

Maths PoS: Year 7 HT1

Students will colour code as they work through the scheme of work.

Students will learn about... Number and Shape		
Grade 1-3	Grade 4-6	Grade 7-9
<p>Students will:</p> <p>Number: Use positive and negative numbers in context and position them on a number line. Recall quickly multiplication facts up to 10×10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts.</p> <p>Data Handling: Interpret the data in tables, diagrams, tally charts, pictograms and bar charts. Use appropriate scales on axes. Find and interpret the mode of a set of data.</p> <p>Angles: Know that angles are measured in degrees and that one whole turn is 360°; compare and order angles less than 180°. Recognise parallel and perpendicular lines in grids and shapes.</p>	<p>Students will:</p> <p>Number: Recognise and use multiples, factors, primes (less than 100), common factors, highest common factors and lowest common multiples in simple cases; use simple tests of divisibility. Understand negative numbers as positions on a number line; order, add and subtract positive and negative integers in context. Recognise the first few triangular numbers, squares of numbers to at least 12×12 and the corresponding roots.</p> <p>Data Handling: Calculate statistics for small sets of discrete data: (i) find the mode, median and range, and the modal class for grouped data (ii) calculate the mean, including from a simple frequency table, using a calculator for a larger number of items. Construct graphs and diagrams to represent data, including: (i) bar graphs (ii) frequency diagrams for grouped discrete data (iii) simple pie charts. Interpret diagrams and graphs (including pie charts), and draw simple conclusions based on the shape of graphs and simple statistics for a single distribution.</p> <p>Angles: Use correctly the vocabulary, notation and labelling conventions for lines, angles and shapes. Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle; recognise vertically opposite angles.</p>	<p>Students will:</p> <p>Number: Use the prime factor decomposition of a number (to find highest common factors and lowest common multiples for example). Use calculators to approximate square roots and cube roots. Use index notation for integer powers; know and use the index laws for multiplication and division of positive integer powers. Calculate statistics and select those most appropriate to the problem or which address the questions posed.</p> <p>Data Handling: Select, construct and modify suitable graphical representations to progress an enquiry and identify key features present in the data. Include: (i) line graphs for time series (ii) scatter graphs to develop further understanding of correlation. Interpret graphs and diagrams and make inferences to support or cast doubt on initial conjectures; have a basic understanding of correlation.</p> <p>Angles: Explain how to find, calculate and use: (i) the sums of the interior and exterior angles of quadrilaterals, pentagons and hexagons; (ii) the interior and exterior angles of regular polygons. Solve problems using properties of angles, of parallel and intersecting lines, and of triangles and other polygons, justifying inferences and explaining reasoning with diagrams and text.</p>
<p>Assessment</p> <p>Topic tests, teacher professional judgement based upon classwork and homework.</p>		

Maths PoS: Year 7 HT2

Students will colour code as they work through the scheme of work.

Students will learn about... Equations, Area and Volume		
Grade 1-3	Grade 4-6	Grade 7-9
<p>Students will:</p> <p>Find the answers to a puzzle using diagrams or symbols.</p> <p>Spot patterns in number commenting of the relationship.</p> <p>Use pictures to record information.</p> <p>Calculate area by counting squares on a grid.</p>	<p>Students will:</p> <p>Understand the words expression, term and equation.</p> <p>Use letters instead of numbers to represent a problem.</p> <p>Simplify an expression by collecting like terms.</p> <ul style="list-style-type: none">Expand a single bracket. <p>Choose appropriate units for measurements.</p> <p>Calculate area and perimeter of a rectangle.</p> <p>Calculate area of compound shapes involving rectangles.</p> <ul style="list-style-type: none">Calculate the surface area of a cube and cuboid.	<p>Students will:</p> <p>Know and use the basic index laws.</p> <p>Factorise a linear expression.</p> <p>Add simple algebraic fractions.</p> <p>Convert mm^2 to cm^2 etc.</p> <p>Know the area and circumference of a circle.</p> <p>Calculate surface area of prisms.</p> <p>Calculate the volume of prisms.</p>
<ul style="list-style-type: none">AssessmentTopic tests, teacher professional judgement based upon classwork and homework.		

Maths PoS: Year 7 HT3

Students will colour code as they work through the scheme of work.

Students will learn about... Sequences, Functions and Graphs, Calculations and Checking, Probability		
Grade 1-3	Grade 4-6	Grade 7-9
<p>Students will:</p> <p>Complete a sequence and describe the term to term rule.</p> <p>Complete a pattern and describe what is happening.</p> <p>Add, subtract, multiply & divide 2 digit numbers including negatives.</p> <p>Simplify a fraction.</p> <p>Calculate 10% and 20%.</p> <p>Add and subtract decimals using written method.</p> <p>Multiply and divide 2 & 3 digit numbers.</p> <p>Multiply and divide decimals with one or 2 places.</p> <p>Use the square, brackets and root buttons on a calculator.</p> <p>Use correct words to describe the probability of an event.</p> <p>Represent probability on a scale.</p> <p>List all possible combinations of 2 events.</p> <p>Represent probability as a fraction.</p> <p>Calculate experimental probability from a frequency table.</p>	<p>Students will:</p> <p>Generate the nth term.</p> <p>Create a sequence using the nth term.</p> <p>Decide if a number is in a sequence using the nth term.</p> <p>Recall basic fractions/decimals/percentages.</p> <p>Know basic squares, cubes and their respective roots.</p> <p>Use rounding to estimate an answer.</p> <p>Add, subtract, multiply, & divide integers and decimals using a written method.</p> <p>Use power, roots, brackets and fraction button on the calculator.</p> <p>Understand probability adds up to one.</p> <p>Create diagrams and tables to calculate probability of two events.</p> <p>Compare theoretical and experimental probability to decide if an experiment is bias.</p> <p>Understand probability adds up to one.</p> <p>Create diagrams and tables to calculate probability of two events.</p>	<p>Students will:</p> <p>Extend, predict and justify a sequence.</p> <p>Multiply and divide numbers by 0.1 and 0.01 mentally.</p> <p>Use BIDMAS including Indices.</p> <p>Add, subtract, multiply, & divide decimals of any size.</p> <p>Use the Pi button on the calculator.</p> <p>Pose a question, investigate and give reasonable argument.</p> <p>Interpret results and decide if fair and bias with reasons.</p>
<p>Assessment</p> <p>Topic tests, teacher professional judgement based upon classwork and homework.</p>		

Maths PoS: Year 7 HT4

Students will colour code as they work through the scheme of work.

Students will learn about... Ratio and Proportion, Functions and Graphs, Coordinates and Transformations		
Grade 1-3	Grade 4-6	Grade 7-9
<p>Students will:</p> <p>Describe the ratio of 2 objects e.g. there are 2 red beads for every 3 black beads.</p> <p>Recognise horizontal and vertical lines.</p> <p>Describe and identify the position of a square on a grid.</p> <p>Draw and complete shapes with reflective symmetry.</p> <p>Draw the reflection of a shape on one mirror line.</p> <p>Classify shapes using symmetry.</p>	<p>Students will:</p> <p>Simplify ratios.</p> <p>Divide an amount in a ratio of 2 or more numbers.</p> <p>Calculate the value of a single unit in ratio and proportion.</p> <p>Use ratio and proportion to calculate which item is a best buy.</p> <p>Construct a mapping diagram.</p> <p>Plot coordinates in all 4 quadrants.</p> <p>Plot $x =$ and $y =$ graphs.</p> <p>Plot positive linear graphs.</p> <p>Plot and use conversion graphs.</p> <p>Identify lines and order of symmetry.</p> <p>Reflect a shape in a given mirror line.</p> <p>Rotate a shape about a point.</p> <p>Translate a shape using a description.</p>	<p>Compare two ratio.</p> <p>Use ratio in a variety of contexts.</p> <p>Calculate the gradient of a graph line.</p> <p>Construct and interpret time series graphs.</p> <p>Identify planes of symmetry in 3D shape.</p> <p>Write the transformation to map two congruent shapes.</p> <p>Transform a shape using 2 or more transformations.</p> <p>Enlarge a shape using a fractional scale factor.</p> <p>Find the centre of enlargement and the scale factor.</p>
<p>Assessment</p> <p>Topic tests, teacher professional judgement based upon classwork and homework.</p>		

Maths PoS: Year 7 HT5

Students will colour code as they work through the scheme of work.

Students will learn about... Algebra, Shape and Number		
Grade 1-3	Grade 4-6	Grade 7-9
<p>Students will:</p> <ul style="list-style-type: none"> Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use. Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem. Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false. <p>Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy.</p> <p>Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line.</p> <p>Relate fractions to multiplication and division (e.g. $6 \div 2 = \frac{1}{2}$ of $6 = 6 \times \frac{1}{2}$); express a quotient as a fraction or decimal (e.g. $67 \div 5 = 13.4$ or $\frac{132}{5}$); find fractions and percentages of whole-number quantities (e.g. $\frac{5}{8}$ of 96, 65% of £260) .</p> <p>Express a larger whole number as a fraction of a smaller one (e.g. recognise that 8 slices of a 5-slice pizza represents $\frac{8}{5}$ or $1\frac{3}{5}$ pizzas); simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator .</p>	<p>Students will:</p> <p>Compare and evaluate approaches; recognise equivalent approaches.</p> <p>Take account of feedback and learn from mistakes.</p> <p>Understand and use the language and notation associated with reflections, translations and rotations.</p> <p>Recognise and visualise the symmetries of a 2-D shape.</p> <p>Transform 2-D shapes by:</p> <ol style="list-style-type: none"> reflecting in given mirror lines; rotating about a given point; translating. <p>Explore these transformations and symmetries using ICT.</p> <p>Interpret information from a mathematical representation or context.</p> <p>Know the meanings of the words <i>term</i>, <i>expression</i> and <i>equation</i>.</p> <p>Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (e.g. inverse operations).</p> <p>Use accurate notation, including correct syntax when using ICT.</p> <p>Express a smaller whole number as a fraction of a larger one; simplify fractions by cancelling all common factors and identify equivalent fractions; convert terminating decimals to fractions, e.g. $0.23 = \frac{23}{100}$; use diagrams to compare two or more simple fractions.</p> <p>Add & subtract simple fractions and those with common denominators; calculate simple fractions of quantities &</p>	<p>Students will:</p> <p>Understand the equivalence of simple algebraic fractions; know that a recurring decimal is an exact fraction.</p> <p>Use efficient methods to add, subtract, multiply and divide fractions, interpreting division as a multiplicative inverse; cancel common factors before multiplying or dividing.</p> <p>Recognise when fractions or percentages are needed to compare proportions; solve problems involving percentage changes.</p> <p>Calculate the volume of right prisms.</p> <ul style="list-style-type: none"> Use formulae from mathematics and other subjects; substitute numbers into expressions and formulae; derive a formula and, in simple cases, change its subject. Simplify or transform algebraic expressions by taking out single-term common factors. <p>Construct and solve linear equations with integer coefficients (with and without brackets, negative signs anywhere in the equation, positive or negative solution).</p> <p>Visualise and use 2-D representations of 3-D objects; analyse 3-D shapes through 2-D projections, including plans and elevations.</p> <ul style="list-style-type: none"> Use and interpret maps and scale drawings in the context of mathematics and other subjects. <p>Use the coordinate grid to solve problems involving translations, rotations, reflections and enlargements.</p>

<p>Express one quantity as a percentage of another (e.g. express £400 as a percentage of £1000); find equivalent percentages, decimals and fractions.</p>	<p>measurements (whole-number answers); multiply a fraction by an integer.</p> <p>Understand percentage as the 'number of parts per 100'; calculate simple percentages and use percentages to compare simple proportions.</p> <p>Recognise the equivalence of percentages, fractions and decimals.</p>	
<p>Assessment</p> <p>Topic tests and end of year assessment, teacher professional judgement based upon classwork and homework.</p>		

Maths PoS: Year 7 HT6

Students will colour code as they work through the scheme of work.

Students will learn about... Shape and Data Handling		
Grade 1-3	Grade 4-6	Grade 7-9
<p>Students will:</p> <p>Represent and interpret sequences, patterns and relationships involving shapes (Y6).</p> <p>Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes and identify and draw nets of 3-D shapes (Y5).</p> <p>Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line (Y5).</p> <p>Describe, identify and visualise parallel and perpendicular edges or faces; use these properties to classify 2-D shapes and 3-D solids (Y6).</p> <p>Use coordinates in the first quadrant to draw, locate and complete shapes that meet given properties (Y6).</p> <p>Use 2-D representations to visualise 3-D shapes and deduce some of their properties.</p> <p>Identify and record the steps or calculations needed to solve a problem or puzzle.</p> <p>Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000.</p> <p>Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers.</p> <p>Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line.</p>	<p>Students will:</p> <p>Record methods, solutions and conclusions.</p> <p>Understand and use decimal notation and place value; multiply and divide integers and decimals by 10, 100, 1000, and explain the effect.</p> <p>Compare and order decimals in different contexts; know that when comparing measurements the units must be the same.</p> <p>Round positive whole numbers to the nearest 10, 100 or 1000, and decimals to the nearest whole number or one decimal place.</p> <p>Use the order of operations, including brackets.</p> <p>Strengthen and extend mental methods of calculation to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings; solve simple problems mentally.</p> <p>Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers.</p> <p>Check results by considering whether they are of the right order of magnitude and by working problems backwards.</p> <p>Use a ruler and protractor to:</p> <ul style="list-style-type: none"> (i) measure and draw lines to the nearest millimetre and angles, including reflex angles, to the nearest degree; (ii) construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA). 	<p>Students will:</p> <p>Solve problems involving measurements in a variety of contexts; convert between area measures (e.g. mm^2 to cm^2, cm^2 to m^2, and vice versa) and between volume measures (e.g. mm^3 to cm^3, cm^3 to m^3, and vice versa).</p> <p>Suggest a problem to explore using statistical methods, frame questions and raise conjectures.</p> <p>Discuss how different sets of data relate to the problem; identify possible primary or secondary sources; determine the sample size and most appropriate degree of accuracy.</p> <p>Design a survey or experiment to capture the necessary data from one or more sources; design, trial and if necessary refine data collection sheets; construct tables for gathering large discrete and continuous sets of raw data, choosing suitable class intervals; design and use two-way tables.</p> <p>Gather data from specified secondary sources, including printed tables and lists, and ICT-based sources, including the internet.</p> <p>Compare two or more distributions and make inferences, using the shape of the distributions and appropriate statistics.</p> <p>Review interpretations and results of a statistical enquiry on the basis of discussions; communicate these interpretations and results using selected tables, graphs and diagrams.</p>

Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use.

- Use knowledge of properties to draw 2-D shapes and identify and draw nets of 3-D shapes.

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Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy.

Make and draw shapes with increasing accuracy and apply knowledge of their properties.

Estimate angles, and use a protractor to measure and draw them, on their own and in shapes.

Assessment

Topic tests and end of year assessment, teacher professional judgement based upon classwork and homework.