</p>
<p>Intent</p>	<p>Algebra is the language of maths. As the complexity of problems increase, as does the knowledge of algebra. This half term is vital for manipulating algebra in more advanced settings.</p>	<p>The skills involving indices, factors and multiples will give students the skills to be able to manipulate fractions. These skills will also be necessary in other topics in the future</p>	<p>As the results to calculations become more complex, a new rounding strategy is needed. Rounding to significant figures will be useful for work with circles. This topic will prepare students for working in 3D.</p>	<p>This half term builds on the year 7 work on angles. These skills will be important when working with shapes where angles give us insights into a shapes properties (such as lengths in a triangle)</p>	<p>This half term will be students first insights into probability and prepares students to work in more advanced cases of probability in future years.</p>	<p>Many other areas of maths work in direct proportion/in a ratio. This topic will prepare student for working with ratio in other contexts such as similar shapes.</p>
<p>Skills</p> <p><i>Procedural Knowledge – ‘Know How’</i></p>	<p>Students will be able to:</p> <p>Expand brackets</p>	<p>Students will be able to:</p>	<p>Students will be able to:</p> <p>Round a number to a certain number</p>	<p>Students will be able to:</p>	<p>Students will be able to:</p> <p>Clear misconceptions on</p>	<p>Students will be able to:</p> <p>Simplify ratios</p>



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	<p>Solve equations involving brackets</p> <p>Find the Gradient of a line</p> <p>Read and interpret real life graphs</p>	<p>Multiply and divide expressions using the laws of indices</p> <p>Use the “power of power” rule</p> <p>Recognise prime numbers up to 97</p> <p>Proof if a number is prime by considering it’s factors</p> <p>Find all the factors of a number using factor pairs</p> <p>Use the four operations on fractions, improper fractions and mixed numbers.</p>	<p>of significant figures</p> <p>Estimate calculations</p> <p>Find the upper and lower bound of a rounded number</p> <p>Know the key parts of a circle</p> <p>Find the circumference of a circle</p> <p>Find the perimeter of a semi/quarter circle</p> <p>Find the radius of a circle, given the circumference</p> <p>Find the area of a circle</p> <p>Find the area of semi and quarter circles</p>	<p>Use the rules for angles contained within parallel lines</p> <p>Know the properties of the special quadrilaterals and solve angle problems</p> <p>Solve problems using exterior/interior angles of polygons</p>	<p>probability formed by experiences in “the real world”</p> <p>Find probability of single events in words and in numbers</p> <p>Find an experimental probability</p> <p>Use sample space diagrams for more than one event</p>	<p>Form and manipulate ratios</p> <p>Use ratios to solve problems</p> <p>Use a scaling method to solve problems in direct proportion or inverse proportion</p> <p>Solve problems involving speed, distance time</p> <p>Convert metric units of area/volume</p>
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St Mary's CE High School Curriculum Map 2024-25



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Links to careers/wider world		<p>Calculating the largest possible shares for an amount</p> <p>Supermarket discounts</p> <p>Having a data sense when giving as fractions</p>	<p>Calculating RPMs of wheels/engines</p> <p>Planning designs involving circles</p>	<p>Angles have a number of applications in STEM</p>	<p>Probability emphasises that "gut instinct" is no replacement for being calculated, and it is good decision making to go with the most likely outcomes over the long run</p>	<p>Changing the quantities in a recipe to fit the number of people you are serving</p> <p>Art and scale drawings</p>