| Number and Place Value |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Year 2 (prior learning) | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  | count backwards through zero to include negative numbers | Count forwards or backwards in steps of powers of 10 for any given number up to $\mathbf{1 , 0 0 0 , 0 0 0}$ |  |
|  |  |  | Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero | Use negative numbers in context, and calculate intervals across zero |
| Count in multiples of 2,3 and 5 from 0 and in tens from any number forward and backward | count from 0 in multiples of $4,8,50$ and 100 | count in multiples of 6, 7, 9, 25 and 1000 |  |  |
|  | find 10 or 100 more or less than a given number | find 1000 more or less than a given number |  |  |
| Identify, represent and estimate numbers using different representations, including the number line | identify, represent and estimate numbers using different representations | identify, represent and estimate numbers using different representations |  |  |
| Read and write numbers to at least 100 in numerals and words | read and write numbers up to 1000 in numerals and words |  | Read, write, order and compare numbers to at least $\mathbf{1 , 0 0 0}, \mathbf{0 0 0}$ and determine the value of each digit | Read, write, order and compare numbers to at least $10,000,000$ and determine the value of each digit |
| Compare and order numbers from 0 to 100: Use <, > and = signs | Compare and order numbers up to 1000 | Compare and order numbers beyond 1000 |  |  |
| Recognise the place value of each digit in a two-digit number (tens and ones) | recognise the place value of each digit in a three-digit number (hundreds, tens, ones) | recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, ones) |  |  |
|  |  | Round any number to the nearest 10, 100, 1000 | Round any number up to $1,000,000$ to the nearest $\mathbf{1 0}, \mathbf{1 0 0}, \mathbf{1 0 0 0}, \mathbf{1 0 , 0 0 0}$ and 100,000 | Round any whole number to a required degree of accuracy |
|  |  | Read Roman numerals to $100(1-C)$ and know that over time, the numeral system changed to include the concept of zero and place value | Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. |  |
| Use place value and number facts to solve problems | Solve number problems and practical problems involving these ideas | Solve number and practical problems that involve all of the above and with increasingly large positive numbers. | Solve number problems and practical problems that involve all of the above | Solve number problems and practical problems that involve all of the above |

Addition and Subtraction

| Year 2 (prior learning) | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: |
| Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 |  |  |  |  |
| add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <br> -a two-digit number and ones <br> -a two-digit number and tens <br> -a two two-digit numbers <br> -adding three one-digit numbers | Add and subtract number mentally, including: <br> -a 3 digit number and ones <br> -a 3 digit number and tens <br> -a 3 digit number and 100s |  | add and subtract numbers mentally with increasingly large numbers | perform mental calculations, including with mixed operations and large numbers |
| show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot |  |  |  |  |
|  | Add and subtract numbers with up to 3 digits, using formal written methods or column addition and subtraction | add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate | add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction) |  |
| recognise and use the inverse relationship between addition and subtraction and use this to check calculations | Estimate the answer to a calculation and use inverse operations to check answers | estimate and use inverse operations to check answers to a calculation | use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy | use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy |
|  |  |  |  | use their knowledge of the order of operations to carry out calculations involving the four operations |
| solve problems with addition and subtraction: -using concrete objects and pictorial representations, including those involving numbers, quantities and measures -applying their increasing knowledge of mental and written methods. <br> Use the inverse relationship between addition and subtraction to solve missing number problems | Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction | solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why | -solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why -solve problems involving addition, subtraction, multiplication and division |

## Multiplication and Division



|  |  |  |  | divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context |
| :---: | :---: | :---: | :---: | :---: |
|  |  | use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1 ; dividing by 1; multiplying together three numbers | multiply and divide whole numbers and those involving decimals by $\mathbf{1 0}$, 100 and 1000 |  |
|  |  |  | recognise and use square numbers and cube numbers, and the notation for squared and cubed |  |
|  |  |  |  | use their knowledge of the order of operations to carry out calculations involving the four operations |
| solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts | solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which $n$ objects are connected to $m$ objects | solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects | 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 <br> solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy |

Fractions, Decimals and Percentages

| Year 2 (prior learning) | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8] |
| recognise, find, name and write fractions $1 / 3,1 / 4$, $2 / 4$ and $3 / 4$ of a length, shape, set of objects or quantity <br> write simple fractions for example, $1 / 2$ of $6=3$ and recognise the equivalence of $2 / 4$ and $1 / 2$ |  | recognise and show, using diagrams, families of common equivalent fractions <br> recognise and write decimal equivalents of any number of tenths or hundredths <br> recognise and write decimal equivalents to $1 / 4,1 / 2,3 / 4$ | identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths <br> read and write decimal numbers as fractions [for example, $0.71=71 / 100$ ] | 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 <br> use common factors to simplify fractions; use common multiples to express fractions in the same denomination |
|  |  | find the effect of dividing a one- or twodigit number by 10 and 100 , identifying the value of the digits in the answer as ones, tenths and hundredths |  |  |
|  | count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 | count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. | recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents |  |
|  |  |  | 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, $2 / 5+$ $4 / 5=6 / 5=11 / 5]$ |  |
|  | compare and order unit fractions, and fractions with the same denominators |  | compare and order fractions whose denominators are all multiples of the same number | compare and order fractions, including fractions > 1 |
|  | recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators |  |  |  |
|  | recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators |  |  |  |
|  | recognise and show, using diagrams, equivalent fractions with small denominators |  |  |  |



Ratio and proportion

| Ratio and proportion |  |  |  |
| :---: | :---: | :---: | :---: |
| Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts |
|  |  |  | solve problems involving the calculation of percentages [for example, of measures, and such as $15 \%$ of 360 ] and the use of percentages for comparison |
|  |  |  | 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 |


| Algebra |  |  |  |
| :--- | :--- | :--- | :--- |
| Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | use simple formulae |
|  |  |  | generate and describe linear number sequences |
|  |  |  | express missing number problems algebraically |
|  |  |  | find pairs of numbers that satisfy an equation with two <br> unknowns |
|  |  |  | enumerate possibilities of combinations of two variables. |


| Measurement |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Year 2 (prior learning) | Year 3 | Year 4 | Year 5 | Year 6 |
| choose and use appropriate standard units to estimate and measure length/height in any direction ( $\mathrm{m} / \mathrm{cm}$ ); mass ( $\mathrm{kg} / \mathrm{g}$ ); temperature ( ${ }^{\circ} \mathrm{C}$ ); capacity (litres $/ \mathrm{ml}$ ) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels <br> compare and order lengths, mass, volume/capacity and record the results using $>$, < and = | measure, compare, add and subtract: lengths ( $\mathrm{m} / \mathrm{cm} / \mathrm{mm}$ ); mass ( $\mathrm{kg} / \mathrm{g}$ ); volume/capacity ( $/$ /ml) | Convert between different units of measure [for example, kilometre to metre; hour to minute] | convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) <br> understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints <br> use all four operations to solve problems involving measure [for example, length, mass, volume, | solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate <br> use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places |


|  |  |  | money] using decimal notation, including scaling. | convert between miles and kilometres |
| :---: | :---: | :---: | :---: | :---: |
|  | Area, perimeter, volume measure the perimeter of simple 2-D shapes | Area, perimeter, volume measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres | Area, perimeter, volume measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres | Area, perimeter, volume recognise that shapes with the same areas can have different perimeters and vice versa |
|  |  | find the area of rectilinear shapes by counting squares | 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 <br> estimate volume [for example, using 1 cm 3 blocks to build cuboids (including cubes)] and capacity [for example, using water] | 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 (cm3) and cubic metres ( m 3 ), and extending to other units [for example, mm3 and km3]. |
| Money <br> 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 | Money <br> add and subtract amounts of money to give change, using both $£$ and $p$ in practical contexts | Money <br> estimate, compare and calculate different measures, including money in pounds and pence |  |  |
| Time compare and sequence intervals of time <br> tell and write the time to five minutes, including quarter past/to the hour and draw the | Time <br> tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks | Time <br> read, write and convert time between analogue and digital 12- and 24-hour clocks | Time <br> solve problems involving converting between units of time |  |


| 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 | 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> compare durations of events [for example to calculate the time taken by particular events or tasks]. | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days |
| :---: | :---: | :---: |


| Geometry- properties of shape |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Year 2 (prior learning) | Year 3 | Year 4 | Year 5 | Year 6 |
| identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line <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, [for example, a circle on a cylinder and a triangle on a pyramid] <br> compare and sort common 2-D and 3-D shapes and everyday objects | draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them | 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. | identify 3-D shapes, including cubes and other cuboids, from 2-D representations <br> distinguish between regular and irregular polygons based on reasoning about equal sides and angles | draw 2-D shapes using given dimensions and angles <br> recognise, describe and build simple 3-D shapes, including making nets <br> compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons <br> illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius |
|  | recognise angles as a property of shape or a description of a turn <br> 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 | identify acute and obtuse angles and compare and order angles up to two right angles by size | know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles <br> draw given angles, and measure them in degrees <br> Identify: | recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. |


|  | identify horizontal and vertical lines and <br> pairs of perpendicular and parallel lines. | -angles at a point and one whole turn <br> (360 degrees) <br> - angles at a point on a straight line <br> and $1 / 2$ a turn (total 180 degrees ) <br> - other multiples of 90 degrees <br> use the properties of rectangles to <br> deduce related facts and find missing <br> lengths and angles |
| :--- | :--- | :--- | :--- | :--- |


| Geometry- Position and Direction |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Year 2 (prior learning) | Year 3 | Year 4 | Year 5 | Year 6 |
| order and arrange combinations of mathematical objects in patterns and sequences |  |  |  |  |
| 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). |  |  |  |  |
|  |  | describe positions on a 2-D grid as coordinates in the first quadrant |  | describe positions on the full coordinate grid (all four quadrants) |
|  |  | describe movements between positions as translations of a given unit to the left/right and up/down | 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. | draw and translate simple shapes on the coordinate plane, and reflect them in the axes |
|  |  | plot specified points and draw sides to complete a given polygon |  |  |


|  |  |  |  |  |  |  |  | Statistics |
| :--- | :--- | :--- | :--- | :--- | :---: | :---: | :---: | :---: |
| Year 2 (prior learning) | Year 3 | Year 4 | Year 5 |  |  |  |  |  |





Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12



## Fractions B



Statistics

Themed projects. consolidation and problem solving

