## Progression In Mathematics

Number - Number and Place Value

| EYFS | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - Recognise some numerals of personal significance. <br> - Recognises numerals 1 to 5. <br> - Counts up to three or four objects by saying one number name for each item. <br> - Counts actions or objects which cannot be moved. <br> - Counts objects to 10 , and beginning to count beyond 10. <br> - Counts out up to six objects from a larger group. <br> - Selects the correct numeral to represent 1 to 5 , then 1 to 10 objects. <br> - Counts an irregular arrangement of up to ten objects. <br> - Estimates how many objects | - 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> - identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least <br> - read and write numbers from 1 to 20 in numerals and words. | - count in steps of 2, 3 , and 5 from 0 , and in tens from any number, forward and backward <br> - recognise the place value of each digit in a twodigit number (tens, ones) <br> - identify, represent and estimate numbers using different representations, including the number line <br> - compare and order numbers from 0 up to 100 ; use and = signs <br> - read and write numbers to at least 100 in numerals and in words <br> - use place value and number facts to solve problems. | - count from 0 in multiples of 4, 8, 50 and 100 ; find 10 or 100 more or less than a given number <br> - recognise the place value of each digit in a three-digit number (hundreds, tens, ones) <br> - compare and order numbers up to 1000 <br> - identify, represent and estimate numbers using different representations <br> - read and write numbers up to 1000 in numerals and in words <br> - solve number problems and practical problems involving these ideas. | - count in multiples of $6,7,9,25$ and 1000 <br> - find 1000 more or less than a given number <br> - count backwards through zero to include negative numbers <br> - recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) <br> - order and compare numbers beyond 1000 <br> - identify, represent and estimate numbers using different representations <br> - round any number to the nearest 10, 100 or 1000 <br> - solve number and practical problems that involve all of the above and with increasingly large positive numbers | - read, write, order and compare numbers to at least 1000000 and determine the value of each digit <br> - count forwards or backwards in steps of powers of 10 for any given number up to 1000000 <br> - interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero <br> - round any number up to 1 000000 to the nearest 10,100 , 1000, 10000 and 100000 <br> - solve number problems and practical problems that involve all of the above | - read, write, order and compare numbers up to 10000000 and determine the value of each digit <br> - round any whole number to a required degree of accuracy <br> - use negative numbers in context, and calculate intervals across zero <br> - solve number and practical problems that involve all of the above. |


| they can see and checks by counting them. <br> - Says the number that is one more than a given number. <br> Early Learning Goal Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. |  |  |  | - 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 Roman numerals to 1000 (M) and recognise years written in Roman numerals. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Number - Addition and Subtraction (including Y6 Multiplication and Division)

| EYFS | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - Uses the language of 'more' and 'fewer' to compare two sets of objects. <br> - Finds the total number of items in two groups by counting all of them. <br> - Says the number that is one more than a given number. <br> - Finds one more or one less from a group of up to five objects, then ten objects. <br> - In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. <br> - Records, using marks that they can interpret and explain. | - read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs <br> - represent and use number bonds and related subtraction facts within 20 <br> - add and subtract one-digit and twodigit 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: <br> - a two-digit number and ones <br> - a two-digit number and tens | - add and subtract numbers mentally, including: <br> - a three-digit number and ones <br> - three-digit number and tens <br> - 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. | - multiply multi-digit numbers up to 4 digits by a twodigit 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, |

one-digit numbers

- show that addition of two numbers can be done in any order
(commutative) and subtraction of one number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- 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
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Number - Multiplication and division (including Y6 Addition and Subtraction

| EYFS |  |
| :--- | :--- |
| Records using |  |

marks that
they can interpret and explain.

- Begins to identify own mathematical problems based on own interests and fascinations.
Early Learning
Goal Children solve problems,
including
doubling, halving and sharing.
division facts for the 3,4 and 8 multiplication tables
- 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
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

- recall multiplication and division facts for multiplication tables up to $12 \times 12$
- 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
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a onedigit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Y5

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- know and use the vocabulary of prime numbers prime factors and composite (nonprime numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19 - 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 and divide numbers mentally drawing upon known facts
- divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret
remainders

Y6
multiply multi-digit numbers up to 4 digits by a twodigit whole number using the formal written method of long multiplication

- 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
- perform mental calculations, including with mixed operations and large numbers and cube numbers, and the notation for squared ( 2 ) and cubed (3)
- solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
- 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.


Howard Park Maths Progression Map

- recognise and write decimal equivalents to 1/4, 1/2, 3/4
- 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 \& round decimals with one decima place to the nearest whole number \& compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places


## supported by materials and

 diagrams- read and write decimal numbers as fractions [for example, $0.71=$ 71/100]
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- round decimals with two decimal places to the nearest whole number and to one decimal place
- read, write, order and compare numbers with up to three decimal places
- solve problems involving number up to three decimal places
- 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 decima
numbers given to three decimal places and multiply and divide numbers by 10,100 and 1000 giving answers up to three decimal places
- multiply one-digit numbers with up to two decimal places by whole numbers
- use written division methods in cases where the answer has up to two decimal places
- solve problems which require answers to be rounded to specified degrees of accuracy
- recall and use equivalences between simple fractions, decimals and percentages including in different contexts

Ratio and Proportion

| EYFS | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | - To be able to identity percentages $1 / 2,1 / 4$ and $3 / 4$ | - To be able to find $10 \%$ of a number and use this to find further amounts i.e. $15 \%$ | - 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> - Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. |



| Measu | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - Orders two or | - compare, describe | - choose and use | - measure, compare, | - Convert | - convert between | - solve problems |
| three items by length or | and solve practical problems for: | appropriate standard units to | add and subtract: lengths | between different units of | different units of metric measure | involving the calculation and |
| height. | - lengths and | estimate and | ( $\mathrm{m} / \mathrm{cm} / \mathrm{mm}$ ); mass | measure [for | (for example, | conversion of |
| Orders two | heights [for | measure | (kg/g); | example, | kilometre and | units of measure, |
| weight or | long/short, | any direction | (l/ml) | metre; hour to | and metre; | notation up to |
| capacity. | longer/shorter, | (m/cm); mass | - measure the | minute] | centimetre and | three decimal |
| - Uses everyday | tall/short, | (kg/g); | perimeter of simple | - measure and | millimetre; gram | places where |
| language related to | double/half] <br> - mass/weight [for | temperature $\left({ }^{\circ} \mathrm{C}\right)$; capacity (litres/ml) | 2-D shapes <br> - add and subtract | calculate the perimeter of a | and kilogram; litre and millilitre) | appropriate <br> - use, read, write |
| time. | example, | to the nearest | amounts of money | rectilinear figure | - understand and | and convert |
| Beginning to | heavy/light, | appropriate unit, | to give change, | (including | use approximate | between |
| use everyday language | heavier than, lighter than] | using rulers, scales, thermometers and | using both £ and $p$ in practical | squares) in centimetres and | equivalences <br> between metric | standard units, converting |
| related to | - capacity and | measuring vessels | contexts | metres | units and common | measurements of |
| money. | volume [for | - compare and | - tell and write the | - find the area of | imperial units such | length, mass, |
| - Orders and | example, | order lengths, mass, | time from an | rectilinear | as inches, pounds | volume and time |
| seque |  | and record the | including using | counting | - measure and | unit of measur |
| events. | half, half full, | results using >, < | Roman numerals | squares | calculate the | to a larger unit, |
| Measures short | quarter] | and $=$ | from I to XII, and 12- | - estimate, | perimeter of | and vice versa, |
| riods of time | - time [for | - recognise and use symbols for pounds | hour and 24 -hour | compare and calculate | composite | using decimal notation to up to |
| in simple way Early Learning | example, quicker, slower, | symbols for pounds <br> (£) and pence (p); | - estimate and read | different | in centimetres and | three decimal |
| Goal | earlier, later] | combine amounts | time with increasing | measures, | metres | places |
| Children use | - measure and begin to record the | to make a particular value | accuracy to the nearest minute: | including money in pounds and | - calculate and compare the area | - convert between miles and |
| everyday language to talk | to record the following: | - find different | nearest minute; <br> record and | in pounds and pence | compare the area of rectangles | s and <br> kilometres |
| bout size, | - lengths and | combinations of | compare time in | - read, write and | (including | - recognise that |
| weight, | heights | coins that equal | terms of seconds, | convert time | squares), and | shapes with the |
| capacity, | - mass/weight | the same amounts | minutes and hours: | between | including using | same areas can |
| position, | - capacity and | of money | use vocabulary | analogue and | standard units, | have different |
| distance, time | volume | - solve simple | such as o'clock, | digital 12-and | square centimetres | perimeters and |
| and money to | me (hours, | problems in a | a.m./p.m., morning, | 24-hour clocks | $\left(\mathrm{cm}^{2}\right)$ and squar | vice versa |
| compare | minutes, | practical context | afternoon, noon | - solve problems | metres ( $\mathrm{m}^{2}$ ) and | - recognise when |
|  |  | involving addition | and midnight | involving | estimate the area | it is possible to |
|  |  | and subtraction of |  | converting from | of irregular shapes | use formulae for |


| objects and to solve problems. | - recognise and know the value of different denominations of coins and notes <br> - sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] <br> - recognise and use language 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. | 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 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. | - 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]. | hours to minutes; minutes to seconds; years to months; weeks to days. | - estimate volume [for example, using $1 \mathrm{~cm}^{3}$ 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, volume, money] using decimal notation, including scaling. | area and volume of shapes <br> - calculate the area of parallelograms and triangles <br> - calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ( $\mathrm{cm}^{3}$ ) and cubic metres $\left(\mathrm{m}^{3}\right)$, and extending to other units [for example, $\mathrm{mm}^{3}$ and $\mathrm{km}^{3} \mathrm{]}$. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Howard Park Maths Progression Map

## Geometry - Properties of Shape

| EYFS | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes. <br> - Selects a particular named shape. <br> - Uses familiar objects and common shapes to create and recreate patterns and build models. <br> Early Learning Goal Children explore characteristics of everyday objects and shapes and use mathematical language to describe them. They recognise, create and describe patterns. | - 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 2D and 3-D 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 $360^{\circ}$ ) <br> - angles at a point on a straight line and 21 a turn (total $180^{\circ}$ ) <br> - other multiples of $90^{\circ}$ <br> - 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. |

Geometry - Position and Direction

| EYFS | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - Can describe their relative position such as 'behind' or 'next to'. | - 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 threequarter turns (clockwise and anticlockwise). | - Recognise angles as a property of shape or description of a turn. <br> - Identify right angles, recognise that two complete turns make a half turn, three make 3 quarters of a turn and four make a complete turn <br> - Identify if angles are greater or less than a right angle. | - 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. |

Statistics

| EYFS | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - | - | - 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. |

