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| YEAR 3 | YEAR 4 | YEAR 5 | YEAR 6 |
| Number and place value | **Number – number and place value** | **Number – number and place value** | **Number – number and place value** |
| count from 0 in multiples of:  4, 8, 50, 100 | count in multiples of:  6, 7, 9, 25 and 1000 | count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 |  |
| find 10 or 100 more or less than a given number | find 1,000 more or less than a given number |  |  |
|  | count backwards through 0 to include negative numbers | interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0 | use negative numbers in context, and calculate intervals across 0 |
| recognise the place value of each digit in a 3-digit number (100s, 10s, 1s) | recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s |  |  |
| compare and order numbers up to 1,000 | order and compare numbers beyond 1,000 | read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit | read, write, order and compare numbers up to 10,000,000 and determine the value of each digit |
| identify, represent and estimate numbers using different representations | identify, represent and estimate numbers using different representations |  |  |
| read and write numbers up to 1,000 in numerals and in words | read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value | read Roman numerals to 1,000 (M) and recognise years written in Roman numerals |  |
|  | round any number to the nearest 10, 100 or 1,000 | round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 | round any whole number to a required degree of accuracy |
| 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 and practical problems that involve all of the above |
| ***Addition and Subtraction Y3*** | **Number – addition and subtraction Y4** | **Number – addition and subtraction Y5** | **Number – addition and subtraction, multiplication and division Y6** |
| 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 |  |
| add and subtract numbers with up to 3 digits, using formal written methods of columnar  addition  subtraction | add and subtract numbers with up to 4 digits using the formal written methods of:  columnar addition and  subtraction  where appropriate | add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) |  |
| add and subtract numbers mentally, including:  a three-digit number and 1s  a three-digit number and 10s  a three-digit number and 100s |  | add and subtract numbers mentally with increasingly large numbers | perform mental calculations, including with mixed operations and large numbers  (INCLUDES X AND ÷) |
| 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  (INCLUDES X AND ÷) |
|  |  |  |  |
| Multiplication and Division  Y3 | **Number – multiplication and division Y4** | **Number – multiplication and division Y5** | **Number – addition and subtraction, multiplication and division Y6** |
| recall and use multiplication and division facts for the:  3x, 4x, 8x multiplication tables | recall multiplication and division facts for multiplication tables up to 12 × 12 |  |  |
| write and calculate mathematical statements for multiplication and division using the multiplication tables that they know  including for two-digit numbers times one-digit numbers  using mental and... | use place value, known and derived facts to multiply and divide mentally, including:  multiplying by 0 and 1;  dividing by 1;  multiplying together 3 numbers | multiply and divide numbers mentally, drawing upon known facts |  |
| ... progressing to formal written methods | multiply two-digit and three-digit numbers by a one-digit number using formal written layout | 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 | multiply multi-digit numbers up to 4 digits by a two-digit whole number  using the formal written method of long multiplication |
|  |  | 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 | 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 |
| divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context |
|  |  | multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 |  |
|  | recognise and use factor pairs and commutativity in mental calculations | identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers |  |
|  |  | know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers | Identify: common factors, common multiples and  prime numbers |
|  |  | establish whether a number up to 100 is prime and recall prime numbers up to 19 |  |
|  |  | recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) |  |
| solve problems, including missing number problems, involving:  multiplication  division,  including positive integer scaling problems and correspondence problems in which n objects are connected to m objects | solve problems involving:  multiplying  adding,  including using the distributive law to multiply two-digit numbers by 1 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 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 and a combination of these, including understanding the meaning of the equals sign | use their knowledge of the order of operations to carry out calculations involving the 4 operations |
|  |  | solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | solve problems involving addition, subtraction, multiplication and division |
| Fractions Y3 | **Number – fractions Y4** | **Number – fractions Y5** | **Number – fractions Y6** |
| 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 100  and dividing tenths by 10 |  |  |
| recognise, find and write fractions of a discrete set of objects:  unit fractions  non-unit fractions with small denominators | recognise and show, using diagrams, families of common equivalent fractions | compare and order fractions whose denominators are all multiples of the same number | compare and order fractions, including fractions >1 |
| recognise and use fractions as numbers:  unit fractions  non-unit fractions with small denominators |  |  |  |
| recognise and show, using diagrams, equivalent fractions with small denominators | recognise and write decimal equivalents of any number of tenths or hundreds | identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths | use common factors to simplify fractions;  use common multiples to express fractions in the same denomination |
| add and subtract fractions with the same denominator within one whole [for example, +  =  ] | add and subtract fractions with the same denominator | add and subtract fractions with the same denominator, and denominators that are multiples of the same number | add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions |
|  |  | multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams | multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8 ]  divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6 ] |
| Fractions Y3 | **Number – fractions Y4** | **Number – fractions Y5** | **Number – fractions Y6** |
|  |  | 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= 1 1/5 ] |  |
| compare and order unit fractions, and fractions with the same denominators | recognise and write decimal equivalents to 1/4 , 1/2 , 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 example, 0.375] for a simple fraction [for example, 3/8 ] |
| solve problems that involve all of the above | 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 | solve problems involving number up to 3 decimal places |  |
|  | find the effect of dividing a one- or two-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 3 decimal places and  multiply and  divide numbers by 10, 100 and 1,000  giving answers up to 3 decimal places |
|  |  |  | multiply one-digit numbers with up to 2 decimal places by whole numbers |
|  |  |  | use written division methods in cases where the answer has up to 2 decimal places |
| Fractions Y3 | **Number – fractions Y4** | **Number – fractions Y5** | **Number – fractions Y6** |
|  | identifying the value of the digits in the answer as ones, tenths and hundredths | recognise the per cent symbol (%) and  understand that per cent relates to ‘number of parts per 100’, and  write percentages as a fraction with denominator 100, and  as a decimal fraction |  |
|  | round decimals with 1 decimal place to the nearest whole number  compare numbers with the same number of decimal places up to 2 decimal places  solve simple measure and money problems involving fractions and decimals to 2 decimal places | round decimals with 2 decimal places to the nearest whole number and to 1 decimal place | solve problems which require answers to be rounded to specified degrees of accuracy |
|  | compare numbers with the same number of decimal places up to 2 decimal places | read, write, order and compare numbers with up to 3 decimal places |  |
|  | solve simple measure and money problems involving fractions and decimals to 2 decimal places | solve problems which require 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, including in different contexts |
| **Measurement Y3** | **Measurement Y4** | **Measurement Y5** | **Measurement Y6** |  |
| measure, compare, add and subtract:  lengths (m/cm/mm);  mass (kg/g);  volume/capacity (l/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 | 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 3 decimal places |  |
|  |  | estimate volume [for example,:  using 1 cm³ blocks to build cuboids (including cubes)]  and capacity [for example, using water] |  |  |
|  |  | understand and use approximate equivalences between metric units and common imperial units such as:  inches,  pounds and  pints | convert between miles and kilometres |  |
| measure the perimeter of simple 2-D shapes | measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres | measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres | 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), including using standard units,  square centimetres (cm²) and  square metres (m²), and  estimate the area of irregular shapes | recognise when it is possible to use formulae for area and volume of shapes  calculate the area of parallelograms and triangles |  |
|  |  |  | calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³] |  |
| 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 [eg length, mass, volume, money]  using decimal notation, including scaling | solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate |  |
| tell and write the time from an analogue clock, including:  using Roman numerals from I to XII,  and 12-hour  24-hour clocks |  |  |  |  |
| estimate and read time with increasing accuracy to the nearest minute; |  |  |  |  |
| know the number of seconds in a minute and the number of days in each month, year and leap year |  |  |  |  |
| record and compare time in terms of seconds, minutes and hours; use vocabulary such as o’clock, am/pm, morning, afternoon, noon and midnight | read, write and convert time between  analogue and digital  12- and  24-hour clocks |  |  |
| 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 | solve problems involving converting between units of time |  |
| **Geometry and Properties of Shape Y3** | **Geometry – properties of shapes Y4** | **Geometry – properties of shapes Y5** | **Geometry – properties of shapes Y6** |
| identify horizontal and  vertical lines and  pairs of perpendicular and  parallel lines | identify lines of symmetry in 2-D shapes presented in different orientations  complete a simple symmetric figure with respect to a specific line of symmetry |  |  |
| draw 2-D shapes |  |  | Draw 2-D shapes using given dimensions and angles  recognise, describe and build simple 3-D shapes, including making nets |
| 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 | identify 3-D shapes, including cubes and other cuboids, from 2-D representations | compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons |
|  |  |  | 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 |  | identify:  angles at a point and 1 whole turn (total 360°)  angles at a point on a straight line and half a turn (total 180°)  other multiples of 90°  use the properties of rectangles to deduce related facts and find  missing lengths and angles  distinguish between regular and irregular polygons based on reasoning about equal sides and angles | recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
|  | identify acute and obtuse angles and compare and order angles up to 2 right angles by size | know angles are measured in degrees:  estimate and compare acute, obtuse and reflex angles  draw given angles, and measure them in degrees (°) |  |
|  |  |  |  |
| **Geometry – position and direction Y3** | **Geometry – position and direction Y4** | **Geometry – position and direction Y5** | **Geometry – position and direction Y5** |
| identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn;  identify whether angles are greater than or less than a right angle |  |  |  |
|  | describe positions on a 2-D grid as coordinates in the first quadrant |  | describe positions on the full coordinate grid (all 4 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 |  |
|  | plot specified points and draw sides to complete a given polygon |  | draw and translate simple shapes on the coordinate plane, and reflect them in the axes |
|  |  |  |  |
| **Statistics Y3** | **Statistics Y4** | **Statistics Y5** | **Statistics Y6** |
| interpret and present data using bar charts,  pictograms and  tables | interpret and present discrete and continuous data using appropriate graphical methods, including:  bar charts and  time graphs | complete, read and interpret information in tables, including timetables | calculate and interpret the mean as an average |
| 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 information presented in:  bar charts,  pictograms,  tables  and other 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 |

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|  |  |  | **Algebra Y6** |
|  |  |  | use simple formulae |
|  |  |  | generate and describe linear number sequences |
|  |  |  | express missing number problems algebraically |
|  |  |  | find pairs of numbers that satisfy an equation with 2 unknowns |
|  |  |  | enumerate possibilities of combinations of 2 variables |
|  |  |  | **Ratio and proportion Y6** |
|  |  |  | solve problems involving the relative sizes of 2 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 |