



## Year 7 Maths Curriculum Map

<b>Overview</b>	The Scheme of Work for KS3 is tracked back from the KS4 curriculum in order to best prepare students for the demands of the GCSE course. Year 7 is focussed on building on foundations from primary settings whilst also exploring new and exciting concepts. Their learning within Maths will also enable them to apply their knowledge across other subject areas such as science, computing, geography and other areas. The order of delivery of the topics varies with the pathway, but all topics below will be covered within the year.		
<b>Year 7</b>	Autumn 1 & 2	Spring 1 & 2	Summer 1 & 2
<b>Topic</b>	Unit 1: Analysing & displaying data Unit 2: Number skills Unit 3: Expressions, functions, & formulae Unit 4: Decimals & Measure	Unit 5: Fractions Unit 6: Probability Unit 7: Ratio & proportion	Unit 8: Lines & angles Unit 9: Sequences & graphs Unit 10: Transformations
<b>Knowledge</b>	<p>Our learners can:</p> <ul style="list-style-type: none"> <li>Find the mode of a set of data, numerical and non-numerical.</li> <li>Read and construct tally charts and frequency tables.</li> <li>Find the mode and range from a chart or table.</li> <li>Read and construct grouped tally charts and frequency tables.</li> <li>Read and construct grouped bar charts for discrete and continuous data.</li> <li>Find the modal class from a bar chart or frequency table.</li> <li>Calculate the mode, median, mean and range of a set of values.</li> <li>Compare two sets of data using an average and the range.</li> <li>Read and draw line graphs, dual bar chart, compound bar charts, pictograms.</li> </ul> <p>Know and use the priority of operations and laws of arithmetic.</p> <ul style="list-style-type: none"> <li>Recall multiplication facts up to <math>10 \times 10</math></li> <li>Multiply and divide by 10, 100, 1000</li> <li>Round whole numbers to the nearest 10, 100, 1000</li> </ul>	<p>Our learners can:</p> <ul style="list-style-type: none"> <li>Use fraction notation to describe parts of a shape.</li> <li>Compare simple fractions.</li> <li>Change an improper fraction to a mixed number.</li> <li>Identify equivalent fractions.</li> <li>Simplify fractions by cancelling common factors.</li> <li>Add and subtract simple fractions.</li> <li>Calculate simple fractions of quantities.</li> <li>Work with equivalent fractions and decimals.</li> <li>Write one number as a fraction of another.</li> <li>Understand percentage as 'the number of parts per 100'.</li> <li>Convert a percentage to a number of hundredths or tenths.</li> <li>Work with equivalent percentages, fractions and decimals.</li> <li>Use different strategies to calculate with percentages.</li> <li>Express one number as a percentage of another.</li> </ul> <ul style="list-style-type: none"> <li>Use the language of probability.</li> <li>Use a probability scale with words.</li> <li>Understand the probability scale from 0 to 1.</li> </ul>	<p>Our learners can:</p> <ul style="list-style-type: none"> <li>Describe and label lines, angles and triangles.</li> <li>Identify angle, side and symmetry properties of triangles.</li> <li>Use a protractor to measure and draw angles.</li> <li>Estimate the size of angles.</li> <li>Use a ruler and protractor to draw triangles accurately.</li> <li>Solve problems involving angles and triangles.</li> <li>Use the rule for angles on a straight line, angles around a point and vertically opposite angles.</li> <li>Use the rule for the sum of angles in a triangle.</li> <li>Calculate interior and exterior angles.</li> <li>Identify and name types of quadrilaterals.</li> <li>Use the rule for the sum of angles in a quadrilateral.</li> </ul> <ul style="list-style-type: none"> <li>Revisit sequences including term-to-term rules.</li> <li>Develop the use of mathematical language to describe sequences.</li> <li>Demonstrate how sequences can be used as a mathematical model to describe patterns.</li> <li>Generate sequences from other contexts, describing how patterns grow.</li> <li>Continue sequences arising from practical contexts and use them to answer questions.</li> </ul>

<p>Check answers using estimation.  Add and subtract whole numbers using written methods.  Multiply whole numbers using a written method.  Divide whole numbers using a written method.  Check answers using inverse operations.  Round decimals to the nearest whole number.  Solve problems involving time and money using a calculator.  Order positive and negative numbers.  Add and subtract positive and negative numbers.  Begin to multiply with negative numbers.  Identifying and understanding factors, multiples and prime numbers.  Recognise and use square numbers, square roots and triangle numbers.</p> <p>Find outputs of simple functions written in words and using symbols.  Describe simple functions in words.  Simplify simple algebraic expressions by collecting like terms.  Use arithmetic operations with algebra.  Use brackets with numbers and letters.  Simplify more complicated expressions by collecting like terms.  Write expressions from word descriptions using addition, subtraction and multiplication.  Write expressions to represent function machines.  Substitute positive integers into simple formulae written in words.  Substitute integers into formulae written in letter symbols.  Identify variables &amp; use letter symbols.  Write simple formulae using letter symbols.  Identify formulae and functions.  Identify the unknowns in a formula &amp; function.</p> <p>Measure and draw lines to the nearest millimetre.  Write decimals in order of size.  Round decimals to the nearest whole number and to one decimal place.  Round decimals to make estimates and</p>	<p>List and count outcomes.  Calculate probability based on equally likely outcomes.  Calculate probability of A or B happening by counting outcomes.  Calculate the probability of an event not happening.  Record data from a simple experiment.  Estimate probability based on experimental data.  Make conclusions based on the results of an experiment.  Use probability to estimate the number of expected wins in a game.  Apply probabilities from experimental data in simple situations.</p> <p>Use direct proportion in simple contexts.  Solve simple problems involving direct proportion.  Use the unitary method to solve simple word problems involving direct proportion.  Use ratio notation.  Reduce a ratio to its simplest form.  Reduce a three-part ratio to its simplest form by cancelling.  Divide a quantity into two parts in a given ratio.  Solve word problems involving ratio.  Use ratios and measures.  Use fractions to describe and compare proportions.  Understand and use the relationship between ratio and proportion.  Use percentages to describe proportions.  Use percentages to compare simple proportions.</p>	<p>Read, generate and plot coordinates.  Recognise geometric shapes drawn on coordinate grids and find coordinates of points using geometric information.  Find and calculate the midpoints of a line segment.  Continue and describe special sequences.  Generate sequences using more complex (two-step) term-to-term rules.  Continue sequences arising from practical contexts.  Begin to identify and use position-to-term rules.  Recognise an arithmetic sequence and find the starting number and common difference.  Recognise, name and plot straight line graphs parallel to the x or y axis.  Generate coordinates that satisfy a simple linear rule and plot the graph in the first quadrant.  Read values from a graph.  Recognise, name and plot the graphs of <math>y = x</math> and <math>y = -x</math>.  Identify and use position-to-term rules.  Write the nth term of a sequence using algebra.  Recognise the relationships between term-to-term rules, position-to-term rules and nth terms.</p> <p>Identify congruent shapes.  Use the language of enlargement.  Enlarge shapes using given scale factors.  Work out the scale factor given an object and its image.  Recognise line and rotational symmetry in 2D shapes.  Identify all the symmetries of 2D shapes.  Identify reflection symmetry in 3D shapes.  Recognise and carry out reflections in a mirror line.  Reflect a shape on a coordinate grid.  Describe a reflection on a coordinate grid.  Describe &amp; carry out rotations on a coordinate grid.  Translate 2D shapes.  Combine transformations.</p>
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	<p>approximations of calculations.  Compare measurements by converting them into the same units.  Solve simple problems involving units of measurement in the context of length.  Convert between metric units of length, mass and capacity.  Read scales on a range of measuring equipment.  Plot and read coordinates in all four quadrants.  Multiply decimals mentally.  Check a result by considering whether it is of the right order of magnitude.  Understand where to position the decimal point by considering equivalent calculations.  Add and subtract decimals.  Multiply and divide decimals by single-digit whole numbers.  Work out the perimeters of shapes.  Find areas by counting squares.  Calculate the areas of squares and rectangles.  Calculate the areas of shapes made from rectangles.  Choose suitable units to estimate length and area.  Use metric and imperial units of measurement to solve problems.</p>		
<p><b>Skills</b></p>	<p>Students will increase their resilience during the course through learning new concepts, using prior knowledge to develop mathematical fluency and applying skills to a variety of situations and problems. Our mathematical activities will have the aim of developing both skills and high aspirations in both this subject and life beyond. Resilience will also be developed within the key maths skills below (fluency, reasoning and problem solving).</p> <p>Students will be given the opportunity to work together to develop and share their ideas on topics, discuss misconceptions and how these topics can be used in real-life situations.</p> <p>Students will develop creativity through a variety of problem solving activities within each topic, working on independent tasks beyond the classroom using HegartyMaths, and apply the key skills (fluency, reasoning and problem solving).</p>		