

Year Group



YEAR 5 2023-2024

Objectives highlighted in yellow are 'Ready to Progress criteria' – children need to be secure on these before moving on

PROBLEM SOLVING AND REASONING MUST BE INCORPORATED INTO ALL TOPICS FOR ALL CHILDREN.

Autumn 1

Number – Place Value

Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
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.

Solve number problems and practical problems that involve the above.

Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000.

Number – Addition and Subtraction

Add and subtract numbers mentally with increasingly large numbers.

Add and subtract whole numbers with more than four 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.

Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Number-Multiplication and Division

Secure fluency in multiplication and division facts **(5NF1)**

Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. **(5MD-2)**

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 division, including using their knowledge of factors and multiples, squares and cubes.

Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size **(5MD-1)**

Multiply and divide whole numbers by 1,000.

Multiply and divide numbers mentally, drawing upon known facts, multiples of 10, 100, 1000

Autumn 2

Number-Multiplication and Division

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 **(5MD-3)**

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 **(5MD-4)**

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

Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). **(5NF-2)**

	<p>Fractions Find equivalent fractions and understand that they have the same value and the same position in the linear number system. 5F–2 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. Compare and order fractions whose denominators are all multiples of the same number. Add and subtract fractions with the same denominator, and denominators that are multiples of the same number.</p>
<p>Spring 1</p>	<p>Fractions Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Find non-unit fractions of quantities 5F–1 To use fractions as operators Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple ratio Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number (Y4) Number-Decimals Read, write, order and compare numbers with up to 3 decimal places Read and write decimal numbers as fractions Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Read and write decimal numbers as fractions Recall decimal fraction equivalents for $1/2$, $1/4$, $1/5$, $1/10$ and for multiples of these proper fractions. 5F–3 Solve problems which require knowing percentage and decimal equivalents of $1/2$, $1/4$, $1/5$, $2/5$, $4/5$ and those fractions with a denominator of a multiple of 10 or 25 Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents Solve problems involving numbers up to 3 decimal places Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place</p>
<p>Spring 2</p>	<p>Number – Decimals Add and subtract decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1 (for example, $0.83 + 0.17 = 1$). Read, write, order and compare numbers with up to 3 decimal places Recognise and describe linear number sequences for decimals Multiply and divide numbers, including decimals, by 10, 100, 1000 -5MD-1 Solve problems involving number up to 3 decimal places Number-Percentages 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 $1/2$, $1/4$, $1/5$, $2/5$, $4/5$ and those fractions with a denominator of a multiple of 10 or 25. Measurement Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p>
<p>Summer 1</p>	<p>Measurement Calculate and compare the area of rectangles (including squares), and including</p>

	<p>using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes (5G-2)</p> <p><u>Geometry – Shape</u> Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (°) Identify angles at a point and 1 whole turn (total 360°) Identify: angles at a point and 1 whole turn (total 360°); angles at a point on a straight line and half a turn (total 180°) 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 Identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p> <p><u>Geometry – Position and Direction</u> 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</p> <p><u>Statistics</u> Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables.</p>
<u>Summer 2</u>	<p><u>Number – Negative numbers</u> Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0</p> <p><u>Measurement – Converting units and volume</u> 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 Solve problems involving converting between units of time Complete, read and interpret information in tables, including timetables Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity</p>
<u>Continuous objectives</u>	<p>The continuous objectives are woven into the teaching continually during the year. Children are given continual and regular opportunities to apply their knowledge to problem solving and reasoning.</p> <p>Solve number problems and practical problems that relate to all of the above (number and place value) 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 Solve problems involving number up to three decimal places 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 ratio 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 converting between units of time</p>

	Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.
<p><u>Key Basic skills to be taught continuously through the year</u></p>	<p>Count forward and backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p>Read and write numbers up to 1 000 000 and determine the place value of each digit</p> <p>Recognise the place value in large whole numbers to at least 1 000 000</p> <p>Compare and order numbers to at least 1 000 000</p> <p>Partition numbers into place value columns</p> <p>Partition numbers in different ways</p> <p>Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</p> <p>Use rounding to support estimation and calculation</p> <p>Use knowledge of place value to derive new addition and subtraction facts</p> <p>Secure fluency in multiplication table facts, and corresponding division facts, through continued practice (5NF-1)</p> <p>Identify multiples and common factors of two or more numbers</p> <p>Find factor pairs of a two-digit number</p> <p>Understand the terms multiple, factor, and prime, square and cube numbers and use them to construct equivalent statements</p> <p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.</p> <p>Establish whether a number up to 100 is prime and recall prime numbers up to 19</p> <p>Can find the prime factors of a given number</p> <p>Read and recognise Roman numerals up to 1000</p> <p>Recognise and use square and cube numbers</p> <p>Double any number between 1 and 1000 and find all corresponding halves</p> <p>Add and subtract mentally with increasingly large numbers to aid fluency e.g. TthTHTU ± THTU, TthTHTU ± HTU, HTU.t ± HTU.t</p> <p>Multiply and divide whole numbers including those involving decimals by 10, 100 and 1000</p> <p>Use knowledge of inverse to derive associated multiplication and division facts</p> <p>Use known facts and knowledge of multiples to derive new facts</p> <p>Count up and down in tenths, hundredths and thousandths in decimals and fractions including bridging zero</p> <p>For fractions and decimals derive pairs with complements to 1 and to other whole numbers</p> <p>Identify equivalent fractions</p> <p>Recognise decimal equivalents of fractions with a denominator of ten, one hundred and one thousand</p> <p>Read and write decimal numbers with up to 3 decimal places as fractions</p> <p>Read, write order and compare numbers with up to three decimal places</p> <p>Round decimals with up to two decimal places to the nearest whole number and to one decimal place</p> <p>Know 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</p> <p>Use knowledge of complements to 60 and that there are 60 minutes in an hour to convert time durations</p>