

UPPER KEY STAGE TWO MATHEMATICS LONG TERM PLAN 2019/20

Term One	Term Two	Term Three	Term Four	Term Five	Term Six
7.5 weeks	7 weeks	6 weeks	6 weeks	5 weeks	7.5 weeks
Week One: 5.9.19 Number and Place Value	Week One: 4.11.19 FDP	Week One: 6.1.20 Number and Place Value	Week One: 24.2.20 Measurement	Week One: 20.4.20 Number and Place Value	Week One: 1.6.20 Residential
Week Two: 9.9.19 Number and Place Value	Week Two: 11.11.19 FDP	Week Two: 13.1.20 Addition and Subtraction	Week Two: 2.3.20 Multiplication and Division	Week Two: 27.4.20 Addition and Subtraction	Week Two: 8.6.20 Addition and Subtraction
Week Three: 16.9.19 Addition and Subtraction	Week Three: 18.11.19 Properties of Shapes	Week Three: 20.1.20 Multiplication and Division	Week Three: 9.3.20 FDP	Week Three: 4.5.20 Multiplication and Division	Week Three: 15.6.20 Multiplication and Division
Week Four: 23.9.19 Multiplication and Division	Week Four: 25.11.19 Position and Direction	Week Four: 27.1.20 FDP	Week Four: 16.3.20 Ratio and Proportion	Week Four: 11.5.20 Statistics –SATs Week	Week Four: 22.6.20 Algebra
Week Five: 30.9.19 FDP	Week Five: 2.12.19 Algebra	Week Five: 3.2.20 Investigations and Assessments	Week Five: 23.3.20 Properties of Shapes	Week Five: 18.5.20 FDP	Week Five: 29.6.20 FDP
Week Six: 7.10.19 FDP	Week Six: 9.12.19 Number and Place Value	Week Six: 10.2.20 Measurement	Week Six: 30.3.20 Position and Direction	Week Six: 25.5.20 Measurement	Week Six: 6.7.20 Ratio and Proportion
Week 7: 14.10.19 Measurement	Week Seven: 16.9.19 Statistics				Week Seven: 13.7.20 Investigations
Week 8: 21.10.19 Investigations and Assessments					Week Eight: 20.7.20 Term End

Focus	Year 5 Objectives	Year 6 Objectives
Number - Number and Place Value	<ul style="list-style-type: none"> • read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0 • round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1,000 (M) and recognise years written in Roman numerals 	<ul style="list-style-type: none"> • read, write, order and compare numbers up to 10,000,000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across 0 • solve number and practical problems that involve all of the above
Number - Addition and Subtraction	<ul style="list-style-type: none"> • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why 	<ul style="list-style-type: none"> • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the 4 operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

		<ul style="list-style-type: none"> • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
Number – Multiplication and Division	<ul style="list-style-type: none"> • identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • multiply and divide numbers mentally, drawing upon known facts • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates 	<p>SEE OBJECTIVES ABOVE</p> <p>(Number – Addition, subtraction, multiplication and addition are together as one in year six)</p>
Number – Fractions / Decimals / Percentages (FDP)	<ul style="list-style-type: none"> • compare and order fractions whose denominators are all multiples of the same number 	<ul style="list-style-type: none"> • use common factors to simplify fractions; use common multiples to express fractions in the same denomination

	<ul style="list-style-type: none"> • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] • add and subtract fractions with the same denominator, and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with 2 decimal places to the nearest whole number and to 1 decimal place • read, write, order and compare numbers with up to 3 decimal places • solve problems involving number up to 3 decimal places • recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 	<ul style="list-style-type: none"> • compare and order fractions, including fractions > 1 • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] • divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$] • identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places • multiply one-digit numbers with up to 2 decimal places by whole numbers • use written division methods in cases where the answer has up to 2 decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
Ratio and Proportion (Y6)		<ul style="list-style-type: none"> • solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison

		<ul style="list-style-type: none"> • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
Algebra (Y6)		<ul style="list-style-type: none"> • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with 2 unknowns • enumerate possibilities of combinations of 2 variables
Measurement	<ul style="list-style-type: none"> • convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes • estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] • solve problems involving converting between units of time • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling 	<ul style="list-style-type: none"> • solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places • convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³]
Geometry – Properties of Shapes	<ul style="list-style-type: none"> • identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles 	<ul style="list-style-type: none"> • draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets

	<ul style="list-style-type: none"> • draw given angles, and measure them in degrees ($^{\circ}$) • identify: <ul style="list-style-type: none"> • angles at a point and 1 whole turn (total 360°) • angles at a point on a straight line and half a turn (total 180°) • other multiples of 90° • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles 	<ul style="list-style-type: none"> • compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
Geometry – Position and Direction	<ul style="list-style-type: none"> • identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed 	<ul style="list-style-type: none"> • describe positions on the full coordinate grid (all 4 quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes
Statistics	<ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables. 	<ul style="list-style-type: none"> • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average.
Investigations and Assessments		