

BISHOP LONSDALE CHURCH OF ENGLAND PRIMARY SCHOOL AND NURSERY

BECOMING **INDEPENDENT** **SUCCESSFUL** **HONEST** **OPEN-MINDED** **PEOPLE**

Progression Map: Maths



| Number and Place Value | | | | | | | |
|--|--|--|--|---|---|--|---|
| Counting | | | | | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence. | Count objects, actions and sounds. | 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 in everyday contexts, sometimes skipping numbers - '1-2-3-5.' | Count beyond ten. | 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 1000 | count forwards or backwards in steps of powers of 10 for any given number up to 1000 000 | |
| Recite numbers past 5. | Understand the 'one more than/one less than' relationship between consecutive numbers. | given a number, identify one more and one less | | find 10 or 100 more or less than a given number | find 1000 more or less than a given number | | |
| Say one number for each item in order: 1,2,3,4,5. | Verbally count beyond 20, recognising the pattern of the counting system. | | | | | | |
| Comparing Numbers | | | | | | | |
| Compare amounts, saying 'lots', 'more' or 'same'. | Compare 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 1000 | order and compare numbers beyond 1000 | 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 quantities using language: 'more than', 'fewer than'. | Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. | | | | compare numbers with the same number of decimal places up to two decimal places (copied from Fractions) | | |

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Progression Map: Maths



| Identifying, representing and estimating numbers | | | | | | | |
|--|--|--|---|--|---|--|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Show 'finger numbers' up to 5. | Link the number symbol (numeral) with its cardinal number value. | 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 | identify, represent and estimate numbers using different representations | identify, represent and estimate numbers using different representations |
| Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. | Explore the composition of numbers to 10. | | | | | | |
| Reading and writing numbers (including roman numerals) | | | | | | | |
| Take part in finger rhymes with numbers. | | read and write numbers from 1 to 20 in numerals and words. | read and write numbers to at least 100 in numerals and in words | read and write numbers up to 1000 in numerals and in words | | read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Comparing Numbers) | read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Understanding Place Value) |
| Fast recognition of up to 3 objects, without having to count them individually ('subitising'). | Subitise (recognise quantities without counting) up to 5. | | | tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks (copied from Measurement) | 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. | Uses some number names accurately in play. |
| Understanding place value | | | | | | | |
| React to changes of amount in a group of up to three items. | Have a deep understanding of number to 10, including the composition of each number. | | recognise the place value of each digit in a two-digit number (tens, ones) | recognise the place value of each digit in a three-digit number (hundreds, tens, ones) | recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) | 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) |
| Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). | | | | | | recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (copied from Fractions) | |

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| Rounding | | | | | | | |
|--|--|--|--|---|--|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | | round any number to the nearest 10, 100 or 1 000 | round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 | round any whole number to a required degree of accuracy |
| | | | | | round decimals with one decimal place to the nearest whole number (copied from Fractions) | round decimals with two decimal places to the nearest whole number and to one decimal place (copied from Fractions) | solve problems which require answers to be rounded to specified degrees of accuracy (copied from Fractions) |
| Problem solving | | | | | | | |
| Solve real world mathematical problems with numbers up to 5. | Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. | use place value and number facts to solve 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 | solve number and practical problems that involve all of the above |
| Addition and Subtraction | | | | | | | |
| Number Bonds | | | | | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double 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 | | | | |
| | Automatically recall number bonds for numbers 0–10. | | | | | | |

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| Mental Calculation | | | | | | | |
|--|-----------|---|---|--|--|--|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | *read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs * represent and use number bonds and related subtraction facts within 20 * add and subtract one-digit and two-digit numbers to 20, including zero * solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$. | 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 | |
| | | 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 | |
| Written Method | | | | | | | |
| Experiment with their own symbols and marks as well as numerals. | | read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation) | | 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) | |
| Inverse Operations, Estimating and Checking Answers | | | | | | | |
| | | | 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 | estimate and use inverse operations to check answers to a calculation | 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. |

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Progression Map: Maths



| Problem Solving | | | | | | | |
|-----------------------------------|-----------|--|--|---|--|--|--|
| Nursery | Reception | 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 $7 = * - 9$ | solve problems with addition and subtraction: * using concrete objects and pictorial representations, including those involving numbers, quantities and measures * applying their increasing knowledge of mental and written methods | 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 | solve addition and subtraction multi-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 |
| | | | solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement) | | | | Solve problems involving addition, subtraction, multiplication and division |
| Multiplication and Division | | | | | | | |
| Multiplication and Division Facts | | | | | | | |
| | | 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 |

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Progression Map: Maths



| | | | | | | | |
|----------------------------|------------------|---------------|---|--|---|--|--|
| | | | 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. $\frac{3}{8}$) (copied from Fractions) |
| Written calculation | | | | | | | |
| Nursery | Reception | 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 (\times), division (\div) 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)) |

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Progression Map: Maths



| Properties of numbers: multiples, factors, primes, square and cube numbers | | | | | | | |
|--|-----------|--|---|--|--|--|--|
| Nursery | Reception | 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 |
| | | | | | | know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers | <i>use common factors to simplify fractions; use common multiples to express fractions in the same denomination (copied from Fractions)</i> |
| | | | | | | 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) | <i>calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3 (copied from Measures)</i> |
| Order of operations | | | | | | | |
| | | | | | | | use their knowledge of the order of operations to carry out calculations involving the four operations |
| Inverse operations, estimating and checking answers | | | | | | | |
| | | | | <i>estimate the answer to a calculation and use inverse operations to check answers (copied from Addition and Subtraction)</i> | <i>estimate and use inverse operations to check answers to a calculation (copied from Addition and Subtraction)</i> | | use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy |
| Problem solving | | | | | | | |
| | | solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, | solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and | solve problems, including missing number problems, involving multiplication and division, including positive integer scaling | solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one | solve problems involving multiplication and division including using their knowledge of factors and | solve problems involving addition, subtraction, multiplication and division |

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| | | pictorial representations and arrays with the support of the teacher | multiplication and division facts, including problems in contexts | problems and correspondence problems in which n objects are connected to m objects | digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects | 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 | <i>solve problems involving similar shapes where the scale factor is known or can be found (copied from Ratio and Proportion)</i> |
| Fractions (including decimals and fractions) | | | | | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Counting in fractional steps | | | | | | | |
| | | | Pupils should count in fractions up to 10, starting from any number and using the 1/2 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 $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ 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 | | recognise and use fractions as numbers: unit | | | |

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| | | | | | | | |
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| | | equal parts of an object, shape or quantity | | 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 |
| Comparing decimals | | | | | | | |
| | | | | | compare numbers with the same number of decimal places up to two decimal places | read, write, order and compare numbers with up to three decimal places | identify the value of each digit in numbers given to three decimal places |
| Rounding including decimals | | | | | | | |
| | | | | | round decimals with one decimal place to the nearest whole number | round decimals with two decimal places to the nearest whole number and to one decimal place | solve problems which require answers to be rounded to specified degrees of accuracy |
| Equivalence (including fractions, decimals and percentages) | | | | | | | |
| | | | write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. | 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 | use common factors to simplify fractions; use common multiples to express fractions in the same denomination |
| | | | | | recognise and write decimal equivalents of any number of tenths or hundredths | read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$) | associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) |
| | | | | | | recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents | |
| | | | | | recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ | 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 as a decimal fraction | recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. |

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| Addition and subtraction of fractions | | | | | | | |
|--|-----------|--------|--------|---|--|--|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$) | add and subtract fractions with the same denominator | add and subtract fractions with the same denominator and multiples of the same number | add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions |
| | | | | | | 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. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$) | |
| Multiplication and division of fractions | | | | | | | |
| | | | | | | multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams | multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) |
| | | | | | | | multiply one-digit numbers with up to two decimal places by whole numbers |
| | | | | | | | divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$) |
| Multiplication and division of decimals | | | | | | | |
| | | | | | | | multiply one-digit numbers with up to two decimal places by whole numbers |
| | | | | | 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 | | multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places |

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|------------------------|------------------|---------------|---------------|--|---|--|---|
| | | | | | | | 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 |
| | | | | | | | associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) |
| | | | | | | | use written division methods in cases where the answer has up to two decimal places |
| Problem Solving | | | | | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | solve problems that involve all of the above | 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 | solve problems involving numbers up to three decimal places | |
| | | | | | solve simple measure and money problems involving fractions and decimals to two decimal places. | solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25. | |

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| Measurement | | | | | | | |
|--|--------------------------------------|---|---|--|---|--|---|
| Comparing and estimating | | | | | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'. | Compare length, weight and capacity. | 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 (cm ²) and square metres (m ²) 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 (cm ³) and cubic metres (m ³), and extending to other units such as mm ³ and km ³ . | Measures short periods of time in simple ways. |
| Make comparisons between objects relating to size, length, weight and capacity. | | | | | | estimate volume (e.g. using 1 cm ³ 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 | | | | | | | |
| | | 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, | 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) |

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Progression Map: Maths



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| | | | thermometers and measuring vessels | | | | |
| | | | | 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 |
| | | recognise and know the value of different denominations of coins and notes | recognise and use symbols for pounds (£) and pence (p) ; combine amounts to make a particular value | add and subtract amounts of money to give change, using both £ and p in practical contexts | | | |
| | | | find different combinations of coins that equal the same amounts of money | | | | |
| | | | solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change | | | | |
| | | | | | find the area of rectilinear shapes by counting squares | calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes recognise and use <i>square numbers and cube numbers</i> , and the notation for <i>squared</i> (²) and <i>cubed</i> (³) (copied from Multiplication and Division) | calculate the area of parallelograms and triangles |
| | | | | | | | calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm ³) and cubic metres (m ³), |

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|-------------------------|--|--|---|--|--|--|---|
| | | | | | | | and extending to other units [e.g. mm ³ and km ³]. |
| | | | | | | | recognise when it is possible to use formulae for area and volume of shapes |
| Telling the time | | | | | | | |
| | | tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. | 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. | tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks | read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting) | | |
| | | recognise and use language relating to dates, including days of the week, weeks, months and years | know the number of minutes in an hour and the number of hours in a day. (appears also in Converting) | 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 Comparing and Estimating) | | | |
| | | | | | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting) | solve problems involving converting between units of time | |
| Converting | | | | | | | |
| | | | know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time) | know the number of seconds in a minute and the number of days in each month, year and leap year | convert between different units of measure (e.g. kilometre to metre; hour to minute) | convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) | use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places |
| | | | | | read, write and convert time between analogue | solve problems involving converting between units of time | solve problems involving the calculation and conversion of units of |

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BECOMING **INDEPENDENT** **SUCCESSFUL** **HONEST** **OPEN-MINDED** **PEOPLE**



Progression Map: Maths

| | | | | | and digital 12 and 24-hour clocks (appears also in Converting) | | measure, using decimal notation up to three decimal places where appropriate (appears also in Measuring and Calculating) |
|--|---|---|--|--------|---|---|---|
| | | | | | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Telling the Time) | understand and use equivalences between metric units and common imperial units such as inches, pounds and pints | convert between miles and kilometres |
| Geometry - Properties of shape | | | | | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Identifying shapes and their properties | | | | | | | |
| Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. | | 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) |
| Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. | Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. | | 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 |
| Drawing and constructing | | | | | | | |
| Build with a range of resources. | | | identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] | | | | recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties) |

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Progression Map: Maths

| | | | | | | | |
|---|--|--|--|--|--|--|--|
| | | | | 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 (°) | draw 2-D shapes using given dimensions and angles |
| Comparing and classifying shapes | | | | | | | |
| Put objects inside others and take them out again. | Select, rotate and manipulate shapes in order to develop spatial reasoning skills. | | | 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 |
| Combine shapes to make new ones – an arch, a bigger triangle etc. | | | | | | 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 360°) * angles at a point on a straight line and ½ a turn (total 180°) * other multiples of 90° | 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 | | | |

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BECOMING INDEPENDENT SUCCESSFUL HONEST OPEN-MINDED PEOPLE

Progression Map: Maths



| Geometry- Position and Direction | | | | | | | |
|---|---|---|--|--------|--|---|---|
| Position, direction and movement | | | | | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Climb and squeezing selves into different types of spaces. | | 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 a familiar route. | | | | | 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. |
| Discuss routes and locations, using words like 'in front of' and 'behind'. | | | | | | | |
| Understand position through words alone – for example, "The bag is under the table," – with no pointing. | | | | | | | |
| Pattern | | | | | | | |
| Notice patterns and arrange things in patterns. | Continue, copy and create repeating patterns. | | order and arrange combinations of mathematical objects in patterns and objects | | | | |
| Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc. | | | | | | | |
| Extend and create ABAB patterns – | | | | | | | |

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Progression Map: Maths



| | | | | | | | |
|---|--|--|---|--|---|---|--|
| stick, leaf, stick, leaf. | | | | | | | |
| Notice and correct an error in a repeating pattern. | | | | | | | |
| Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' | | | | | | | |
| Statistics | | | | | | | |
| Interpreting, constructing and presenting data | | | | | | | |
| Nursery | Reception | 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 | | | | |
| Problem Solving | | | | | | | |
| | | | | solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts 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 | | | | | | | |
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Equations | | | | | | | |
| | solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing | 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 | |

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Progression Map: Maths



| | | | | | | | |
|-------------------|---|--|---|--|---|--|---|
| | number problems such as $7 = \square - 9$ (copied from Addition and Subtraction) | | | | | | |
| | | 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, involving multiplication and division, including integer scaling (copied from Multiplication and Division) | | | 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 | |
| Formulae | | | | | | | |
| | | | | | Perimeter can be expressed algebraically as $2(a + b)$ where a and b are the dimensions in the same unit. (Copied from NSG measurement) | | use simple formulae |
| | | | | | | | recognise when it is possible to use formulae for area and volume of shapes (copied from Measurement) |
| Sequencing | | | | | | | |
| | | 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 |

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Progression Map: Maths



| | | | | | | | |
|--|--|--|---|--|--|--|--|
| | | | order and arrange combinations of mathematical objects in patterns (copied from Geometry: position and direction) | | | | |
|--|--|--|---|--|--|--|--|

| Ratio and Proportion | | | | | | | |
|---|-----------|--------|--------|--------|--------|--------|--|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division | | | | | | | |
| | | | | | | | 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. |