# Mathematics Progression Document

This is intended to be a spiral curriculum. Pupils should be taught National Curriculum objectives but should be supported to catch up.

| End Points (Threshold Concepts) | | Milestones | | | | | |
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| | | KS1 | | Lower KS2 | | Upper KS2 | |
| | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **To know and use numbers** (This concept involves understanding the number system and how they are used in a wide variety of mathematics ways) | **Counting** | • **Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.**<br>• **Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens.**<br>• **Given a number, identify one more and one less**<br>• Pupils should be able to successfully respond to questions such as: Count forwards from 36, etc. Point to the third object in the line. Show me 8 cubes.<br>• Pupils should be able to give their own reasoned ideas | • **Count in steps of 2, 3, and 5 and 10 from 0, and in tens from any number, forward or backward**<br>• To be able to contextualise their understanding of number through real-life situations. E.g., use of money. | • **Count from 0 in multiples of 4, 8, 50 and 100**<br>• **Find 10 or 100 more or less than a given number**<br>• To be able to work systematically in response to a given problem. | • **Count backwards through zero to include negative numbers**<br>• **Count in multiples of 6, 7, 9, 25 and 1 000**<br>• **Find 1 000 more or less than a given number**<br>• To identify missing numbers using a number line, including negative numbers.<br>• To work out numbers in sequences, including identifying the 'rule' or pattern of the sequence. | • **Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 and negative whole numbers, including through zero**<br>• To explore numbers bigger than 1 million. E.g. Write 1 million in digits. Write down the number that is 1 more than 1 million. | • **Use negative numbers in context, and calculate intervals across zero**<br>• To use knowledge of rounding to aid estimation.<br>• To be able to perform mental calculations working with large numbers.<br>• To be able to work systematically in response to a given problem, including multi-step problems. |

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| | | on sets of numbers: E.g., 71 is the odd one out because it is not a multiple of 5. | | | | • Write down the number that is 10 more than 1 million.<br>• Write down the number that is 100 more than 1 million.<br>• To apply rules for rounding to numbers beyond Year 5 expectations. | |
| | **Representing** | **• Identify and represent numbers using objects and pictorial representations including the number line**<br>**• Read and write numbers from 1 to 20 in numerals and words.** | **• Identify, represent and estimate numbers using different representations, including the number line**<br>**• Read and write numbers to at least 100 in numerals and in words**<br>• To be able to identify and estimate missing numbers E.g., in number sentences and on number lines. | **• Identify, represent and estimate numbers using different representations**<br>**• Read and write numbers up to 1 000 in numerals and in words**<br>• To be able to partition numbers in a range of ways. | **• Identify, represent and estimate numbers using different representations**<br>**• Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.** | **• 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** |

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| | | | | | • To find different ways of representing numbers using concrete resources, pictorial representations and abstract notation.<br>• To be able to use roman numerals to represent numbers | | |
| | **Comparing** | • **Use the language of: equal to, more than, less than (fewer), most, least**<br><br>• Pupils should be able to compare amounts | • **Compare and order numbers from 0 up to 100; use <, > and = signs**<br>• Be able to identify greater than/less than relationships, including use of <> symbols. | • **Compare and order numbers up to 1 000**<br>• To use mathematical reasoning to explain logical answers to questions | • **Order and compare numbers beyond 1 000**<br><br>• To use mathematical reasoning to explain logical answers to questions | • **Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit**<br>• To use mathematical reasoning to explain logical answers to questions | • **Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit**<br><br>• To use mathematical reasoning to explain logical answers to questions |

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| | **Place value** | • To use practical resources to represent 2 digit numbers. | • **Recognise the place value of each digit in a two-digit number (tens, ones)**<br>• **To use practical resources to deepen understanding of place value.** | • **Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)**<br>• To use practical resources to deepen understanding of place value. | • **Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)**<br>• round any number to the nearest 10, 100 or 1 000<br>• To use practical resources to deepen understanding of place value. | • **Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit**<br>• round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000<br>• To use practical resources to deepen understanding of place value. | • **Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.**<br>• **round any whole number to a required degree of accuracy**<br>• To use practical resources to deepen understanding of place value. |

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| | **Solving problems** | | **• Use place value and number facts to solve problems** | **• 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**<br><br>• To be able to work systematically in response to a given problem, including multi-step problems. | **• Solve number and practical problems that involve all of the above**<br><br>• To be able to work systematically in response to a given problem, including multi-step problems. |
| **Add and subtract**<br>(This concept involves understanding both the concepts and processes of addition and subtraction) | **Complexity** | **• Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs**<br>**• Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as: 7 = ▫ - 9** | **• Applying their increasing knowledge of mental and written methods.**<br><br>• Compare number sentences | **• Solve addition and subtraction one-step problems in contexts, deciding which operations and methods to use and why.** | **• 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** | **• Use their knowledge of the order of operations to carry out calculations involving the four operations** |

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| | | • Compare number sentences | | | | | |
| | **Methods** | **• Add and subtract one-digit and two-digit numbers to 20, including zero**<br>**• Add by counting on.**<br>**• Subtract by counting back.**<br>**• Add ones using number bonds** | **• Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:**<br>**♣ a two-digit number and ones**<br>**♣ a two-digit number and tens**<br>**♣ two two-digit numbers**<br>**♣ adding three one-digit numbers**<br><br>**• show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot** | **• Pupils should be taught to:**<br>**♣ add and subtract numbers mentally, including:**<br>**♣ a three-digit number and ones**<br>**♣ a three-digit number and tens**<br>**♣ a three-digit number and hundreds**<br><br>**• Add and subtract numbers with up to three digits, using formal written methods of columnar addition and 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)**<br>**• Add and subtract numbers mentally with increasingly large numbers** | |

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| | | | **add and subtract numbers using concrete objects, pictorial representations, and mentally, including:**<br>*** a two-digit number and ones**<br>*** a two-digit number and tens**<br>*** two two-digit numbers**<br>*** adding three one-digit numbers** | | | | |
| | **Checking** | **• Represent the calculation pictorially to prove the answer.** | **• Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.** | **• Estimate the answer to a calculation and use inverse operations to check answers** | **• 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, levels of accuracy.** | • Represent the calculation pictorially to prove the answer. |

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| | **Using number facts** | **• 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** | **• 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.** | | • Add and subtract negative integers<br>• Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why |
| **Multiply and divide**<br>(This concept involves understanding both the concepts and processes of multiplication and division) | **Complexity** | **• Solve problems involving multiplying and dividing, using concrete objects and pictorial representations** | **• Solve problems involving multiplying and dividing, using materials, arrays, repeated addition** | **• Solve problems involving multiplying and dividing, including, using the distributive law to multiply two digit numbers by one digit** | **• Solve problems involving missing numbers, including integer scaling problems and harder correspondence problems (such as n objects are connected to m objects)** | **• Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.** | **• Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.** |
| | **Methods** | **• Group amounts using arrays to calculate the total Understand the concept of 'lots of'** | **• Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication** | **• Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including** | **• 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** | **• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication** |

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| | | | **(×), division (÷) and equals (=) signs** | **for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Mental Methods)** | | **for two-digit numbers** | |
| | **Checking** | | **• Use known multiplication facts to check the accuracy of calculations** | **• Use known multiplication facts to check the accuracy of calculations** | **• Estimate and use inverse operations to check answers to a calculation** | | **• Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy** |
| | **Using multiplication and division facts** | **• Count in multiples of twos, fives and tens**<br>**•The *number* of coins in a set is different from the *value* of the coins in a set; knowledge of counting in groups of two, five or ten can be used to work out the value of a** | **• Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers**<br>• Explore the relationship between 5 and 10. | **• Recall and use multiplicatio n and division facts for the 3, 4 and 8 multiplicatio n tables.**<br>• Explore the relationship between 4 and 8. | **• Recall multiplication and division facts for multiplication tables up to 12 × 12**<br>• Explore times table patterns including generalising about the product in terms of odd/even factors, reviewing divisibility rules, and exploring | • Identify common factors, common multiples and prime numbers.<br>• Establish whether a number up to 100 is prime and recall prime numbers up to 19.<br><br>**• Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.** | Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).<br><br>Solve problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes<br><br>• Use knowledge of order of operations to carry |

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| | | **set of identical low-denominatio n coins.** | | | square numbers. | | out calculations involving the four operation |
| **Fractions** (This concept involves understanding the concept of part and whole and the ways of calculating using it) | **Counting in fractional steps** | **• Pupils should count in fractions up to 10, starting from any number and usingthe1/2 and 2/4 equivalenceon the number line (Non Statutory Guidance)** | **• Count up and down in tenths.** | **• Count up and down in hundredths.** | **• Pupils should count in fractions up to 10, starting from any number and usingthe1/2 and 2/4 equivalenceon 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.<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, ¼, 2/4, and ¾ of a length, shape, set, of objects or quantity.** | **• Recognise, find and write fractions of a discrete setof objects: unit fractions and non-unit fractions with small denominators.<br>• Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.** | **• Recognise that hundredthsarise 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, find and name a half as one of two equalparts of an object, shape or quantity.** |

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| | | | | • Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. | | | |
| | **Decimals** | • Compare numbers with thesame number of decimal places up to two decimal places.<br>• Round decimals with one decimal place to the nearest whole number. | • Read, write, order and compare numbers with up to three decimal places.<br>• Round decimals with two decimal placesto the nearest whole number and to one decimal place. | • Identify the value of each digit in numbers given to three decimal places.<br>• Solve problems which require answers to be rounded to specified degrees of accuracy | • Compare numbers with thesame number of decimal places up to two decimal places.<br>• Round decimals with one decimal place to the nearest whole number. | • Read, write, order and compare numbers with up to three decimalplaces.<br>• Round decimals with two decimal placesto the nearest whole number and to one decimal place. | • Identify the value of each digitin numbers given to three decimal places.<br>• Solve problems which require answers to be rounded to specified degrees of accuracy |
| | **Equivalence** | | • Write simple fractions e.g. ½ of 6 = 3<br>• Recognise the equivalence of 2/4 and ½ | • Recognise and show, using diagrams, equivalent fractions with small denominators. | • Recognise and show, using diagrams, families of common equivalent fractions. | • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.<br>• Read and write decimal numbers as fractions (e.g. 0.71 = 71/100) | • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.<br>• Associate a fraction with division and calculate decimal fraction equivalents (e.g. |

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| | | | | | | **• Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.** | **0.375) for a simple fraction (e.g. 3/8).** |
| | **Addition and Subtraction of Fractions** | | | • Add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7=6 /7) | • Add and subtract fractionswith the same denominator. | • Add and subtract fractions with the same denominator and multiples of the same number.<br>• Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements, 1 as a mixed number (e.g. 2/5 + 4/5= 6/5 = 1 1/5) | • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. |
| | **Multiplication and Division of Decimals** | | | | **• Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the** | | **• Multiply one-digit numbers with up to two decimal places by whole numbers.** |

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| | | | | | **answer as ones, tenths and hundredths.** | | **• Multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places.**<br>**• Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places.**<br>**• Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$).**<br>**• Use written division methods in cases where the answer has** |

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| | | | | | | | **up to two decimal places.** |
| | **Problem Solving** | | | **• Solve problems that involve all of the above.** | **• Solve problems involving increasingly harder fractions to calculate quantities, and fractionsto divide quantities, including non-unit fractions where the answer is a whole number.<br>• Solve simple measure and money problems involving fractions and decimals to two decimal places.** | **• Solve problems involving numbers up to three decimal places.<br>• Solve problems which require knowing percentage and decimal equivalents of ½ ¼ 1/5 2/5 4/5 and those with a denominator of a multiple of 10 or 25.** | |
| **Understand the properties of shapes**<br>(This concept involves recognising the names and properties of geometric shapes and angles) | **Identifying Shapes and their Properties** | **• Recognise and name common 2-D and 3-D shapes, including:<br>* 2-D shapes [e.g. rectangles (including squares), circles and triangles]<br>* 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<br>• identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces | | • Identify lines of symmetry in 2-D shapes presented in different orientations<br>• Apply this understanding to halving of objects. | • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations<br><br>Related to careers e.g. bricklaying.<br><br>Stacking cupboards after shopping considering shapes and space. Linked shapes. | • Recognise, describe and build simple 3-D shapes, including making nets<br>(appears also in Drawing and Constructing)<br>• Illustrate and name parts of circles, including radius, diameter and circumference and know that the |

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| | | • Recognising shapes in the environment e.g. wheels on a car.<br>• Understanding functionality of shapes e.g. round wheels. | 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><br>• Using vocabulary appropriately and consistently | | | Shapes and their purpose. | diameter is twice the radius |
| | **Drawing & Constructing** | | • distinguish between regular and irregular polygons based on | • draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them<br>• Model making and construction. | • complete a simple symmetric figure with respect to a specific line of symmetry | • draw given angles, and measure them in degrees (°)<br>• Map reading – compass bearings<br>• Clocks and time | • draw 2-D shapes using given dimensions and angles<br>• Careers education e.g. bricklaying<br>• recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties)<br>• Model making and construction. Measuring areas e.g. carpet fitting. |
| | **Comparing & Classifying** | | • compare and sort common 2-D and 3-D shapes and everyday objects<br>• Understanding functionality of shapes e.g. round wheels. | | • 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, |

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| | | | | | • Reading road signs, hazards and warnings | • Joinery etc. / carpet fitting<br>• reasoning about equal sides and angles | quadrilaterals, and regular polygons<br>• Understanding functionality of shapes e.g. round wheels. |
| | **Angles** | | | • Recognise angles as a property of shape or a description of a turn<br><br>Time<br><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>• Recognising in the community<br>• Identify horizontal and vertical lines and pairs of perpendicular and parallel lines<br>• Recognising in the community. ICT skills e.g. underlining text | • Identify acute and obtuse angles and compare and order angles up to two right angles by size | • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles<br>Identify:<br>* angles at a point and one whole turn (total 360°)<br>* angles at a point on a straight line and ½ a turn (total 180°)<br>* other multiples of 90°<br>• Time, body position, positional language, taking directions, map reading, compass bearings. | • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles<br>• Recognising in the community, time, body position, positional language, taking directions, map reading, compass bearings. |

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| **Describe position, direction and movement** (This concept involves recognising various types of mathematical movements) | | • **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)**<br>• **Order and arrange combinations of mathematical objects in patterns and sequences** | | • Describe positions on a 2-D grid as coordinates in the first quadrant<br>• Plot specified points and draw sides to complete a given polygon<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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| **Use measures** (This concept involves becoming familiar with a range of measures, devices used for measuring and calculations) | | **• 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]**<br><br>**• Measure and begin to record the following:** | **• Compare and order lengths, mass, volume/capacity and record the results using >, < and =**<br>**• Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value**<br>**• Find different combinations of coins that equal the same amounts of money**<br>**• Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change**<br>**• Compare and sequence intervals of time**<br>**• Tell and write the time to five minutes, including quarter** | **• Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)**<br>**• Measure the perimeter of simple 2-D shapes**<br>**• add and subtract amounts of money to give change, using both £ and p in practical contexts**<br>**• Tell and write the time from an analogue clock, including using**<br>• Roman numerals from I to XII, and 12-hour and 24-hour clocks<br><br>**• Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of** | **• 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 centimetres and metres**<br>**• Find the area of rectilinear shapes by counting squares**<br>**• Estimate, compare and calculate different measures, including money in pounds and pence Mathematics – key stages 1 and 2 28 Statutory requirements**<br>**• Read, write and convert time between analogue and** | **• 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 equivalences between metric units and common imperial units such as inches, pounds and pints**<br>**• Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres**<br>**• Calculate and compare the area of** | **• 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]** |

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| | | ♣ lengths and heights<br>♣ mass/weight<br>♣ capacity and volume<br>♣ time (hours, minutes, seconds)<br><br>• Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening<br><br>• Recognise and know the value of different denominations of coins and notes<br><br>• Recognise and use language relating to dates, including | past/to the hour and draw the hands on a clock face to show these times<br>• Know the number of minutes in an hour and the number of hours in a day | seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight<br>• Know the number of seconds in a minute and the number of days in each month, year and leap year<br>• Compare durations of events [for example to calculate the time taken by particular events or tasks]. | digital 12- and 24-hour clocks<br>• Solve problems involving converting | rectangles (including squares), and including using standard units, square centimetres (cm2 ) and square metres (m2 ) and estimate the area of irregular shapes<br>• Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]<br>• Solve problems involving converting between units of time<br>• Use all four operations to solve problems involving measure [for example, length, mass, | • Measure and begin to record the following:<br>♣ lengths and heights<br>♣ mass/weight<br>♣ capacity and volume<br>♣ time (hours, minutes, seconds)<br><br>• Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening<br>• Recognise and know the value of different denominations of coins and notes<br>• Recognise and use language |

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| | | **days of the week, weeks, months and years**<br>**♣ Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.** | | | | **volume, money] using decimal notation, including scaling.** | **relating to dates, including days of the week, weeks, months and years**<br>**♣ Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.** |
| **Use statistics**<br>(This concept involves interpreting, manipulating and presenting data in various ways) | **Interpreting, constructing and presenting data** | | • 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 twostep questions '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. | • **Complete, read and interpret information in tables, including timetables**<br>• 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<br>• Calculate and interpret the mean as an average |

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| | **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 | • 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. |
| **Use algebra** (This concept involves recognising mathematical properties and relationships using symbolic representations) | **Equations** | **• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ▢ - 9**<br><br>(copied from Addition and Subtraction)<br><br>*represent and use number bonds and related subtraction facts within 20* (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)**<br><br>(*recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100* (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)**<br><br>*(solve problems, including missing number problems, involving multiplication and division, including integer scaling* (copied from Multiplication and Division) | | | • use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes)<br>find pairs of numbers that satisfy number sentences involving two unknowns |

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| | **Formuale** | | | | • Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit.<br>(Copied from NSG measurement) | | • use simple formulae<br>• recognise when it is possible to use **formulae** for area and volume of shapes<br>(copied from Measurement) |
| | **Sequences** | **• sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (copied from Measurement)** | **• compare and sequence intervals of time (copied from Measurement)** | | | | • generate and describe linear number sequences |

**A good mathematician will have:**

• An understanding of the important concepts and an ability to make connections within mathematics.
• A broad range of skills in using and applying mathematics.
• Fluent knowledge and recall of number facts and the number system.
• The ability to show initiative in solving problems in a wide range of contexts, including the new or unusual.
• The ability to think independently and to persevere when faced with challenges, showing a confidence of success.
• The ability to embrace the value of learning from mistakes and false starts.

- The ability to reason, generalise and make sense of solutions.
- Fluency in performing written and mental calculations and mathematical techniques.
- A wide range of mathematical vocabulary.
- A commitment to and passion for the subject.

National Curriculum National Curriculum Expectations

Above and beyond the national curriculum

Steps to National Curriculum

**Cultural Capital**