

Medium Term Plans Year 5

NB- These plans are not static and will change year on year and sometimes within a year depending on cohort needs and knowledge and understanding needs.

Year 5 big ideas

NUMBER AND PLACE VALUE

In our number system the position of a digit in a number determines its value, unlike Roman Numerals where symbols are added

Numbers can be broken down in different ways, e.g. 4000 can be described as 4 thousands or 40 hundreds or 400 tens

Large numbers are read in a pattern of 3 digits

Large quantities are hard to estimate - benchmarks can help e.g. 60 000 people went to the match; 3 million people live in Wales

NUMBER ADDITION AND SUBTRACTION

Number facts can be approximated or calculated by adjusting numbers, e.g. $3415 - 2996$ is equivalent to $3419 - 3000$

The most appropriate method for calculation can differ depending on the numbers involved

Using estimates or different calculation strategies reduce the likelihood of errors

NUMBER MULTIPLICATION AND DIVISION

= means 'the same as' e.g. $8 \times 4 = 32 \div 10$

Some calculations involving large numbers can be done mentally; others require written methods

Many new number facts can be derived from a number sentence e.g. $24 \times 16 = 384$ so $12 \times 32 = 384$ and $24 \times 8 = 192$

Multiplication and division is used in a range of areas of mathematics e.g. calculating fractions, finding prime numbers

NUMBER FRACTIONS

The size of a fraction is inversely related to the size of the denominator and directly related to the size of the numerator

Fractions can be compared using benchmarks e.g. how far they are from 0, $\frac{1}{2}$ or 1.

Different fraction questions use the same ideas and skills e.g. finding fractions of quantities and finding an equivalent fractions

MEASUREMENT

Measurements can be compared when they are converted into the same unit

Benchmark measures help when estimating e.g. the park is 1km away so... a bag of sugar is 1kg so...

Perimeter is a measurement of length whereas area is a measurement of space

The relationship between the area and perimeter of a shape is complex e.g. doubling the area doesn't double the perimeter

GEOMETRY

The transformation of a 2D net into a 3D shape can be visualised

Shapes with different numbers of sides and vertices can still share other characteristics

Shapes can belong to more than one classification e.g. a square is a rhombus and a rectangle

Properties of shapes are interdependent e.g. a rectangle has parallel lines because it has four right-angles

STATISTICS

Graphs can be used to make inferences and deductions as well as for retrieving information

The type of graph used will depend on the type of data being shown e.g. bar charts can be used for discrete data (information counted in set groups); line graphs can be used to show continuous data (information measured where 'in-between' values exist)

WEEK	AUTUMN	SPRING	SUMMER
1-3	<p>read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</p> <ul style="list-style-type: none"> • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • round any number up to 1 000 000 to the nearest 10, 100 and 1000 <p>add and subtract numbers mentally with increasingly large numbers</p> <ul style="list-style-type: none"> • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why <p>identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p>	<p>read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</p> <ul style="list-style-type: none"> • 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 zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above <p>subtract whole numbers with more than 4 digits, including using formal written methods (columnar subtraction)</p> <ul style="list-style-type: none"> • 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 <p>know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</p> <ul style="list-style-type: none"> • draw given angles, and measure them in degrees (°) • identify: 	<p>read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</p> <ul style="list-style-type: none"> • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals <p>add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p> <p>add and subtract numbers mentally with increasingly large numbers</p> <ul style="list-style-type: none"> • 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 <p>use the properties of rectangles to deduce related facts and find missing lengths and angles</p> <ul style="list-style-type: none"> • distinguish between regular and irregular polygons based on reasoning about equal sides and angles

		<p>- angles at a point and one whole turn (total 360 °)</p> <p>- angles at a point on a straight line and 12 a turn (total 180 °)</p> <p>- other multiples of 90 °</p>	
4-6	<p>multiply and divide numbers mentally drawing upon known facts</p> <ul style="list-style-type: none"> multiply and divide whole numbers by 10, 100 and 1000 <p>compare and order fractions whose denominators are all multiples of the same number</p> <ul style="list-style-type: none"> identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths <p>identify, describe and represent the position of a shape following a translation, using the appropriate language, and know that the shape has not changed</p>	<p>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</p> <ul style="list-style-type: none"> solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign <p>compare and order fractions whose denominators are all multiples of the same number</p> <ul style="list-style-type: none"> add and subtract fractions with the same denominator and denominators that are multiples of the same number recognise and use thousandths and relate them to tenths and hundredths <p>convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre)</p> <ul style="list-style-type: none"> understand and use approximate equivalences between metric units and common imperial units such as inches 	<p>multiply and divide numbers mentally drawing upon known facts</p> <ul style="list-style-type: none"> multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates <p>use all four operations to solve problems involving measure [for example, money] using decimal notation, including scaling</p> <p>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements greater than 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$].</p> <p>convert between different units of metric measure (for example litre and millilitre)</p> <ul style="list-style-type: none"> understand and use approximate equivalences between metric units and common imperial units such as pints estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] use all four operations to solve problems involving measure [for example volume] using decimal notation, including scaling

		<ul style="list-style-type: none"> • use all four operations to solve problems involving measure [for example, length] using decimal notation, including scaling 	
7-9	<p>add whole numbers with more than 4 digits, including using formal written methods (columnar addition)</p> <ul style="list-style-type: none"> • add numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy <p>read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$]</p> <ul style="list-style-type: none"> • round decimals with two decimal places to the nearest whole number and to one decimal place <p>convert between different units of metric measure (for example, gram and kilogram)</p> <ul style="list-style-type: none"> • understand and use approximate equivalences between metric units and common imperial units such as pounds • use all four operations to solve problems involving measure [for example, mass] using decimal notation, including scaling 	<p>read and write decimal numbers as fractions</p> <ul style="list-style-type: none"> • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places <p>solve comparison, sum and difference problems using information presented in a line graph</p> <ul style="list-style-type: none"> • complete, read and interpret information in tables, including timetables 	<p>add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p> <ul style="list-style-type: none"> • 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 <p>use all four operations to solve problems involving measure [for example, money] using decimal notation, including scaling</p> <p>Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</p> <p>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.</p> <p>identify, describe and represent the position of a shape following a reflection, using the appropriate language, and know that the shape has not changed</p>

<p>10-12</p>	<p>identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</p> <ul style="list-style-type: none"> multiply numbers up to 4 digits by a one-digit number using a formal written method multiply and divide numbers mentally drawing upon known facts multiply whole numbers by 10, 100 and 1000 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 squares and cubes solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign <p>identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</p> <ul style="list-style-type: none"> 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 divide numbers mentally drawing upon known facts divide whole numbers by 10, 100 and 1000 solve problems involving multiplication and division 	<p>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</p> <ul style="list-style-type: none"> solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign <p>Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</p> <p>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.</p> <p>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <ul style="list-style-type: none"> calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes 	<p>multiply numbers up to 4 digits by a two-digit number using a formal written method, including long multiplication for two-digit numbers</p> <ul style="list-style-type: none"> 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 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>use all four operations to solve problems involving measure [for example money] using decimal notation, including scaling</p> <p>solve comparison, sum and difference problems using information presented in a line graph</p> <ul style="list-style-type: none"> complete, read and interpret information in tables
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	<p>including using their knowledge of factors and multiples</p> <p>solve problems involving converting between units of time</p> <ul style="list-style-type: none">• use all four operations to solve problems involving measure, including scaling		
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