Primary - Maths

Year 6

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit	• Number and the number system • Checking, approximation and estimating • Calculating	• Calculating: Division • Visualising and constructing • Investigating properties of shapes • Formulae • Assessment/Enrichment	• Exploring fractions, decimals and percentages • Proportional reasoning • Pattern Sniffing • Measuring Space • Investigating angles	• Calculating fractions, decimals and percentages • Solving Equations and inequalities • Calculating space	• Mathematical Movement • Presentation of Data • Measuring data	• Assessment/ Enrichment • Preventing the gap/Going deeper
Skills, Knowledge and Learning	Over this term pupils will have a developing their **mathematical reasoning and fluen**cy for various number topics including, place value, multiplying and dividing by powers of 10, use of negative numbers in **problem-solving** context as well as factors, multiples, and prime numbers. Pupils will be using estimation to calculate and determine solutions to a suitable degree of accuracy with standard and **problem-solving** questions. Pupils will be using **mathematical reasoning** to solve multi step **problem solving** question	During this term pupils will be building on their **mathematical reasoning and fluency** with division, tackling a variety of division problems including questions with remainders in fraction form and **problem-solving** questions given in context. Pupils will further enhance their geometry knowledge, with recognising, describing and building simple 3D nets. Pupils will be applying their knowledge of different 2D shapes, comparing and classifying them based of their individual properties demonstrating **mathematical reason**ing for the choices they	Within this term pupils recall their knowledge on fractions and develop it further with applying their knowledge in a **problem-solving** context, pupils will build on their fraction decimal equivalencies they already know, developing their **mathematical fluency and reasoning** skills. Pupils will be asked to tackle **problem solving** question, bringing together the shape knowledge previous taught, identifying scale factors and converting units for length, mass and volume. Pupils will be able to recognise basic angle facts, building on their knowledge of acute and obtuse angles.	This term pupils will be further developing their skills and knowledge of fractions including basic operations involving mixed numbers. Pupils will be applying basic operations to whole and decimal numbers and **problem solving** with percentages. Pupils will build on **their mathematical reasoning and fluenc**y with the introduction of probability and introducing algebra to solve missing number problems. Within Geometry, pupils will continue to develop their **mathematical fluency** with working with are of other 2D shapes and incorporating the use of	Over this term, Pupils will be developing their knowledge of co-ordinates from 1 quadrant to 4 quadrant, with translating and reflecting shapes across each quadrant, allowing pupils to develop their **mathematical reasoning and fluency.** Pupils will further develop their knowledge of data presentation with the introduction of Pie charts and making the connections to their work completed on angles and use this to tackle **problem solving** questions. Pupils will be using their number skills to understand how to calculate the mean average for a set of data.	Over this term, Pupils will complete an assessment reviewing all topics covered this year. Time is then available for pupils to review their progress and address and develop any gaps identified in their learning from the assessment. Pupils are also able to apply their know to problem solving scenarios and mini projects.

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	involving more than one of the basic operations and developing their knowledge of the order of operations.	make. Pupils will begin to understand algebra and how simple formulae can be used, further developing their **mathematical fluency**.		formula. Pupils will be **problem solving** involving calculations and conversion of measures, using decimal notation up to 3 decimal places.		
NC/Qualification Objectives	• identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • use negative numbers in context, and calculate intervals across zero • identify common factors, common multiples and prime numbers • solve problems which require answers to be rounded to specified degrees of accuracy • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	• divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division; 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 • use written division methods in cases where the answer has up to two decimal places • solve problems involving division • draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1 • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $^3/_8$] • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts • solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal	• 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, $^1/_4 \times {}^1/_2 = {}^1/_8$] • divide proper fractions by whole numbers [for example, $^1/_3 \div 2 = {}^1/_6$] • multiply one-digit numbers with up to two decimal places by whole numbers • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • enumerate possibilities of combinations of two variables • express missing number problems algebraically	• describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average	

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	• round any whole number to a required degree of accuracy • perform mental calculations, including with mixed operations and large numbers • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • solve problems involving addition, subtraction and multiplication • use their knowledge of the order of operations to carry out calculations	• 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 • use simple formulae • convert between miles and kilometres	sharing and grouping using knowledge of fractions and multiples • generate and describe linear number sequences • 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 three decimal places • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	• find pairs of numbers that satisfy an equation with two unknowns • recognise that shapes with the same areas can have different perimeters and vice versa • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3] • recognise when it is possible to use formulae for area and volume of shape • solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate		
Enrichment/ Experiences	- Shopping Trip – estimation, using money, adding costs of items - Maiden Erlegh nature reserve or Dinton Pastures– Estimating and measuring distances, converting units - Trip to London – calculating time of journey, timings of day out, cost of visits etc - Dinton Pastures– Orienteering using directions and distances					
Curriculum End Point / Goal	The principal focus of mathematics teaching in Year 6 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving					

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	a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly