

|  | Number facts | - Represent and use number bonds and related subtraction facts within 20. <br> Vocabulary <br> Number bonds, part, whole | - Use place value and number facts to solve problems. <br> - Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 . |  |  |  |  |
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|  | Addition and subtraction | - Add and subtract onedigit and two-digit numbers to 20 , including zero. <br> - Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7=\square$ $\square$ -9 . <br> Vocabulary <br> Add, plus, altogether, total, take away /minus, digit | - Add and subtract numbers using concrete objects, pictorial representations, and mentally, including TU+U, TU+T, TU+TU AND U+U+U. <br> - Show that addition of two numbers can be done in any order (cummutative) and subtraction of one number from another cannot. <br> - Solve problems with addition and subtraction using concrete objects and pictorial representations. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. <br> Vocabulary <br> addition/add, subtraction, difference, equals, facts, problems, inverse sum, commutative, inverse | - Add and subtract numbers mentally, including: HTU $+\mathrm{U}, \mathrm{HTU}+\mathrm{T}$, HTU+H. <br> - Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. <br> - estimate the answer to a calculation and use inverse operations to check answers <br> - Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. <br> Vocabulary <br> Column addition, column subtraction, carrying, borrowing, exchanging, | - Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. <br> - Estimate and use inverse operations to check answers to a calculation. <br> - Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. <br> Vocabulary <br> Two steps | - Add and subtract numbers mentally with increasingly large numbers. <br> - Add and subtract whole numbers with more than 4 digits, including using formal written methods. <br> - Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. <br> - Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. | - Perform mental calculations, including with mixed operations and large numbers. |



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| $\begin{gathered} \text { Fractions, percentages and } \\ \text { decimals. } \end{gathered}$ |  | - Recognise, find and name a half as one of two equal parts of an object, shape or quantity. <br> - Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. <br> Vocabulary <br> Whole, half, quarter, equal, parts, quantity, |

- recognise, find, name
and write fractions $\frac{1}{3}, \frac{1}{4}$
$\frac{2}{4}$ and $\frac{3}{4}$ of a length,
shape, set of objects or
quantity
write simple fractions for
example, $\frac{1}{2}$ of $6=3$ and
recognise the
equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.
Count up and down in
halves and quarters.


## Vocabulary

three quarters, third, equivalent, fractions, unit fractions, non unit, halves, quarters,

Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing onedigit numbers or quantities by 10 .

- Recognise and show, using diagrams, equivalent fractions with small denominators.
- Compare and order unit fractions, and fractions with the same
denominator
- Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions
with small denominators.
- Recognise and use
fractions as numbers: unit fractions. and nonunit fractions with small denominators
- add and subtract fractions with the same denominator within one
whole [for example, ${ }^{\frac{5}{7}}$ $\frac{1}{7}=\frac{6}{7}$ ]
- Solve problems using al fraction knowledge.


## Vocabulary

Tenths, decimal, equivalent, numerator, denominator, decimal point,

- Count up and down in hundredths.
- Recognise that hundredths arise when dividing an object by one hundred and dividin tenths by ten. Recognise and show, using diagrams, families of diagrams, families of common equival fractions.
- 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.
- Add and subtract fractions with the same denominator
- Recognise and write decimal equivalents of any number of tenths or hundredths.
- Recognise and write
decimal equivalents to , $\frac{1}{2}, \frac{3}{4}$
- Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.
- Round decimals with on decimal place to the
- Recognise mixed numbers and improper fractions and convert from one form to th ther and write mathematical statements 1 as a mixed number
- 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
- Add and subtrac 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.
- Read and write decimal numbers as fractions.
- 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

Use common factors to simplify fractions.

- Use common multiples to express fractions in the same denominatio
- Compare and order fractions, including fractions $>1$.
- Add and subtract fractions with different denominators and mixed numbers, using the concept, of equivalen fractions.
Multiply simple pairs of proper fractions, writing the answer in its simples form.
- Divide proper fractions by whole numbers.
- Associate a fraction with division and calculate decimal fraction equivalents [for example 0.375 ] for a simple fraction.
- 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
- Multiply and divide numbers by 10,100 and 1000 giving answers up to three decimal places.
- Multiply one digit numbers with up to two decimal places by whole numbers.


| E | Perimeter and area |  |  | - Measure the perimeter of simple 2-D shapes. <br> Vocabulary <br> Perimeter, | - Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. <br> - Find the area of rectilinear shapes by counting squares. <br> Vocabulary <br> Area, rectilinear, centimetres square, metres square | - Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. <br> - Calculate and compare the area of rectangles and including using standard units, square centimetres $\left(\mathrm{cm}^{2}\right)$ and square metres ( $\mathrm{m}^{2}$ ) and estimate the area of irregular shapes. | - Recognise that shapes with the same areas can have different perimeters and vice versa. <br> - Recognise when it is possible to use formulae for area and volume of shapes. <br> - Calculate the area of parallelograms and triangles. <br> - Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres $\left(\mathrm{cm}^{3}\right)$ and cubic metres $\left(\mathrm{m}^{3}\right)$, and extending to other units [for example, $\mathrm{mm}^{3}$ and $\mathrm{km}^{3}$ ]. <br> Vocabulary <br> Volume, cubic centimetres, cubic metres, |
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|  | Time | - Sequence events in chronological order using language, recognise and use language relating to dates, including days of the week, weeks, months and years. <br> - Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. <br> Vocabulary <br> O'clock, half past, minute hand, hour hand, morning, afternoon, dinner time, night, day, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, January, February, March, April, May, June, July, August, September, October, November, December, | - Compare and sequence intervals of time. <br> - Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. <br> - Know the number of minutes in an hour and the number of hours in a day. <br> Vocabulary <br> Quarter past, quarter two, minutes past, minutes to, hour, minutes | - Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12 -hour and 24 -hour clocks. <br> - Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. <br> - Know the number of seconds in a minute and the number of days in each month, year and leap year. <br> Vocabulary <br> Roman numerals, seconds, leap year, am, pm, digital, 24 hour clock, 12 hour clock, seconds, | - Convert between hours to minutes and vice versa. . <br> - Read, write and convert time between analogue and digital 12- and 24hour clocks. <br> - Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. | - Solve problems involving converting between units of time. | - Solve more complex problems involving time. |


|  | Money | - Recognise and know the value of different denominations of coins and notes. <br> Vocabulary <br> Coins, notes, pound, pence, | - Recognise and use symbols for pounds ( $£$ ) and pence (p); combine amounts to make a particular value. <br> - Find different combinations of coins that equal the same amounts of money. <br> - Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. <br> Vocabulary <br> Total spent, change, amount, combinations, | - Add and subtract amounts of money to give change, using both $£$ and $p$ in practical contexts. | - Estimate, compare and calculate different measures, including money in pounds and pence. | - Use all four operations to solve problems involving measure using decimal notation, including scaling. |  |
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| $\begin{gathered} Q \\ \frac{Q}{\sigma} \\ \frac{\square}{\infty} \end{gathered}$ | Shape | - 2-D shapes [for example, rectangles (including squares), circles and triangles] <br> - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. <br> Vocabulary <br> 2D shape, 3D shape | - To know the vertices, edges, faces and symmetry. <br> - Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. <br> - Compare and sort common 2-D and 3-D shapes and everyday objects. <br> - Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. <br> - Identify 2-D shapes on the surface of 3-D shapes. <br> - Compare and sort common 2-D and 3-D shapes and everyday objects. <br> Vocabulary <br> Vertices, edges, faces, sides, corners, symmetry, symmetrical surface, | - Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. <br> - Draw 2-D shapes. <br> - Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. <br> - Recognise angles as a property of shape or a description of a turn. <br> - Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. <br> Vocabulary <br> Degrees, horizontal, vertical, perpendicular, parallel, orientations, angles, right angle turns. | - Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. <br> - Identify lines of symmetry in 2-D shapes presented in different orientations. <br> - Complete a simple symmetric figure with respect to a specific line of symmetry. <br> - Identify acute and obtuse angles and compare and order angles up to two right angles by size. <br> Vocabulary <br> Line of symmetry, quadrilaterals, symmetric figure, acute, obtuse, | - Use the properties of rectangles to deduce related facts and find missing lengths and angles. <br> - Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. <br> - Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. <br> - Draw given angles, and measure them in degrees ${ }^{\circ}{ }^{\circ}$. <br> - Identify: angles at a point and one whole turn (total $360^{\circ}$ ) angles at a point on a straight line and half a turn (total $180^{\circ}$ ), other multiples of $90^{\circ}$ <br> Vocabulary <br> Regular, irregular, polygons, | - Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. <br> - Draw 2-D shapes using given dimensions and angles. <br> - Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. <br> - Recognise, describe and build simple 3-D shapes, including making nets. <br> - Find unknown angles in any triangle, quadrilateral and regular polygons. <br> - Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. <br> Vocabulary <br> Radius, diameter, circumference. Net, |


|  | Position and Direction | - Describe position, direction and movement, including whole, half, quarter and threequarter turns. <br> Vocabulary <br> Whole turn, quarter turn, half turn, three-quarter turn, | - Order and arrange combinations of mathematical objects in patterns and sequences. <br> - Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise). <br> Vocabulary <br> Repeated, repeated pattern, right angle turn, clockwise, anticlockwise, | - Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. <br> Vocabulary <br> Right-angle turns, | - Describe positions on a 2D grid as coordinates in the first quadrant. <br> - Describe movements between positions as translations of a given unit to the left/right and up/down. <br> - Plot specified points and draw sides to complete a given polygon. <br> Vocabulary <br> Coordinates, x axis, y axis, plot, unit, | - 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. <br> Vocabulary <br> Translation, | - Describe positions on the full coordinate grid (all four quadrants). <br> - Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. <br> Vocabulary <br> Four quadrants, |
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|  | Data |  | - Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. <br> - Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. <br> - Ask and answer questions about totalling and comparing categorical data. <br> Vocabulary <br> Pictograms, tally chart, tally, block diagram, more than, less than, total, | - Interpret and present data using bar charts, pictograms and tables. <br> - Solve one-step and twostep questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. <br> Vocabulary <br> Bar charts, fewer, scale, greater than, key, popular | - Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. <br> - solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. <br> Vocabulary Line graphs | - Complete, read and interpret information in tables, including timetables. <br> - Solve comparison, sum and difference problems using information presented in a line graph. <br> Vocabulary <br> timetables | - Interpret and construct pie charts and line graphs and use these to solve problems. <br> - Calculate and interpret the mean as an average. <br> Vocabulary <br> Pie charts, average, mean, |
|  | Algebra, ratio and proportion. | - | - | - | - | - | Algebra <br> - Use simple formulae. <br> - Generate and describe linear number sequences. <br> - Express missing number problems algebraically. <br> - Find pairs of numbers that satisfy an equation with two unknowns. <br> - Enumerate possibilities of combinations of two variables. <br> Vocabulary <br> Algebra, unknown, value, equation. <br> Ratio and proportion |

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Solve problems involving the relative sizes of two the relative sizes of two quantities where missin values can be for
using integer using integer
multiplication and multiplication and
division facts.

- Solve problems involving the calculation of the calculation of percentages [for example, of measures, and such as $15 \%$ of 360 ] and the use of percentages for
Solve problems involving similar shapes where the scale factor is known or can be found.
Solve problems involving unequal sharing and grouping using
knowledge of fractions and multiples.


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comparison. wn or grouping using

