

|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
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| Number Addition and subtraction | - read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs <br> - represent and use number bonds and related subtraction facts within 20 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 $7=?-9$. | - solve problems with addition and subtraction: <br> - using concrete objects and pictorial representations, including those involving numbers, quantities and measures <br> - applying their increasing knowledge of mental and written methods <br> - recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 <br> - add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens two two-digit numbers adding three onedigit numbers <br> - show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot <br> - recognise and use the inverse relationship between addition | - add and subtract numbers mentally, including: <br> a three-digit number and ones <br> a three-digit number and tens a three-digit number and hundreds <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 | - 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. | - add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) <br> - add and subtract numbers mentally with increasingly large numbers <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 | ALL FOUR FUNCTIONS <br> - multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication <br> - 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 <br> - 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 <br> - perform mental calculations, including with mixed operations and large numbers <br> - identify common factors, common multiples and prime numbers <br> - use their knowledge of the order of operations to carry out calculations involving the four operations <br> - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why <br> - solve problems involving addition, subtraction, |


|  |  | and subtraction and use this to check calculations and solve missing number problems |  |  |  | multiplication and division <br> - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. |
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|  |  | $\begin{gathered} 43 \\ +32 \\ \hline 5 \\ 70 \\ \hline 75 \\ \hline 2 d+2 d \text { (not crossing } 10) \\ \\ 68 \\ -14 \\ 4 \\ \hline 50 \\ \hline 54 \end{gathered}$ |  | $\begin{array}{r} 7856 \\ +4297 \\ 12153 \end{array}$ <br> Up to $4 d+4 d$ (crossing 10) $\begin{array}{r} 6^{3} 4^{101} 12 \\ -2287 \\ 4125 \end{array}$ | $\begin{array}{r} 68,9662 \\ +1,4,8,75 \\ \hline 83,83 \\ \hline 5+\text { +5d (luosing 10) } \end{array}$ | $\begin{array}{r} 6.82 \\ +3.57 \\ \hline 10.39 \end{array}$ <br> Add decimals with 1 or more $d p$ (crossing 10) $\begin{array}{r} 56 .{ }^{5} \not 7^{1} 5 \\ -3.478 \\ 2.647 \end{array}$ <br> Subtract decimals with I or more dp |
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| Number Multiplication and division | - solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher | - recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers <br> - calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $x$ ), division ( $\div$ ) and equals (=) signs <br> - show that multiplication of two numbers can be done in any order | - recall and use multiplication and division facts for the 3,4 and 8 multiplication tables <br> - write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for twodigit numbers times one-digit numbers, using mental and progressing to formal written methods <br> - solve problems, including missing number problems, involving multiplication and division, including | - recall multiplication and division facts for multiplication tables up to $12 \times 12$ <br> - 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 <br> - recognise and use factor pairs and commutativity in mental calculations <br> - multiply two-digit and three-digit numbers by a onedigit number using formal written layout <br> - solve problems involving multiplying | - identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers <br> - know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers <br> - establish whether a number up to 100 is prime and recall prime numbers up to 19 <br> - multiply numbers up to 4 digits by a oneor two-digit number using a formal written method, including long multiplication for two-digit numbers |  |



|  |  |  | $\begin{gathered} 35 \\ \times 4 \\ 20(445) \\ \left.\frac{120}{140} 1430\right) \\ \frac{142,3,4,5 \text { and } 8)}{} \\ 21 \\ 4884 \end{gathered}$ | 256 <br> $\times \quad 7$ <br> $42(7760)$ <br> $350(7,50)$ <br> $1400(77 \times 200)$ <br> 1792 <br> $2 / 38 \times 1 d$$\frac{62}{6 \longdiv { 3 ^ { 3 } \not 7 ^ { 2 } 2 }}$ <br> $3 d+1 d$ (no remainders) | $\begin{array}{r} 321 \\ \times \quad 27 \\ 2247 \\ 6420 \\ 8667 \\ 3 / 4 \times 26 \end{array}$ $\frac{661 r 5}{6 \longdiv { z ^ { 3 } 4 ^ { 3 } \not 7 ^ { 1 5 } }}$ <br> Up to $4 \mathrm{~d}+\mathrm{ld}$ (interpret remainders) | Answer: 28.8 |
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| Number Fractions | - 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. | - recognise, find, name and write fractions $1 / 3,1 / 4,2 / 4$, $3 / 4$ 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 $1 / 2$ | - 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 <br> - recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators <br> - recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators | - | - compare and order fractions whose denominators are all multiples of the same number <br> - identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths <br> - recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a | - use common factors to simplify fractions; use common multiples to express fractions in the same denomination <br> - compare and order fractions, including fractions > 1 <br> - add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions <br> - multiply simple pairs of proper fractions, writing the answer in its simplest form (for example, $1 / 4 \mathrm{X}$ $1 / 2=1 / 8$ ) |


|  |  |  | - recognise and show, using diagrams, equivalent fractions with small denominators <br> - add and subtract fractions with the same denominator within one whole (for example, $5 / 7+1 / 7=$ 6/7) <br> - compare and order unit fractions, and fractions with the same denominators <br> - solve problems that involve all of the above |  | mixed number (for example, $2 / 5+4 / 5=$ $6 / 5=11 / 5$ <br> - add and subtract fractions with the same denominator and denominators that are multiples of the same number <br> - multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams | - divide proper fractions by whole numbers (for example, $(1 / 3 \div 2=1 / 6)$ <br> - associate a fraction with division and calculate decimal fraction equivalents (for example, 0.375) for a simple fraction (for example, 3/8) |
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|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Decimals |  |  |  | - recognise and show, using diagrams, families of common equivalent fractions <br> - count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. <br> - 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 <br> - add and subtract fractions with the same denominator <br> - recognise and write decimal equivalents of any number of tenths or hundredths <br> - recognise and write decimal equivalents to $1 / 4,1 / 23 / 4$ | read and write decimal numbers as fractions (for example, $0.71=$ 71/100) <br> - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents <br> - round decimals with two decimal places to the nearest whole number and to one decimal place <br> - read, write, order and compare numbers with up to three decimal places <br> - solve problems involving number up to three decimal places | - 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> - multiply one-digit numbers with up to two decimal places by whole numbers <br> - use written division methods in cases where the answer has up to two decimal places <br> - solve problems which require answers to be rounded to specified degrees of accuracy |


|  |  |  |  | - 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 <br> - round decimals with one decimal place to the nearest whole number <br> - compare numbers with the same number of decimal places up to two decimal places <br> - solve simple measure and money problems involving fractions and decimals to two decimal places. |  |  |
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| Percent |  |  |  |  | - 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 <br> - 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. |


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| Ratio and proportion |  |  |  |  |  | - solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts <br> - solve problems involving the calculation of percentages (for example, of measures, and such as $15 \%$ of 360 ) and the use of percentages for comparison <br> - solve problems involving similar shapes where the scale factor is known or can be found <br> - $\quad$ solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Alge |  |  |  |  |  | - 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. |
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| Measurement | - compare, describe and solve practical problems for <br> - lengths and heights (for example, long/short, longer/shorter, tall/short, double/half) <br> - mass/weight (for example, | - choose and use appropriate standard units to estimate and measure length/height in any direction ( $\mathrm{m} / \mathrm{cm}$ ); mass (kg/g); temperature $\left({ }^{\circ} \mathrm{C}\right)$; capacity (litres/ml) to the nearest appropriate | - measure, compare, add and subtract lengths ( $\mathrm{m} / \mathrm{cm} / \mathrm{mm}$ ); mass (kg/g); volume/capacity ( $/ \mathrm{ml}$ ) <br> - measure the perimeter of simple 2D shapes <br> - add and subtract amounts of money to give change, using | - Convert between different units of measure (for example, kilometre to metre; hour to minute) <br> - measure and calculate the perimeter of a rectilinear figure (including squares) in | - 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 | - 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 |



|  | - tell the time to the hour and half past the hour and draw the hands on a clock face to show these times |  |  |  |  |  |
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| Geometry properties of shapes | - recognise and name common 2-D and 3-D shapes, including: <br> - 2-D shapes (for example, rectangles (including squares), circles and triangles) <br> - 3-D shapes (for example, cuboids (including cubes), pyramids and spheres). | - 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 3D 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 <br> - 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 <br> - identify horizontal and vertical lines and pairs of perpendicular and parallel lines. | - compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes <br> - identify acute and obtuse angles and compare and order angles up to two right angles by size <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> - know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles <br> - draw given angles, and measure them in degrees ( ${ }^{\circ}$ ) <br> - identify: <br> > angles at a point and one whole turn (total $360^{\circ}$ angles at a point on a straight line and $1 / 2$ a turn (total $180^{\circ}$ ) other multiples of $90^{\circ}$ 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. | - 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 <br> - recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. |


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| $\begin{aligned} & \text { Geometry - } \\ & \text { posifion and } \\ & \text { direction } \end{aligned}$ | - describe position, direction and movement, including whole, half, quarter and three-quarter turns. | - 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) |  | - describe positions on a 2-D 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. | - 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 | - 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. |
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| Statistics |  | - 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 | - interpret and present data using bar charts, pictograms, and tables <br> - 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. | - 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. | - solve comparison, sum and difference problems using information presented in a line graph <br> - complete, read and interpret information in tables, including timetables. | - interpret and construct pie charts and line graphs and use these to solve problems <br> - calculate and interpret the mean as an average. |

