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

Mathematics Year 7

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 *Declarative / core / powerful Knowledge – 'Know What'*	**Directed number and Introduction to Algebra**	**Numbers and Numerals**	**Area, Perimeter and Mensuration (working with units of measure)**	**Angles**	**Fractions, Decimals and Percentages**	**Statistics**
Intent	Algebra is the language of mathematics and is the backbone of solving problems in all future areas of maths.	Numeracy skills are essential to access future areas of the curriculum. Being able to work with factors and multiples is a prerequisite to using fractions, decimals and percentages	This introduction topic on shapes will reinforce work from Key stage 2 and will introduce using new shapes like trapeziums.	This introduction topic reinforces work from Key stage 2 preparing students to work with additional angle rules.	A strong understanding of fractions, decimals and percentages are important for using ratio and proportion later in the curriculum	Negative numbers are mastery is essential for all future topics in mathematics. A number of topics involving reading scale, drawing scales and interpreting scales have been put together to make links between them,
Skills	Students need to be able to:	Students need to be able to:	Students need to be able to:	Students need to be able to:	Students need to be able to:	Students need to be able to:

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Procedural Knowledge – 'Know How'	Apply the order of operations Order negative numbers Add and subtract negative numbers Multiply and divide negative numbers evaluate substitute and simplify expressions Use inverse operations Solve basic equations	Know the place values including decimals Use the 4 operations Find the factors and multiples of numbers Evaluate powers and roots of numbers	Convert metric units of measure Round to a specific number of decimal places Find the perimeter of polygons Find the area of rectangles and shapes made from rectangles/squares Find the area of parallelograms Find the area of triangles and shapes made from rectangles and triangles Find the area of trapeziums using the formula	Name the types of angles Draw, measure and estimate angles Construct triangles accurately using a protractor and ruler Work with scale diagrams Use the angle rules at a point and on a line. Use vertically opposite angles are equal Use the rule that angles in a triangle sum to 180 and base angles in an isosceles triangle are equal	Find equivalent fractions Simplify fractions to their simplest form Convert improper fractions to mixed numbers and vice versa. Convert fractions, decimals and percentages	Averages and spread from lists Coordinates Bar charts and pictograms
Key Questions	Can you explain the order of operations and why they are necessary?	What is an integer? What is the difference between a factor and multiple?	Is the conversion rule different for converting mm to metres, or ml to litres or mg to grams?	Why is it important to estimate angles?	Can you show why certain fractions are equivalent with a diagram?	Can you explain the difference between the median and the mean?

	Can you articulate the meaning of inverse operations? Why is the phrase " a minus and a minus makes a plus" unhelpful? Why does adding a negative make the result decrease?	Is 91 a prime number?	Are there other methods to find the perimeter of a rectangle? Where does the formula for a trapezium come from?		Can you show why an improper number is equivalent to a mixed number with a diagram?	
Assessment	Students will be assessed on a Diagnostic quiz at the end of each unit and a retest to improve any gaps in learning. A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	Students will be assessed on a Diagnostic quiz at the end of each unit and a retest to improve any gaps in learning. A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	Students will be assessed on a Diagnostic quiz at the end of each unit and a retest to improve any gaps in learning. A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	Students will be assessed on a Diagnostic quiz at the end of each unit and a retest to improve any gaps in learning. A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	Students will be assessed on a Diagnostic quiz at the end of each unit and a retest to improve any gaps in learning. A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's	Students will be assessed on a Diagnostic quiz at the end of each unit and a retest to improve any gaps in learning. A half termly assessment will be completed in class covering content covered this half term, and previous topics covered at St. Mary's

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Links to careers/wider world	Algebra is used for: Writing a rule for time taken to get to a place when travelling a motorway Solving problems such as how much carpet would be needed for a bedroom	Number and numerals is used for: Calculating costs Using efficient mental strategies for calculating	Area and perimeter is used for: Working out how many tiles to buy when tiling a room Calculating the distance run around a field	Angles are used by: The armed forces, search and rescue organisation as well as tradespeople	Fractions, decimals and percentages are used for: Discounting or increasing prices Comparing values of different quantities	statistics is used for: Reading scales and comparing values less than 0 Making decisions based on data