

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
CONTENT <i>Declarative / core / powerful Knowledge – ‘Know What’</i>	Algebra: Brackets and Expressions	Number Properties and Fractions	Estimation and Circles	Angles and Polygons	Probability	Ratio and Proportion
Intent	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.	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	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.	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)	This half term will be students first insights into probability and prepares students to work in more advanced cases of probability in future years.	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.
Skills	Students will be able to: Expand brackets	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to: Simplify ratios



St Mary's CE High School Curriculum Map 2023-24 Mathematics Year 8

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

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Mathematics Year 8

	A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's
Links to careers/wider world		Calculating the largest possible shares for an amount Supermarket discounts Having a data sense when giving as fractions	Calculating RPMs of wheels/engines Planning designs involving circles	Angles have a number of applications in STEM	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	Changing the quantities in a recipe to fit the number of people you are serving Art and scale drawings