# Year 7 Maths Curriculum Map

| | | | |
|---|---|---|---|
| **Overview** | 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 focused 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. Pupils will be placed in sets at the beginning of Year 7 so that the teaching and content can be tailored to their specific needs. | | |
| **Year 7** | Autumn 1 & 2 | Spring 1 & 2 | Summer 1 & 2 |
| **Topic** | Unit 1: Sequences<br>Unit 2: Algebraic Notation<br>Unit 3: Equality and Equivalence<br>Unit 4: Place Value and Ordering<br>Unit 5: Fractions, Decimals, and Percentages | Unit 6: Addition and Subtraction<br>Unit 7: Multiplication and Division<br>Unit 8: Fractions and Percentages of Amounts<br>Unit 9: Directed Numbers<br>Unit 10: Adding and Subtracting Fractions | Unit 11: Constructing and Measuring<br>Unit 12: Geometric Problem Solving<br>Unit 13: Number Sense<br>Unit 14: Sets and Probability<br>Unit 15: Primes and Proofs |
| **Assessment** | Assessment of all topics covered, at the end of term. | Assessment of all topics covered, at the end of term. | Assessment of all topics covered, at the end of term. |
| **Knowledge** | Our Learners can:<br><br>Describe and continue sequences<br>Predict and check next term(s)<br>Sequences in a table and graphically<br>Linear and non-linear sequences<br>Continue linear sequences<br>Continue non-linear sequences<br>Explain the term-to-term rule<br>Find missing terms (H)<br><br>Given a numerical input, find the output of a single function machine<br>Use inverse operations to find the input given the output<br>Use diagrams and letters to generalise number operations<br>Use diagrams and letters with single function machines<br>Find the function machine given a simple expression<br>Substitute values into single operation expressions<br>Find numerical inputs and outputs for a series of two function machines | Our learners can:<br><br>Represent tenths and hundredths as diagrams<br>Represent tenths and hundredths on number line<br>Interchange between fractional and decimal number lines<br>Convert between fractions and decimals - tenths and hundredths<br>Convert between fractions and decimals - fifths and quarters<br>Convert between fractions and decimals - eighths and thousandths (H)<br>Understand the meaning of percentage using a hundred square<br>Convert fluently between simple fractions, decimals and percentages<br>Use and interpret pie charts<br>Represent any fraction as a diagram<br>Represent fractions on number lines<br>Identify and use simple equivalent fractions<br>Understand fractions as division<br>Convert fluently between fractions, decimals and percentages | Our learners can:<br><br>Understand and use letter and labelling conventions including those for geometric figures<br>Draw and measure line segments including geomteric figures<br>Understand angles as a measure of turn<br>Classify angles<br>Measure angles up to 180°<br>Draw angles up to 180°<br>Draw and measure angles between 180° and 360°<br>Identify perpendicular and parallel lines<br>Recognise types of triangle<br>Recognise types of quadrilateral<br>Identify polygons up to a decagon<br>Construct triangles using SSS<br>Construct triangles using SSS, SAS and ASA<br>Construct more complex polygons<br>Interpret simple pie charts using proportion<br>Interpret pie charts using a protractor<br>Draw pie charts<br><br>Understand and use the sum of angles at a point |

| | | | |
|---|---|---|---|
| | Use diagrams and letters with a series of two function machines<br>Find the function machines given a two-step expression<br>Substitute values into two-step expressions<br>Generate sequences given an algebraic rule<br>Represent one- and two-step functions graphically<br><br>Understand the meaning of equality<br>Understand and use fact families, numerically and algebraically<br>Solve one-step linear equations involving +/- using inverse operations<br>Solve one-step linear equations involving x/÷ using inverse operations<br>Understand the meaning of like and unlike terms<br>Understand the meaning of equivalence<br>Simplify algebraic expressions by collecting like terms, using the ≡ symbol<br><br>Recognise the place value of any number in an integer up to one billion<br>Understand and write integers up to one billion in words and figures<br>Work out intervals on a number line<br>Position integers on a number line<br>Round integers to the nearest power of ten<br>Compare two numbers using =, ≠, <, >, ≤, ≥<br>Order a list of integers<br>Find the range of a set of numbers<br>Find the median of a set of numbers<br>Understand place value for decimals<br>Position decimals on a number line<br>Compare and order any number up to one billion<br>Round a number to 1 significant figure<br>Write 10, 100, 1000 etc. as powers of 10 (H)<br>Write positive integers in the form Ax10n (H)<br>Investigate negative powers of ten (H)<br>Write decimals in the form Ax10n (H) | Explore fractions above one, decimals and percentages (H)<br><br>Properties of multiplication & division<br>Understand and use factors<br>Understand and use multiples<br>Multiply and divide integers and decimals by powers of 10<br>Multiply by 0.1 and 0.01 (H)<br>Convert metric units<br>Use formal methods to multiply integers<br>Use formal methods to multiply decimals<br>Use formal methods to divide integers<br>Use formal methods to divide decimals<br>Understand and use order of operations<br>Area of rectangles and parallelograms<br>Area of triangles<br>Solve problems using the area of trapezia (H)<br>Solve problems using the mean<br>Explore multiplication and division in algebraic expressions (H)<br><br>Find a fraction of a given amount<br>Use a given fraction to find the whole and/or other fractions<br>Find a percentage of a given amount using mental methods<br>Find a pecentage of a given amount using a calculator<br>Solve problems with fractions greater than 1 and percentages greater than 100% (H)<br><br>Understand and use representations of directed numbers<br>Order directed numbers using lines and appropriate symbols<br>Perform calculations that cross zero<br>Add directed numbers<br>Subtract directed numbers<br>Multiplication of directed numbers<br>Multiplication and division of directed numbers<br>Use a calculator for directed number calculations<br>Evaluate algebraic expressions with directed number<br>Introduction to two-step equations | Understand and use the sum of angles on a straight line<br>Understand and use the equality of vertically opposite angles<br>Know and apply the sum of angles in a triangle<br>Know and apply the sum of angles in a quadrilateral<br>Solve angle problems using properties of triangles and quadrilaterals<br>Solve complex angle problems<br>Find and use the angle sum of any polygon (H)<br>Investigate angles in parallel lines (H)<br>Understand and use parallel line angles rules (H)<br>Use known facts to obtain simple proofs (H)<br><br>Know and use mental addition and subtraction strategies for integers<br>Known and use mental multiplication and division strategies for integers<br>Know and use mental arithmetic strategies for decimals<br>Know and use mental arithmetic strategies for fractions<br>Use factors to simplify calculations<br>Use estimation as a method for checking mental calculations<br>Use known number facts to derive other facts<br>Use known algebraic facts to derive other facts<br>Know when to use a mental strategy, formal written method or a calculator<br><br>Identify and represent sets<br>Interpret and create Venn diagrams<br>Understand and use the intersection of sets<br>Understand and use the union of sets<br>Understand and use the complement of a set (H)<br>Know and use the vocabulary of probability<br>Generate sample spaces for single events<br>Calculate the probability of a single event<br>Understand and use the probability scale<br>Know that the sum of probabilities for all possible outcomes is 1<br><br>Find and use multiples<br>Identify factors of numbers and expressions |

| | | | |
|---|---|---|---|
| | | Solve two-step equations<br>Use order of operations with directed numbers<br>Roots of positive numbers (H)<br>Explore higher powers and roots (H)<br><br>Understand representations of fractions<br>Convert between mixed numbers and fractions<br>Add and subtract unit fractions with the same denominator<br>Add and subtract fractions with the same denominator<br>Add and subtract fractions from integers expressing the answer as a single fraction<br>Understand and use equivalent fractions<br>Add and subtract fractions where denominators share a simple common multiple<br>Add and subtract fractions with any denominator<br>Add and subtract improper fractions and mixed numbers<br>Use fractions in algebraic contexts<br>Use equivalence to add and subtract decimals and fractions<br>Add and subtract simple algebraic fractions (H) | Recognise and identify prime numbers<br>Recognise square and triangular numbers<br>Find common factors of a set of numbers including the HCF<br>Find common multiples of a set of numbers including the LCM<br>Write a number as a product of its prime factors<br>Use a Venn diagram to calculate the HCF and LCM (H)<br>Make and test conjectures<br>Use counter examples to disprove a conjecture |
| **Skills** | 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.<br><br>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.<br><br>Students will develop creativity through a variety of problem-solving activities within each topic, working on independent tasks beyond the classroom using SPARX Maths, and apply the key skills (fluency, reasoning and problem solving). | | |