

St Peter's CE Middle School Curriculum Overview

Subject: Maths

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	Topic: Number	Topic: Number	Topic: Number	Topic: Number Measurement	Topic: Geometry Number	Topic: Number Measurement
	Concept: Place Value Addition and Subtraction	Concept: Multiplication and Division Fractions	Concept: Multiplication and Division Fractions Decimals and percentages	Concept: Decimals and Percentages Perimeter & Area Statistics	Concept: Shape Position and direction Decimals	Concept: Decimals Negative numbers Converting units Volume
	Skills: Read, understand, write, order and compare numbers up to 1 000 000. Find powers of 10 and 10/100/1000/ 10,000/ 100,000 more or less Number line to 1, 000, 000 Solve roman numerals to 1, 000 Rounding to the nearest 10, 100, 1000, 10,000 and 100,000.	Skills: Multiply and divide mentally using known facts. Identify multiples and factors and use these terms with understanding. Find common factors of two whole numbers Identify prime numbers and explain how they are different from composite numbers Understand the meaning of square and cube numbers and be able to use their notations. Multiply and divide	Skills: Use a formal written method for multiplication and division up to four digits and with remainders. (Multiply 4-digit by 2-digit and divide 4-digit by 1-digit) Understand the relationship between multiplication and division and use the inverse to check answers. Multiply proper fractions and mixed numbers by whole numbers supported	Skills: Recognise and use thousandths and relate them to tenths, hundredths and other decimal equivalences Read, write, order and compare decimal up to three places. Round decimals up to two places to the nearest whole number and one decimal place. Recognise the per cent symbol and understand that percent relates to number or parts per hundred.	Skills: Measure and draw given angles and measure them in degrees accurately Know and identify the features of triangle, rectangle and regular polygons. Identify angles at a point, around a point, on a straight line and in a triangle. Know the difference between regular and irregular polygons. Use the properties of rectangles to find missing lengths and angles in shapes	Skills: Solve problems involving numbers up to three decimal places. Solve problems which require knowing percentage and decimal equivalence e.g. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ To understand negative numbers and solve problems Convert between different unit of metric measure e.g. km and m, l and ml, etc. Understand how to use equivalences

<p>Add and subtract mentally using increasingly larger numbers.</p> <p>Using a formal written method to add and subtract numbers with more than four digits.</p> <p>Solving multi-step problems using rounding, inversion and estimation to check reliability and accuracy of answers.</p>	<p>whole numbers by 10, 100 and 1000.</p> <p>Use knowledge of multiples of 10, 100 and 1000 to answer related questions.</p> <p>Identify, name and write equivalent fractions.</p> <p>Compare and order fractions greater and less than 1</p> <p>Add and subtract fractions with the same denominator</p> <p>Add 3 or more fractions by finding a common denominator</p> <p>Add and subtract fractions to a mixed number including two mixed numbers</p>	<p>by concrete/pictorial resources.</p> <p>Multiply unit and non-unit fractions by an integer</p> <p>Multiply mixed numbers by integers</p> <p>Calculations fractions of quantity</p> <p>Find fractions of an amount</p> <p>Read and write decimal numbers as fractions.</p>	<p>Write percentages as a fraction (out of 100).</p> <p>Measure and calculate perimeter of rectilinear shapes and apply this knowledge to calculate unknown side lengths.</p> <p>Find the area of rectangles, compound shapes and irregular shapes.</p> <p>Read, interpret and draw bar charts and line graphs as well as two-way tables</p> <p>Solve comparison, sum and difference problems using bar charts and line graphs.</p> <p>Complete, read and interpret information in tables, including timetables.</p>	<p>Identify 3D shapes, including cubes and cuboids using knowledge of 2D shapes.</p> <p>Read, write and plot co-ordinates in the first quadrant</p> <p>Identify, describe and represent the position of a shape following a reflection or translation.</p> <p>Adding (crossing the whole) and subtracting decimals including with the same number of decimal places</p> <p>To complete decimal sequences</p> <p>Multiplying and dividing decimals by 10, 100 and 1000.</p>	<p>between metric units and common imperial units such as inches, pounds and pints.</p> <p>Solve problems involving converting between units of time.</p> <p>To know what the volume (cubes/ cuboids) and to compare and estimate volume including finding the capacity.</p>
<p>Outcome: To use mental and written methods for addition and subtraction efficiently</p>	<p>Outcome: To be able to multiply and divide mentally To be able to use fraction understanding to add and subtract any fraction</p>	<p>Outcome: To use mental and written methods for multiplication and division including fractions</p>	<p>Outcome: To read, write, order, compare and round decimals To understand what a percent is To interpret, read and solve information in tables, charts, graphs</p>	<p>Outcome: To be able to use a protractor to draw, measure and find missing angles</p>	<p>Outcome: To be able to convert between different units of measure including metric and imperial To apply skills to solve problems linked to money</p>

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 6	Topic: Number	Topic: Number Measurement	Topic: Number	Topic: Number Measure	Topic: Geometry	Topic: Consolidation SATS Y7 Sequences
	Concept: Place Value Addition Subtraction Multiplication Division	Concept: Fractions Converting Units	Concept: Ratio Algebra Decimals	Concept: Fraction, decimals and percentages Area, perimeter and volume Statistics	Concept: Shape Position and Direction	Concept: Revision of topics Sequences
	Skills: Read, write, order and compare numbers up to 10,000,000. Find powers of 10 Compare and order any digit and determine the value of each digit. Rounding whole numbers to a required degree of accuracy. Use negative numbers in context	Skills: Find equivalent and common factors to simplify fractions and common multiples to find equivalences. Compare and order fractions, including fractions > 1 Add and subtract fractions with different denominators and mixed fractions. To solve multi-step problems with fractions Multiply integers with fractions	Skills: Use ratio language – 'For every' Use objects and diagrams to compare ratios and fractions. Use the colon notation as the ratio symbol, and link the language 'for every' Begin to calculate ratios to find both a part and a whole. Enlarge shapes using scale factors Find scale factors when given similar shapes	Skills: Convert fraction to percentage using equivalent fraction to ensure denominator is 100 Find common equivalent fraction, percentage and decimals Convert between fractions, percentages and decimals to compare and order Find percentage of an amount starting with 50%, 25%, 10% and 1% only and	Skills: Measure with a protractor Draw lines and angles accurately To know the total angles on a straight line To know angles around a point equal to 360 ° Recognise that vertically opposite angles share a vertex Explore interior angles of a triangle which add up to 180 degrees.	Skills: Investigations and Problem solving Across a range of topics Develop calculator skills

	<p>and calculate intervals across zero. Add and subtract any integer</p> <p>Find common factors, multiples including prime, square and cube numbers</p> <p>Multiply multi-digit numbers using the formal written method up to 4 by 2 digit</p> <p>Use short and long division including with remainders</p> <p>Solve multi-step problems with the four operations</p> <p>To use order of operations</p>	<p>Multiply simple pairs of proper fractions, writing the answer in its simplest form.</p> <p>Divide fractions by integers</p> <p>Find fraction of amounts including finding the whole</p> <p>To convert and calculate with metric measures including miles and kilometres</p> <p>To convert between imperial measures</p>	<p>Solve ratio and proportion problems</p> <p>Find and solve one and two step rules and equations</p> <p>To form expressions and using the concept of substitution</p> <p>Understand place value up to 3 decimal places</p> <p>Multiply and Divide whole numbers and decimals by 10,100 and 1000</p> <p>Multiply and Divide decimals by integers</p> <p>Apply understanding of division to solve problems using division up to 2 decimal places.</p> <p>Convert a decimal to a fraction and simplify</p> <p>Convert fraction to decimal finding the equivalent fraction</p>	<p>then building onto multiples of 10% and 5%</p> <p>Use inverse to find missing values when solving a percentage problem</p> <p>Find and draw rectilinear shapes that have the same area.</p> <p>Calculate area and perimeter of rectilinear shapes</p> <p>Explore that shapes with the same area can have the same or different perimeters.</p> <p>Work out the area of different triangles by counting.</p> <p>Use the formula, $\text{base} \times \text{perpendicular height} \div 2$ to calculate the area of a variety of triangles Find the area of a parallelogram.</p> <p>Find volume of cuboids by counting</p>	<p>Find missing angles in right angle triangles and isosceles triangles</p> <p>Explore angles in quadrilateral that add up to 180</p> <p>Explore angles in polygons</p> <p>Draw shapes accurately Identify nets of 3D shapes</p> <p>Describe positions on the full coordinate grid.</p> <p>Describe positions on a four-quadrant grid.</p> <p>Draw and translate simple shapes on the coordinate plane and reflect them in the axes.</p>	
--	---	--	---	---	--	--

			<p>where the denominator is 10, 100 1000, so you are able to divide.</p> <p>Understand the fraction line is same a division.</p>	<p>cubes and using formula ($l \times w \times h$)</p> <p>Read and interpret line graphs</p> <p>Draw Line graphs</p> <p>Solve problems using line graphs</p> <p>Label parts of a circle</p> <p>Read and Interpret pie charts</p> <p>Draw Pie charts using knowledge of angles</p> <p>Find the mean using formula $\text{Mean} = \text{Total} \div \text{number of items.}$</p>		
	<p>Outcome: To be able to use written methods confidently</p>	<p>Outcome: To use methods of fractions to solve problems</p>	<p>Outcome: To be able to understand the ratio symbol to solve problems To be able to efficiently multiply and divide</p>	<p>Outcome: To be able to convert fractions, decimals and percentages To calculate the area and perimeter of shapes</p>	<p>Outcome: To measure, accurately draw angles and solve missing angle problems To describe positions on a full coordinate grid to translate and reflect</p>	<p>Outcome: To begin to develop key skills that will be used in KS3</p>

Year 7	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Topic: Algebra	Topic: Number Statistics	Topic: Statistics Number	Topic: Number Geometry & measures	Topic: Number	Topic: Number Geometry & measures
	Concept: Sequences, Algebraic notation and substitution, Expressions and equations	Concept: Place value, Ordering and rounding, Four operations, Averages and range, Rounding and estimation	Concept: Graphing data, Fractions, decimals and percentages	Concept: Directed number, Fractions and percentages of amounts, Perimeter and area	Concept: Speed, distance and time, Properties of number	Concept: Add and subtract fractions, Angles and polygons
	Skills: Describe and continue sequences in graphs, tables and diagrams as well as in numbers. Identify linear and non-linear sequences and be able to continue them Explain the term-to-term	Skills: Understand and use place value for decimals, measures and integers of any size. Work out intervals on a number line and position integers Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers;	Skills: Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.	Skills: TBC: awaiting White Rose Maths Version 3	Skills: TBC: awaiting White Rose Maths Version 3	Skills: TBC: awaiting White Rose Maths Version 3

<p>rule and find missing terms</p> <p>Find input and output using a single function machine</p> <p>Using algebraic expressions to generalise diagrams and letters</p> <p>Begin to understand simple expression and use them with a function machine</p> <p>Substitute values into single expressions</p> <p>Find functions, substitute values and generate sequences using two step expressions</p> <p>Begin to represent one and two step</p>	<p>use the symbols =, \leq, \geq.</p> <p>Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures]</p> <p>Interpret and compare numbers in standard form $A \times 10^n$ $1 \leq A < 10$, where n is a positive or negative integer or zero</p> <p>Represent fractions on diagrams and on a number line.</p> <p>Understand and use place value for decimals, measures and integers of any size.</p> <p>Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative.</p>	<p>Work with coordinates in all four quadrants.</p> <p>Describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs.</p> <p>Interpret mathematical relationships both algebraically and graphically.</p> <p>Define percentage as “number of parts per hundred”, interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities</p>			
--	---	--	--	--	--

	<p>functions graphically</p> <p>Understand the meaning of equivalence and the use of the = sign</p> <p>Solve one step linear equations using inverse operations</p> <p>Understand the meaning of like and unlike terms and being to simplify algebraic expressions</p>	<p>Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $7/2$ or 0.375 and $3/8$).</p> <p>Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals.</p> <p>Describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers)</p>	<p>using percentages, and work with percentages greater than 100%.</p> <p>Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $7/2$ or 0.375 and $3/8$).</p> <p>Interpret fractions and percentages as operators.</p> <p>Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, \leq, \geq.</p> <p>Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction.</p>			
--	--	---	---	--	--	--

		<p>Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures]</p> <p>Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a < x \leq b$.</p>				
	<p>Outcome: Understand core algebraic ideas and use them to describe sequences, simplify expressions, and solve simple equations.</p>	<p>Outcome: Use number skills to solve problems. Understand averages and range.</p>	<p>Outcome: Apply mathematical methods to interpret data and solve real-life problems involving percentages, ratios, and measures.</p>	<p>Outcome:</p>	<p>Outcome:</p>	<p>Outcome:</p>

Year 8	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Topic: Algebra. Ratio, proportion and rates of change	Topic: Algebra. Number. Geometry and measures.	Topic: Geometry and measures. Algebra. Number	Topic: Algebra. Number Statistics	Topic: Geometry and measures. Probability	Topic: Geometry and measures. Statistics. Algebra
	Concept: Ratio. Proportion and scale. Algebraic manipulation	Concept: Coordinates and graphs. Multiply and divide fractions. Symmetry and reflections	Concept: Area, volume and density. Equations and inequalities. Percentages.	Concept: Indices. Standard form. Interpret and represent data.	Concept: Angles in parallel lines and polygons. Tables and probability.	Concept: Circles. Graphs and charts. Sequences.
	Skills: Use ratio notation, including reduction to simplest form. Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction. Divide a given quantity into two parts in a given part : part or part : whole ratio; express the division of a quantity into two parts as a ratio.	Skills: Work with co-ordinates in all four quadrants. Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane. Substitute numerical values into formulae and expressions,	Skills: Derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies. Use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D. Derive and apply formulae to calculate	Skills: TBC: awaiting White Rose Maths Version 3	Skills: TBC: awaiting White Rose Maths Version 3	Skills: TBC: awaiting White Rose Maths Version 3

	<p>Solve problems involving direct and inverse proportion, including graphical and algebraic representations</p> <p>Use scale factors, scale diagrams and maps.</p> <p>Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.</p> <p>Interpret mathematical relationships both algebraically and graphically.</p> <p>Use standard units of mass, length, time, money and other measures, including with decimal quantities.</p> <p>Change freely between related standard units [for example time, length, area,</p>	<p>including scientific formulae.</p> <p>Reduce a given linear equation in two variables to the standard form $y = mx + c$; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically.</p> <p>Solve problems involving direct and inverse proportion, including graphical and algebraic representations. Interpret mathematical relationships both algebraically and graphically.</p> <p>Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.</p>	<p>and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders).</p> <p>Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes.</p> <p>Change freely between related standard units [for example time, length, area, volume/capacity, mass].</p> <p>Use compound units such as speed, unit pricing and density to solve problems.</p> <p>Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors.</p>			
--	--	---	---	--	--	--

<p>volume/capacity, mass].</p> <p>Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors.</p> <p>Model situations or procedures by translating them into algebraic expressions or formulae and by using graphs.</p> <p>Interpret mathematical relationships both algebraically and graphically.</p> <p>Simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms, multiplying a single term over a bracket, taking out common factors, expanding</p>	<p>Describe, sketch and draw using conventional terms and notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric.</p> <p>Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.</p>	<p>Recognise and use relationships between operations including inverse operations.</p> <p>Use and interpret algebraic notation, including: ab in place of $a \times b$; $3y$ in place of $y + y + y$ and $3 \times y$; a^2 in place of $a \times a$, a^3 in place of $a \times a \times a$; a^2b in place of $a \times a \times b$; $\frac{a}{b}$ in place of $a \div b$; coefficients written as fractions rather than as decimals; brackets.</p> <p>Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement).</p> <p>Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols $=$, \neq, $<$, $>$, \leq, \geq.</p>				
---	---	--	--	--	--	--

	<p>products of two or more binomials.</p> <p>Substitute numerical values into formulae and expressions, including scientific formulae.</p>					
	<p>Outcome: Apply ratio and proportion concepts, model and interpret relationships using algebra and graphs, and accurately work with standard units and conversions in problem-solving contexts.</p>	<p>Outcome: Draw and analyse straight-line and quadratic graphs, using coordinates, algebraic expressions, and geometric transformations.</p>	<p>Outcome: Apply algebraic techniques and geometric properties to solve problems involving shapes, measurements, and real-world contexts.</p>	<p>Outcome:</p>	<p>Outcome:</p>	<p>Outcome:</p>