Strands with level identifiers

When planning, ensure that age expected objectives are linked in a progressive manner – eg To know place value to of a two-digit number (Year Two) has the progression objective To recognise value of each digit in a three-digit number (Year Three). The Year 3 objective would be the challenge objective to follow the Year Two objective.

Arithmetic (Number, Calculation and Fractions, Decimals & Percentages)

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| Year Four | Year Five | Year Six |
| To identify, represent and estimate numbers using different representations  To solve number and practical problems that involve all of the above and with increasingly large positive numbers  To solve sequences involving decimals  To add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction (including decimals in the context of money and carrying/borrowing concept)  To estimate and use inverse operations to check answers to a calculation  To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.  To multiply two-digit and three-digit numbers by a one-digit and two-digit number for multiplying using formal written layout (Short Multiplication)  To divide two-digit and three-digit numbers by one-digit including remainders  To solve missing number and inverse equations (up to three missing numbers and equals signs)  To solve problems involving multiplying and dividing  To recognise common equivalent fractions  To count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten  To solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities  To recognise mixed numbers and improper fractions and convert from one form to the other  To add and subtract fractions with the same denominator(inc 3 fractions and inverse)  To recognise and write decimal equivalents of any number of tenths or hundredths (converting decimal divisions into fractions.)  To recognise and write decimal equivalents to , ,  To order and compare decimals with the same number of decimal places up to two decimal places  To solve simple measure and money problems involving fractions and decimals to two decimal places  To find fractions of number with multiply parts eg  ¾ 4/5 6/7  Dividing fractions by an integer(10 making into a  Decimal) | To solve sequences involving negative numbers  To solve number problems and practical problems  To add and subtract whole numbers with more than 4 digits, using formal written methods (columnar addition and subtraction)  To use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy  To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.  To multiply numbers up to 4 digits by a one- or two- or 3-digit number using a formal written method, including long multiplication for two-digit numbers  To 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  To solve two step problems involving multiplication  and division  To compare and order fractions where denominators are multiples of the same number  To find equivalent fractions of a given fraction  To 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,  +  =  = 1]  To cancel fractions to simplest form  To add and subtract fractions with the same denominator and denominators that are multiples of the same number  To multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams  To read and write decimal numbers as fractions [for example, 0.71 = ]  To recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents  To round decimals with two decimal places to the nearest whole number and to one decimal place  To read, write, order and compare decimals with a mix of decimal places (up to three decimal places)  To solve problems involving number up to three decimal places  To 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  To solve problems which require knowing percentage and decimal equivalents of , , , ,  and those fractions with a denominator of a multiple of 10 or 25.  To find proportion as a % of a number | To solve number and practical problems  To solve problems involving inverse operation and brackets  To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of multiplication  To 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, decimals or by rounding, as appropriate for the context  To 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 including decimal remainders  To use knowledge of the order of operations (bodmas) to carry out calculations involving the four operations  To solve multi-step problems involving all four contexts, deciding which operations and methods to use and why  To use simple formulae  To generate and describe linear number sequences  To express missing number problems algebraically  To find pairs of numbers that satisfy an equation with two unknowns  To enumerate possibilities of combinations of two variables.  To use common factors to simplify fractions; use common multiples to express fractions in the same denomination  To compare and order fractions, including fractions > 1  To add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions  To multiply simple pairs of proper fractions, writing the answer in its simplest form [for example,  × = ]  To divide proper fractions by whole numbers [for example,  ÷ 2 = ]  To convert fraction to decimals using division [for example, 0.375 for ]  To solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts  To solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison (including % increase/decrease)  To solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.  To solve ratio and proportion problems |

Measures

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| Year Four | Year Five | Year Six |
| To convert between different units of measure [for example, kilometre to metre; hour to minute]  To measure and calculate the perimeter of a rectangle (including squares) in centimetres and metres  To find the area of rectangles by counting squares and then by using a formula  To estimate, compare and calculate different measures, including money in pounds and pence  To read, write and convert time between analogue and digital 12- and 24-hour clocks  To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.  To read and solve problems involving timetables  To measure to the nearest mm  To read scales involving a range of divisions | To convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) including decimal notation  To understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints  To measure and calculate the perimeter of shapes in centimetres and metres  To 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  To find the area and perimeter of compound shapes  To read scales involving a range of divisions  To estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]  To solve problems involving converting between units of time  To use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. | To solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate  To 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  To convert between miles and kilometres  To recognise that shapes with the same areas can have different perimeters and vice versa  To calculate the perimeter and area of compound shape using formula  To calculate the area of parallelograms and triangles  To calculate volume of shapes  To 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].  To read scales involving a range of divisions and compare weights on scales with differing divisions |

Shape

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| Year Four | Year Five | Year Six |
| To compare and classify 2D and 3D shapes, including a range of quadrilaterals and triangles**,** based on their properties and sizes  To identify nets of 3D shape  To recognise sides that are perpendicular, parallel and adjacent.  To identify acute and obtuse angles and compare and order angles up to two right angles by size  To measure and draw acute/obtuse angles to the  nearest 5 degrees.  To identify lines of symmetry in 2-D shapes presented in different orientations  To complete a simple symmetric figure with respect to a specific line of symmetry.  To reflect shape across a vertical/horizontal/oblique line  To describe positions on a 2-D grid as coordinates in the first quadrant  To describe movements between positions as translations of a given unit to the left/right and up/down  To rotate shape  To plot specified points and draw sides to complete a given polygon on a co-ordinate grid | To identify 3-D shapes, including cubes and other cuboids, from 2-D representations  To know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles  To draw given angles, and measure them in degrees (o)  To identify:  angles at a point and one whole turn (total 360o)  angles at a point on a straight line and  a turn (total 180o)  other multiples of 90o  To use the properties of rectangles to deduce related facts and find missing lengths and angles  To use the properties of triangles to find missing angles  To distinguish between regular and irregular polygons based on reasoning about equal sides and angles.  To identify, describe and represent the position of a shape following a reflection or translation, or rotation using the appropriate language, and know that the shape has not changed (congruent)  To plot and read co-ordinates across four quadrants | To draw accurate 2-D shapes (including triangles) using given dimensions and angles  To recognise, describe and build simple 3-D shapes, including making nets  To compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons  To illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius  To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.  To describe positions on the full coordinate grid (all four quadrants)  To draw and translate simple shapes on the coordinate plane, and reflect them in the axes.  To solve problems involving similar shapes where the scale factor is known or can be found |

Handling & Interpreting Data

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| Year Four | Year Five | Year Six |
| To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.  To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.  To use the language of probability to discuss events and outcomes (certain/impossible)  To calculate mode of a set of data  TO calculate range of a set of data | To interpret and present discrete, grouped and continuous data using appropriate graphical methods, including bar charts and time graphs.  To solve comparison, sum and difference problems using information presented in a line graph  To complete, read and interpret information in tables, including timetables.  To interpret simple pie charts  To use an increasing language of probability to discuss events and outcomes  To find the mode/range/ median from a set of data | To interpret and construct pie charts and line graphs and use these to solve problems  To calculate and interpret the mean as an average, and find mode/range/median from a set of data  To compare data from two different sources |