**Maths: Number & Place Value**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| count to and across 100, forwards and backwards, from a given number | count in 2s, 3s, 5s and 10s from any number, forwards and backwards | count from 0 in multiples of 4, 8, 50 and 100 | count in multiples of 6, 7, 8, 9, 25 and 100 | read, write and compare numbers to at least 1,000,000 and determine the value of each digit | read, write and compare numbers up to 10,000,000 and determine the value of each digit |
| count, read and write numbers to 100 in numerals | recognise the place value of each digit in a two-digit number (tens, ones) | find 100 more or less than a given number | find 1000 more or less than a given number | count forwards and backwards in steps of powers of 10 for any given number up to 1,000,000 | round any number to a required degree of accuracy |
| count in multiples of twos, fives and tens | identify, represent and estimate numbers in different ways | recognise the place value of each digit in a three-digit number (hundreds, tens, ones) | count backwards through zero to include negative numbers | interpret negative numbers in context, and count forwards and backwards with positive and negative whole numbers, including through zero | use negative numbers in context, and calculate intervals across zero |
| identify one more and one less | compare and order numbers from 0 up to 100, using <, > and = signs | compare and order numbers up to 1000 | recognise the place value of each digit in a four digit number | 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 involving all of the above |
| identify and represent numbers using objects and pictures | read and write numbers to at least 100 in numerals and in words | identify, represent and estimate numbers using different representations | order and compare numbers beyond 1000 | solve number problems and practical problems involving all of the above |  |
| use the language of equal to, more than, less than (fewer), most, least | use place value and number facts to solve problems | read and write numbers to 1000 in numerals and in words | identify, represent and estimate numbers using different representations | read Roman numerals up to 1000 (M) and recognise years written in Roman numerals |  |
| read and write numbers from 1 to 20 in numerals and words |  | solve number problems and practical problems involving these ideas | round any number to the nearest 10, 100 or 1000 |  |  |
|  |  |  | read Roman numerals to 100 (I to C) |  |  |
|  |  |  | solve number and practical problems that include all of the above |  |  |

**Maths: Addition & Subtraction**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| read, write and understand calculations using +, - and = signs | solve problems with addition and subtraction with numbers, quantities and measures | add and subtract numbers mentally, including 3-digit numbers | add and subtract numbers with up to 4 digits using the formal written methods | add and subtract whole numbers with more than 4 digits, including using formal written methods | perform mental calculations, including with mixed operations and large numbers |
| represent and use number bonds and related subtraction facts to 20 | recall and use addition and subtraction facts to 20 fluently, and use related facts up to 100 | add and subtract numbers with up to three digits using formal written methods | estimate and use inverse operations to check answers to a calculation | add and subtract numbers mentally with increasingly large numbers | use my knowledge of the order of operations to carry out calculations involving the four operations |
| add one-digit and two-digit numbers to 20, including zero | add and subtract numbers including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers | estimate the answer to a calculation and use inverse operations to check answers | solve addition and subtraction two-step problems, deciding which operations and methods to use | use rounding to check answers to calculations | solve addition and subtraction multi-step problems in contexts, choosing operations and methods |
| subtract one-digit and two-digit numbers to 20, including zero | show that the addition of two numbers can be done in any order and subtraction cannot | solve problems, including missing number problems |  | 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 |
| solve one-step problems that involve addition and subtraction | recognise and use the inverse relationship between addition and subtraction |  |  |  | use estimation to check answers to calculation and determine an appropriate degree of accuracy |

**Maths: Multiplication & Division**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| count in steps of 2, 5 and 10 | recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables | recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables | recall multiplication and division facts for multiplication tables up to 12 x 12 | identify multiples and factors, finding all factor pairs of a number, and common factors of two numbers | multiply multi-digit numbers up to 4 digits by a two-digit whole number using long multiplication |
| solve simple problems involving multiplication, using arrays | recognise odd and even numbers | write and calculate mathematical statements for multiplication and division | use place value, known and derided facts to multiply and divide, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers | know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers | divide numbers up to 4 digits by a two-digit whole number using the formal method of long division |
| solve simple problems involving division, using sharing | calculate mathematical statements for multiplication and division within the multiplication tables | solve problems, including missing number problems, involving multiplication and division | recognise and use factor pairs in mental calculations | establish whether a number up to 100 is prime, and recall prime numbers up to 19 | interpret remainders as whole number remainders, fractions, or by rounding |
| double 1-digit numbers | show that the multiplication of two numbers can be done in any order and division cannot |  | multiply 2- and 3-digit numbers by a 1-digit number using a formal written layout | multiply numbers up to 4 digits by a one- or two-digit number using long multiplication | divide numbers up to 4 digits by a two-digit number using the formal written method of short division |
|  | solve problems involving multiplication and division |  | solve problems involving multiplying and adding, including integer scaling | multiply and divide numbers mentally drawing upon known facts | perform mental calculations with all operations and large numbers |
|  |  |  |  | divide numbers with up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately | identify common factors, common multiples and prime numbers |
|  |  |  |  | multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | use my knowledge of the order of operations to carry out calculations involving the four operations |
|  |  |  |  | recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) | solve problems involving addition, subtraction, multiplication and division |
|  |  |  |  | solve problems involving multiplication and division using knowledge of factors and multiples, squares and cubes | use estimation to check answers to calculation and determine an appropriate degree of accuracy |
|  |  |  |  | solve problems involving addition, subtraction, multiplication and division and a combination of these |  |
|  |  |  |  | solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple ratio |  |

**Maths: Fractions**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| recognise, find and name a half as one of two equal parts | recognise, find, name and write simple fractions of a length, shape, set of objects or quantity | count up and down in tenths | recognise and show, using diagrams, families of common equivalent fractions | compare and order fractions whose denominators are multiples of the same number | use common factors to simplify fractions, and use common multiples to find common denominators |
| find and name a half of a quantity or a shape | write simple fractions, for example 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2 | recognise, find and write unit and non-unit fractions of a discrete set of objects | count up and down in hundredths | identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths | compare and order fractions, including fractions > 1 |
| recognise, find and name a quarter as one of four equal parts |  | recognise and use fractions as numbers, both as unit fractions and non-unit fractions | solve problems involving finding fractions of numbers | 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 = 6/6 = 1 1/5) | add and subtract fractions with different denominators and mixed numbers, using equivalent fractions |
| find and name a quarter of a quantity or a shape |  | recognise and show, using diagrams, equivalent fractions with small denominators | add and subtract fractions with the same denominator | add and subtract fractions with the same denominator and those that are multiples of the same number | multiply simple pairs of proper fractions, writing the answer in its simplest form |
|  |  | add and subtract fractions with the same denominator within one whole | recognise and write decimal equivalents of any number of tenths or hundredths | multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams | divide proper fractions by whole numbers (for example: 1/3 ÷ 2 = 1/6) |
|  |  | compare and order unit fractions, and fractions with the same denominator | recognise decimal equivalents to 1/2, 1/4 and 3/4 | read and write decimal numbers as fractions (for example, 0.71 = 71/100) | associate a fraction with division and calculate decimal fraction equivalents for a simple fraction |
|  |  | solve problems that involve all of the above | find the effect of dividing a 1- or 2-digit number by 10 and 100 | recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents | identify the value of each digit in numbers given to three decimal places |
|  |  |  | round decimals with one decimal place to the nearest whole number | round decimals with two decimal places to the nearest whole number and to one decimal place | multiply and divide numbers by 10, 100 and 1000, giving answers up to three decimal places |
|  |  |  | compare numbers with the same number of decimal places up to 2 decimal places | read, write, order and compare numbers with up to three decimal places | multiply one-digit numbers with up to two decimal places by whole numbers |
|  |  |  | solve simple measure and money problems involving fractions and decimals to two decimal places | solve problems involving numbers up to three decimal places | use written division methods in cases where the answer has up to two decimal places |
|  |  |  |  | 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 | solve problems which require answers to be rounded to specified degrees of accuracy |
|  |  |  |  | solve problems which involve 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 | recall and use equivalences between simple fractions, decimals and percentages |

**Maths: Measures**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| I am beginning to measure and record lengths and heights | choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (⁰C) and capacity (litres/ml) | measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); and volume/capacity (l/ml) | convert between different units of measure (e.g. kilometre to metre, hours to minutes) | convert between different units of metric measure (for example: km and m; cm and m; cm and mm; g and kg; l and ml) | solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate |
| I am beginning to measure and record mass/weight | compare and order lengths, mass, volume and capacity and record the results using <, > and = | measure the perimeter of simple 2D shapes | measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m | understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints | use, read, write and convert between standard units, converting units of length, mass, volume and time from a smaller unit of measure to a larger unit and vice versa, using decimal notation up to three decimal places |
| I am beginning to measure and record capacity and volume | recognise and use symbols for pounds (£) and pence (p) | add and subtract amounts of money to give change, using both £ and p | find the area of a rectilinear shape by counting squares | measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres | convert between miles and kilometres |
| compare, describe and solve practical problems for time | find different combinations of coins that equal the same amounts of money | tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks | estimate, compare and calculate different measures, including money in pounds and pence | calculate and compare the areas of rectangles (including squares), and including using standard units square centimetres (cm²) and squares metres (m²), and estimate the area of irregular shapes | recognise that shapes with the same areas can have different perimeters and vice versa |
| measure and begin to record different measures | solve simple problems involving addition and subtraction of money, including giving change | estimate and read time with increasing accuracy to the nearest minute | write and convert time between analogue and digital 12- ad 24-hour clocks | estimate volume (for example, using 1cm³ 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 |
| recognise different coins and notes | compare and sequence intervals of time | I know the number of seconds in a minute and the number of days in each month, year and leap year | solve problems involving converting from hours to minutes, minutes to seconds, years to months and weeks to days | solve problems involving converting between units of time | calculate the area of parallelograms and triangles |
| sequence events in chronological order | tell and write the time to five minutes, including quarter past/to the hour | compare durations of events |  | use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation, including scaling | calculate, estimate and compare volumes of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units (for example, mm³ and m³) |
| use ‘date’ words, including days of the week, weeks, months and years | I know the number of minutes in an hour and the number of hours in a day |  |  |  |  |
| tell the time to the hour and half past the hour |  |  |  |  |  |

**Maths: Geometry**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| recognise and name common 2D shapes | identify and describe the properties of 2D shapes | draw 2D shapes and make 3D shapes, and recognise and describe 3D shapes in different orientations | compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes | identify 3D shapes, including cubes and other cuboids, from 2D representations | draw 2D shapes using given dimensions and angles |
| recognise and name common 3D shapes | identify and describe the properties of 3D shapes, including the number of edges, vertices and faces | recognise angles as a property of shape or a description of a turn | identify acute and obtuse angles and compare and order angles up two right angles by size | know that angles are measured in degrees, and estimate and compare acute, obtuse and reflex angles | recognise, describe and build simple 3D shapes, including making nets |
| describe position, direction and movement, including whole, half, quarter and three-quarter turns | identify 2D shapes on the surface of 3D shapes | identify right angles, recognise that two right angles make a half-turn, three make three-quarters of a turn and four a complete turn, and identify whether angles are greater than or less than a right angle | identify lines of symmetry in 2D shapes presented in different orientations | draw given angles, and measure them in degrees (⁰) | compare and classify geometric shapes based on their properties and sizes, and find unknown angles in any triangles, quadrilaterals, and regular polygons |
|  | compare and sort common 2D and 3D shapes and everyday objects | identify horizontal and vertical lines, and pairs of perpendicular and parallel lines | complete a simple symmetric figure with respect to a given line of symmetry | identify: angles at a point and one whole turn (total 360⁰); angles at a point on a straight line and ½ a turn (total 180⁰); and other multiples of 90⁰ | illustrate and name parts of circles, including radius, diameter and circumference, and know that the diameter of twice the radius |
|  | order and arrange combinations of mathematical objects in patterns and sequences |  | describe positions of a 2D grid as co-ordinates in the first quadrant | use the properties of rectangles to deduce related facts and find missing lengths and angles | recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
|  | use mathematical vocabulary to describe position, direction and movement |  | describe movements between positions as translations of a given unit to the left/right and up/down | distinguish between regular and irregular polygons based on reasoning about equal sides and angles | describe positions on a full co-ordinate grid (all four quadrants) |
|  |  |  | plot specified points and draw sides to complete a given polygon | 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 co-ordinate plane, and reflect them in the axes |

**Maths: Statistics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | interpret and construct simple pictograms, tally charts, block diagrams and simple tables | interpret and present data using bar charts, pictograms and tables | interpret and present discrete and continuous data, including bar charts and time graphs | solve comparison, sum and difference problems using information presented in a line graph | interpret and construct pie charts and line graphs and use these to solve problems |
|  | answer simple questions by counting the number of objects in each category, and sorting the categories by quantity | solve one-step and two-step questions (for example ‘How many more?’ and ‘How many fewer?’) using information presented in scaled bar charts and pictograms and tables | solve comparison, sum and difference problems using data presented in different ways | complete, read and interpret information in tables, including timetables | calculate and interpret the mean as an average |
|  | ask and answer questions about totalling and comparing categorical data |  |  |  |  |

**Maths: Algebra**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | 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 unknowns |
|  |  |  |  |  | list possibilities of combinations of two variables |

**Maths: Ratio & Proportion**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year 1 | Year 2 | 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 |