

Mental Maths/Arithmetic (throughout the year):

Mental Maths:

- 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 zero
- round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
- read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
- add and subtract numbers mentally with increasingly large numbers (for example, $12\,462 - 2300 = 10\,162$)
- recall prime numbers up to 19
- multiply and divide numbers mentally drawing upon known facts
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- read and write decimal numbers as fractions [for example, $0.71 = 71/100$]
- 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
- convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) using their knowledge of place value and multiplication and division.

Problem Solving

Problem solving should be integrated throughout all maths learning as well as lessons where the main focus is on a problem solving objective.

Method of Solving Problem

To test a statement by finding examples and counter examples

To explain whether a number will be part of a sequence/pattern

Ways of Recording

Choose a systematic way to record my ideas from a list of suggestions (e.g. a list, a grid or a table)

Speaking and Listening

To be able to suggest an improvement to the method I used

To be able to ask 'what if' questions about a problem

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Number and place value (~ 3 weeks)</p> <p><i>read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit;</i></p> <p><i>count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000;</i></p> <p><i>interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero</i></p> <p><i>round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</i></p> <p><i>solve number problems and practical problems that involve all of the above</i></p> <p><i>read Roman numerals to 1000 (M) and recognise years written in Roman numerals</i></p> <p>Calculation (~3 weeks)</p> <p><i>add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</i></p> <p><i>add and subtract</i></p>	<p>Decimals and measures (~3 weeks)</p> <p><i>multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</i></p> <p><i>read and write decimal numbers as fractions [for example, 0.71 = 71/100]</i></p> <p><i>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</i></p> <p><i>round decimals with two decimal places to the nearest whole number and to one decimal place</i></p> <p><i>read, write, order and compare numbers with up to three decimal places</i></p> <p><i>solve problems involving number up to three decimal places</i></p> <p><i>convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</i></p> <p><i>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</i></p> <p><i>calculate and compare the area of rectangles</i></p>	<p>Multiplication, division and fractions (~3 weeks)</p> <p><i>Text: 365 Days of Penguins – link to square numbers, cube numbers, triangular numbers, patterns and problem solving.</i></p> <p><i>multiply and divide numbers mentally drawing upon known facts multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</i></p> <p><i>identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</i></p> <p><i>recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</i></p> <p><i>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</i></p> <p><i>solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes solve problems involving multiplication and division, including</i></p>	<p>Number and decimal place value (~ 3 weeks)</p> <p><i>Revisit number and place value objectives from Autumn 1 (as necessary) and consolidate mental maths objectives</i></p> <p><i>read, write, order and compare numbers with up to three decimal places</i></p> <p><i>read and write decimal numbers as fractions [for example, 0.71 = 71/100]</i></p> <p><i>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</i></p> <p><i>round decimals with two decimal places to the nearest whole number and to one decimal place</i></p> <p>Calculation using decimals, fractions and percentages (~3 weeks)</p> <p><i>add and subtract fractions with the same denominator and denominators that are multiples of the same number</i></p> <p><i>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</i></p>	<p>Decimals and measures (~3 weeks)</p> <p><i>read and write decimal numbers as fractions [for example, 0.71 = 71/100]</i></p> <p><i>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</i></p> <p><i>round decimals with two decimal places to the nearest whole number and to one decimal place</i></p> <p><i>read, write, order and compare numbers with up to three decimal places</i></p> <p><i>solve problems involving number up to three decimal places</i></p> <p><i>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</i></p> <p><i>solve problems which require knowing percentage and decimal equivalents and those fractions with a denominator of a multiple of 10 or 25.</i></p> <p><i>convert between different units of metric measure (for example, kilometre and metre; centimetre</i></p>	<p>Percentages, decimals and fractions (~3 weeks)</p> <p><i>multiply and divide numbers mentally drawing upon known facts</i></p> <p><i>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</i></p> <p><i>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</i></p> <p><i>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</i></p> <p><i>recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number</i></p> <p><i>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</i></p> <p><i>use all four operations to</i></p>

<p>numbers mentally with increasingly large numbers</p> <p>use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p> <p>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <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> <p>multiply and divide numbers mentally drawing upon known facts</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> <p>multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals</p>	<p>(including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes</p> <p><u>use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation</u></p> <p>Geometry and statistics (~3 weeks)</p> <p>identify 3-D shapes, including cubes and other cuboids, from 2D representations</p> <p><u>estimate volume [for example, using 1 cm³ blocks to build cuboids] (including cubes) and capacity [for example, using water]</u></p> <p>know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles</p> <p>draw given angles, and measure them in degrees</p> <p>identify angles at a point and one whole turn (total 360°)</p> <p>angles at a point, on a straight line and $\frac{1}{2}$ a turn (total 180°)</p> <p>other multiples of 90</p>	<p>scaling by simple fractions</p> <p>know and use the vocabulary of prime numbers recall the prime numbers to 19</p> <p>compare and order fractions whose denominators are all multiples of the same number</p> <p>identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number</p> <p>Time and measure problems (~3 weeks)</p> <p>Make links throughout this block to previous work on fractions and decimals (and practise appropriate mental and written methods of calculation)</p> <p>solve problems involving converting between units of time (using all four operations) (e.g. days to weeks)</p> <p>complete, read and interpret information in tables, including timetables.</p>	<p>solve problems involving number up to three decimal places</p> <p>solve problems which require knowing percentage and decimal equivalents and those fractions with a denominator of a multiple of 10 or 25.</p> <p>recognise and describe linear number sequences, including those involving fractions and decimals, and find the term-to-term rule.</p> <p>recognise the percent 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>Text: If The World Were A Village - percentages</p>	<p>and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</p> <p>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <p>use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p> <p>solve problems involving 2D shape on four quadrant coordinates grids</p> <p>use venn and carroll diagrams to sort shapes according to their properties</p> <p>Geometry and data (~3 weeks)</p> <p>Revisit objectives from Autumn 2 as required</p> <p>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>solve comparison, sum and difference problems using information presented in a line graph</p>	<p>solve problems involving f,d,p linked to money, measure, perimeter and area</p> <p>My Money Week - June</p>
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<p><i>sign</i></p>	<p><i>use the properties of rectangles to deduce related facts and find missing lengths and angles</i></p> <p><i>distinguish between regular and irregular polygons based on reasoning about equal sides and angles</i></p> <p><i>use standard notation to mark in pairs of parallel lines</i></p> <p><i>complete, read and interpret information in tables</i></p>	<p><i>understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</i></p> <p><i>use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</i></p> <p><i>convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</i></p>		<p><i>decide which representations of data are most appropriate and why</i></p>	
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