

Primary - Maths

Year 5

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit	- Number and the number system - Counting and Comparing - Addition and Subtraction	- Visualising - Calculating: Multiplication and division - Investigating properties of shapes - Assessment/Enrichment	- Exploring fractions, decimals and percentages - Measuring space	- Investigating angles - Calculating fractions, decimals and percentages - Preventing the gap/ Going deeper	- Assessment/Enrichment - Calculating space - Checking approximating and estimating - Mathematical movement	- Counting and comparing II - Exploring Time - Presentation of data - Assessment/Enrichment - Preventing the gap/Going deeper
Skills, Knowledge and Learning	During this term pupils will further develop their mathematical fluency with reviewing multiples and factors and progressing to primes, prime factors, square and cube numbers and understand index notation. They will then build their own their problem-solving skills with applying this new knowledge to multiplication and division problems. Pupils will further develop their mathematical reasoning and fluency with comparing and ordering large numbers and develop their knowledge of roman numerals up to 1000.	Over this term pupils will be developing their mathematical fluency of recognising 3D shapes from their 2D representation. Pupils will be tackling problem solving questions developing their multiplying and dividing skills up to and including 4-digit numbers. Pupils will be using their prior knowledge of the properties of rectangles to solve problems involving missing lengths and angles. Furthermore, pupils will develop their knowledge of shapes and understand the differences between regular and irregular polygons based on their mathematical reasoning	Pupils this term will continue work on Fractions, comparing, identifying equivalencies and visual representations before building on their fractions knowledge and making the connections with equivalent decimals building on their mathematical reasoning and fluency. With their decimal work, pupils will begin to compare and order numbers up to 3 decimal places. Pupils will be introduced to percentages, start to make links between fractions and decimals. Pupils will be converting between different metric units, working with them in a problem-solving	Over this term Pupils will be demonstrating their knowledge of angles and degrees and developing their mathematical fluency to be able to draw and describe angles. Pupils will be further developing their fractions knowledge with the introduction of mixed and improper fractions including basic operations of addition, subtraction and multiplication using visual aids. Pupils will be developing problem solving skills involving fractions and percentages furthering their Mathematical fluency and reasoning skills Within this term Pupils will have the opportunity to	Pupils will be recalling their knowledge of area and perimeter of rectilinear shapes and apply to composite rectilinear shapes as well as calculating and comparing area of rectangles in various units further developing their mathematical reasoning and fluency. Pupils will be introduced the concept of volume and capacity in practical contexts. Pupils will have developed their reasoning skills with developing their rounding skills with both whole numbers, multiples of tens and decimals and using round answers to check calculations and level of accuracy. Pupils will be developing	Pupils will be developing mathematical fluency with counting forward and backward in powers of 10 up to 1,000,000. They will be further developing their approach to problem solving skills involving converting units of time, as well as completing, reading, and interpreting tables. Pupils analysing and solving problems from data presented in line graphs, drawing conclusions developing their mathematical reasoning skills. A final assessment will be carried out to see overall progress from the year, pupils can revisit areas required following their assessment to ensure

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	Pupils will begin to recognise negative numbers in context continually building on their problem-solving skills. Pupils will further develop their mathematical fluency and problem-solving skills with addition and subtraction problems in both written and mental questions.	skills about equal sides and angles. Towards the end of this term, pupil assessments will be completed, and enrichment tasks used to enhance the work cover so far in the term, allowing for development of Mathematical reasoning and Fluency.	context and understand the difference between the metric and common imperial units.	review work completed to date and delve deeper into certain topics to ensure pupils have solid understanding of the work covered.	reasoning skills when identifying, describing, and representing shapes within basic reflections and translations.	solid understanding of topics covered and allow students to delve deeper into topics to deepen their understanding
NC/Qualification Objectives	- identify multiples and factors, including finding all factor pairs of a number, and common factors of two 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 - recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) - solve problems involving multiplication and	- identify 3-D shapes, including cubes and other cuboids, from 2-D representations - multiply and divide numbers mentally drawing upon known facts - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 - 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 - divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders	- compare and order fractions whose denominators are all multiples of the same number - identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents - read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] - read, write, order and compare numbers with up to three decimal places - recognise the per cent symbol (%) and	- know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles - draw given angles, and measure them in degrees ($^{\circ}$) - identify angles at a point and one whole turn (total 360°); angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°); other multiples of 90° - 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, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$]	- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres - calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes - estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] - round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 - round decimals with two decimal places to	- count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 - solve problems involving converting between units of time - complete, read and interpret information in tables, including timetables - solve comparison, sum and difference problems using information presented in a line graph

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	division including using their knowledge of factors and multiples, • read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • read Roman numerals to 1000 (M) and recognise years written in Roman numerals • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • add and subtract numbers mentally with increasingly large numbers • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	appropriately for the context • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • 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	understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal • solve problems involving number up to three decimal places • 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 • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	• 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 • 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 • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	the nearest whole number and to one decimal place • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • 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	
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Enrichment/ Experiences	- Shopping Trip – estimation, using money, adding costs of items - Marwell Zoo – Data collection, working with time - Maiden Erlegh Nature Reserve or Dinton Pastures – Estimating and measuring distances - Trip to London – calculating time of journey, timings of day out, cost of visits etc - Bracknell ski slopes – Negative numbers, measuring length of slope, time taken to travel down slope on tubes
Curriculum End Point / Goal	The aim of Year 5 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 be developing 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. Teaching in geometry and measures as well as number is being developed. 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 5, pupils should be starting to gain confidence 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