Number: Number and Place Value

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| **COUNTING** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number  |  |  | count backwards through zero to include negative numbers  | interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero | use negative numbers in context, and calculate intervals across zero  |
| count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens  | count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward  | count from 0 in multiples of 4, 8, 50 and 100;  | count in multiples of 6, 7, 9, 25 and 1 000 | count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000  |  |
| given a number, identify one more and one less  |  | find 10 or 100 more or less than a given number  | find 1 000 more or less than a given number  |  |  |
| **COMPARING NUMBERS** |
| use the language of: equal to, more than, less than (fewer), most, least  | compare and order numbers from 0 up to 100; use <, > and = signs  | 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 (appears also in Reading and Writing Numbers) | read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) |
| *compare numbers with the same number of decimal places up to two decimal places* (copied from Fractions) |
| **IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS** |
| identify and represent numbers using objects and pictorial representations including the number line | 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 |  |  |

Addition and Subtraction

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| **NUMBER BONDS** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| represent and use number bonds and related subtraction facts within 20  | recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100  |  |  |  |  |
| **MENTAL CALCULATION** |
| add and subtract one-digit and two-digit numbers to 20, including zero  | 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 one-digit numbers
 | add and subtract numbers mentally, including: * a three-digit number and ones
* a three-digit number and tens
* a three-digit number and hundreds
 |  | add and subtract numbers mentally with increasingly large numbers  | perform mental calculations, including with mixed operations and large numbers |
| read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods) | show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot  |  |  |  | use their knowledge of the order of operations to carry out calculations involving the four operations  |

Number: multiplication and division

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| **MULTIPLICATION & DIVISION FACTS** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| *count in multiples of twos, fives and tens* (copied from Number and Place Value) | *count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (copied from Number and Place Value) | *count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value) | *count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value) | *count forwards or backwards in steps of powers of 10 for any given number up to* *1 000 000* (copied from Number and Place Value) |  |
|  | recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers  | 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 × 12 |  |  |
| **MENTAL CALCULATION** |
|  |  | 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 progressing to formal written methods (appears also in Written Methods) | 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 numbers mentally drawing upon known facts | perform mental calculations, including with mixed operations and large numbers  |
|  | show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot |  | recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers)  | multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | *associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)* (copied from Fractions) |
| **WRITTEN CALCULATION** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs  | 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 progressing to formal written methods (appears also in Mental 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 short division where appropriate 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 |
|  |  |  |  |  | *use written division methods in cases where the answer has up to two decimal places* (copied from Fractions (including decimals)) |
| **PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | recognise and use factor pairs and commutativity in mental calculations (repeated)  | identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. | identify common factors, common multiples and prime numbers *use common factors to simplify fractions; use common multiples to express fractions in the same denomination* (copied from Fractions) |
| know and use the vocabulary of prime numbers, prime factors and composite (non-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) | *calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3), and extending to other units such as mm3 and km3* (copied from Measures) |

Number: Fractions (including Decimals and Percentages)

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| **COUNTING IN FRACTIONAL STEPS** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | *Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)* | count up and down in tenths | count up and down in hundredths |  |  |
| **RECOGNISING FRACTIONS** |
| recognise, find and name a half as one of two equal parts of an object, shape or quantity  | recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity  | recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators  | 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 (appears also in Equivalence) |  |
| recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. |
| recognise, find and name a quarter as one of four equal parts of an object, shape or quantity | recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators |
| **COMPARING FRACTIONS** |
|  |  | 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  |

Ration and Proportion

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| **Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division** |
|  |  |  |  |  | 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. |

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| **COMPARING AND ESTIMATING** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]
* mass/weight [e.g. heavy/light, heavier than, lighter than]
* capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]
* time [e.g. quicker, slower, earlier, later]
 | compare and order lengths, mass, volume/capacity and record the results using >, < and =  |  | estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring) | calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes (also included in measuring) | calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3), and extending to other units such as mm3 and km3. |
| estimate volume (e.g. using 1 cm3 blocks to build cubes and cuboids) and capacity (e.g. using water) |
| sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] | compare and sequence intervals of time  | compare durations of events, for example to calculate the time taken by particular events or tasks |  |  |  |
|  |  | estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o’clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time) |  |  |  |
| **MEASURING and CALCULATING** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| measure and begin to record the following: * **lengths and heights**
* **mass/weight**
* **capacity and volume**
* **time** (hours, minutes, seconds**)**
 | choose and use appropriate standard units to estimate and measure **length/height** in any direction (m/cm); **mass** (kg/g); **temperature** (°C); **capacity** (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels | measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml)  | estimate, compare and calculate **different measures,** including **money in pounds and pence** (appears also in Comparing)  | use all four operations to solve problems involving measure (e.g. **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 three decimal places where appropriate (appears also in Converting)  |
|  |  | 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  |

Geometry – properties of shape

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| **IDENTIFYING SHAPES AND THIER PROPERTIES** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles]
* 3-D shapes [e.g. 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  |  | identify lines of symmetry in 2-D shapes presented in different orientations  | identify 3-D shapes, including cubes and other cuboids, from 2-D representations  | recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing) |
| identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces  | illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius |
| identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]  |
| **DRAWING AND CONSTRUCTING** |
|  |  | draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them | complete a simple symmetric figure with respect to a specific line of symmetry | draw given angles, and measure them in degrees (o)  | draw 2-D shapes using given dimensions and angles |
| recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties) |
| **COMPARING AND CLASSIFYING** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | compare and sort common 2-D and 3-D shapes and everyday objects |  | compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes  | use the properties of rectangles to deduce related facts and find missing lengths and angles  | compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons  |
| distinguish between regular and irregular polygons based on reasoning about equal sides and angles |
| **ANGLES** |
|  |  | recognise angles as a property of shape or a description of a turn |  | know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles |  |
|  |  | 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  | identify: * angles at a point and one whole turn (total 360o)
* angles at a point on a straight line and ½ a turn (total 180o)
* other multiples of 90o
 | 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 pairs of perpendicular and parallel lines |  |  |  |

Geometry – position and direction

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| **POSITION, DIRECTION AND MOVEMENT** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| describe position, direction and movement, including half, quarter and three-quarter turns. | 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 anti-clockwise)  |  | describe positions on a 2-D grid as coordinates in the first quadrant  | 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) |
| describe movements between positions as translations of a given unit to the left/right and up/down  | 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 |  |  |
| **PATTERN** |
|  | order and arrange combinations of mathematical objects in patterns and sequences |  |  |  |  |

Statistics

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| **INTERPRETING, CONSTRUCTING AND PRESENTING DATA** |
| 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 using appropriate graphical methods, including bar charts and time graphs  | complete, read and interpret information in tables, including timetables | interpret and construct pie charts and line graphs and use these to solve problems  |
|  | ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity |  |  |  |  |
|  | ask and answer questions about totalling and comparing categorical data |  |  |  |  |
| **SOLVING PROBLEMS** |
|  |  | solve one-step and two-step questions [e.g. ‘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  | calculate and interpret the mean as an average |

Algebra

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| **EQUATIONS** |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| *solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and* ***missing number problems*** *such as* *7 =* 🗆 *- 9* (copied from Addition and Subtraction) | *recognise and use the inverse relationship between addition and subtraction and use this to check calculations and* ***missing number*** *problems.*(copied from Addition and Subtraction)  | solve problems, *including* ***missing number*** *problems, using number facts, place value, and more complex addition and subtraction.* (copied from Addition and Subtraction) |  | *use the properties of rectangles to deduce related facts and find* ***missing lengths and angles***(copied from Geometry: Properties of Shapes) | express missing number problems algebraically |
| *solve problems, including* ***missing number*** *problems, involving multiplication and division, including integer scaling* (copied fromMultiplication and Division) |
|  | *recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100*(copied from Addition and Subtraction) |  |  |  | find pairs of numbers that satisfy number sentences involving two unknowns |
| *represent and use number bonds and related subtraction facts within 20* (copied from Addition and Subtraction) |  |  |  |  | enumerate all possibilities of combinations of two variables |