



# **Maths**

## **Progression Map**



# MATHS PROGRESSION MAP

## YEAR 6

- Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.
- Round any whole number to a required degree of accuracy.
- Use negative numbers in context, and calculate intervals across zero.
- Solve number and practical problems that involve ordering and comparing numbers to 10 000 000, rounding to a required degree of accuracy, using negative numbers and calculating intervals across zero.
- Demonstrate an understanding of place value including decimals e.g.  $28.13 = 28 + ? + 0.03$ .

## YEAR 1

- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.
- Count and read numbers to 100 in numerals.
- Count and write numbers to 100 in numerals.
- Count in multiples of twos, fives and tens from 0.
- Identify one more and one less of a given number.
- 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.
- Read and write numbers from 1 to 20 in numerals.
- Read and write numbers from 1 to 20 in words.
- Count in twos, fives and tens to solve problems e.g. count the number of chairs in a diagram when the chairs are organised in 7 rows of 5 by counting in fives.
- Partition and combine numbers using apparatus if required e.g. partition 76 into tens and ones; combine 6 tens and 4 ones.

## YEAR 2

- Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.
- Recognise the place value of each digit in a two-digit number (tens, ones).
- Identify, represent and estimate numbers using different representations, including the number line.
- Compare and order numbers from 0 up to 100; use  $<$ ,  $>$  and  $=$  signs.
- Read and write numbers to at least 100 in numerals.
- Read and write numbers to at least 100 in words.
- Use place value and number facts to solve problems.
- Partition two-digit numbers into different combinations of tens and ones using apparatus if needed e.g. 23 is the same as 2 tens and 3 ones which is the same as 1 ten and 13 ones.
- Use reasoning about numbers and relationships to solve more complex problems and explain his/her thinking e.g.  $29 + 17 = 15 + 4 + ?$ ; 'Together Jack and Sam have £14. Jack has £2 more than Sam. How much money does Sam have?' etc.
- Recall the multiples of 10 below and above any given 2 digit number e.g. say that for 67 the multiples are 60 and 70.

## YEAR 5

- Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit e.g. what is the value of the '7' in 276,541? Find the difference between the largest and smallest whole numbers that can be made from using three digits.
- Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.
- Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.
- Solve number problems and practical problems that involve ordering and comparing numbers to 1 000 000, counting forwards or backwards in steps, interpreting negative numbers and rounding.
- Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

## Number and Place Value Progression Map

## YEAR 4

- Count in multiples of 6, 7, 9, 25 and 1000.
- Find 1000 more or less than a given number.
- Count backwards through zero to include negative numbers.
- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).
- Order and compare numbers beyond 1000.
- Identify, represent and estimate numbers using different representations including measures.
- Round any number to the nearest 10, 100 or 1000.
- Solve number and practical problems that involve all of the above and with increasingly large positive numbers.
- 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.

## YEAR 3

- Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
- Compare and order numbers up to 1000.
- Identify, represent and estimate numbers using different representations.
- Read and write numbers up to 1000 in numerals.
- Read and write numbers up to 1000 in words.
- Solve number problems and practical problems involving



# MATHS PROGRESSION MAP

## YEAR 6

- Perform mental calculations with mixed operations to carry out calculations involving the four operations.
- Solve multi-step problems in contexts, deciding which operations and methods to use and why e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?.
- Solve problems involving addition and subtraction.
- Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

## YEAR 5

- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).
- Add and subtract numbers mentally with increasingly large numbers.
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

## YEAR 4

- Add numbers with up to four digits using the formal method of columnar addition.
- Estimate and use inverse operations to check answers to a calculation.
- Subtract numbers with up to four digits using the formal method of columnar subtraction.
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

## YEAR 1

- Read and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
- Write mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
- Demonstrate an understanding of the commutative law (e.g.  $3 + 2 = 5$ , therefore  $2 + 3 = 5$ ).
- Demonstrate an understanding of inverse relationships involving addition and subtraction (e.g. if  $3 + 2 = 5$ , then  $5 - 2 = 3$ ).
- Recall at least four of the six number bonds for 10 and reason about associated facts (e.g.  $6 + 4 = 10$ , therefore  $4 + 6 = 10$  and  $10 - 6 = 4$ ).
- Represent and use number bonds within 20.
- Represent and use subtraction facts within 20.
- Add one-digit and two-digit numbers to 20, including zero.
- Subtract one-digit and two-digit numbers to 20, including zero.
- Solve one-step problems that involve addition, subtraction and missing numbers using concrete objects and pictorial representations.

## Addition and Subtraction Progression Map

## YEAR 3

- Add and subtract numbers mentally, including a three-digit number and ones.
- Add numbers with up to three digits using the formal method of columnar addition.
- Add and subtract numbers mentally, including a three-digit number and tens.
- Subtract numbers with up to three digits using the formal method of columnar subtraction.
- Add and subtract numbers mentally, including a three-digit number and hundreds.
- Estimate the answer to a calculation and use inverse operations to check answers.
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

## YEAR 2

- Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures.
- Solve problems with addition and subtraction applying his/her increasing knowledge of written methods and mental methods where regrouping may be required.
- Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If  $7 + 3 = 10$ , then  $17 + 3 = 20$ ; if  $7 - 3 = 4$ , then  $17 - 3 = 14$ ; leading to if  $14 + 3 = 17$ , then  $3 + 14 = 17$ ,  $17 - 14 = 3$  and  $17 - 3 = 14$ ).
- Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
- Add and subtract numbers where no regrouping is required, using concrete objects, pictorial representations, and mentally, including a two-digit number and ones.
- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including a two-digit number and tens.
- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including two two-digit numbers.
- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including adding three 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.
- Recall doubles and halves to 20 e.g. knowing that double 2 is 4, double 5 is 10 and half of 18 is 9.
- Use estimation to check that his/her answers to a calculation are reasonable e.g. knowing that  $48 + 35$  will be less than 100.
- Solve missing number problems using addition and subtraction.



# MATHS PROGRESSION MAP

## YEAR 6

- 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 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.
- Identify common factors, common multiples and prime numbers.
- Use his/her 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.

## YEAR 5

- 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 (non-prime) 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 appropriately for the context.
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
- Recognise and use square numbers and the notation for squared (2).
- Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.
- Recognise and use cube numbers and the notation for cubed (3).
- 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.

## YEAR 1

- Solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.
- Solve one-step problems involving division by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

## Multiplication and Division Progression Map

## YEAR 4

- 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 one-digit 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.

## YEAR 2

- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs.
- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
- Solve problems involving multiplication and division, using concrete materials and mental methods.
- Solve problems involving multiplication and division, using arrays, repeated addition and multiplication and division facts, including problems in contexts e.g. knowing that  $2 \times 7 = 14$  and  $2 \times 8 = 16$ , explains that making pairs of socks from 15 identical socks will give 7 pairs and one sock will be left.
- Use multiplication and division facts for 2, 5 and 10 to make deductions outside known multiplication facts e.g. know that multiples of 5 have one digit of 0 or 5 and use this to reason that  $18 \times 5$  cannot be 92 as it is not a multiple of 5.
- Solve word problems involving multiplication and division with more than one step e.g. which has the most biscuits, 4 packets of biscuits with 5 in each packet or 3 packets of biscuits with 10 in each packet.
- Recognise the relationships between addition and subtraction and rewrite addition statements as simplified multiplication statements e.g.  $10 + 10 + 10 + 5 + 5 = 3 \times 10 + 2 \times 5 = 4 \times 10$ .

## YEAR 3

- Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
- Write and calculate mathematical statements for multiplication and division using the multiplication tables that he/she knows, 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.



# MATHS PROGRESSION MAP

## YEAR 6

- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
- Compare and order fractions, including fractions  $> 1$ .
- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
- Multiply simple pairs of proper fractions, writing the answer in its simplest form e.g.  $1/4 \times 1/2 = 1/8$ .
- Divide proper fractions by whole numbers e.g.  $1/3 \div 2 = 1/6$ .
- Associate a fraction with division and calculate decimal fraction equivalents e.g. know that 7 divided by 21 is the same as  $7/21$  and that this is equal to  $1/3$  and e.g. 0.375 is equivalent to  $3/8$ .
- Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.
- 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 e.g. one piece of cake that has been cut into 5 equal slices can be expressed as  $1/5$  or 0.2 or 20% of the whole cake.

## YEAR 1

- Recognise, find and name a half as one of two equal parts of an object, shape or quantity.
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

## YEAR 2

- Recognise, find, name and write fractions  $1/3$ ,  $1/4$ ,  $2/4$  and  $3/4$  of a length, shape, set of objects or quantity and demonstrate understanding that all parts must be equal parts of the whole.
- Write simple fractions for example,  $1/2$  of 6 = 3 and recognise the equivalence of  $2/4$  and  $1/2$ .

## Fractions Progression Map

## YEAR 3

- Count up and down in tenths; 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 write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.
- Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.
- Recognise and show, using diagrams, equivalent fractions with small denominators.
- Add fractions with the same denominator within one whole e.g.  $5/7 + 1/7 = 6/7$ .
- Subtract fractions with the same denominator within one whole e.g.  $6/7 - 1/7 = 5/7$ .
- Compare and order unit fractions, and fractions with the same denominators.
- Solve fraction problems.
- Record  $1/10$  as 0.1,  $3/10$  as 0.3 etc.

## YEAR 4

- Recognise and show, using diagrams, families of common equivalent fractions.
- Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- 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.
- Add and subtract fractions with the same denominator.
- Recognise and write decimal equivalents of any number of tenths or hundredths.
- 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 decimal 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.

## YEAR 5

- Compare and order fractions whose denominators are all multiples of the same number.
- Identify and name equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
- Write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
- 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.  $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$ .
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number.
- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
- Read and write decimal numbers as fractions e.g.  $0.71 = 71/100$ ,  $8.09 = 8 + 9/100$ .
- 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 decimal.
- Solve problems which require knowing percentage and decimal equivalents of  $1/2$ ,  $1/4$ ,  $1/5$ ,  $2/5$ ,  $4/5$  and those fractions with a denominator of a multiple of 10 or 25.

# VOCABULARY

## NUMBER AND PLACE VALUE

Number  
 One, two, three to twenty and beyond  
 None  
 Count on/up/to/from/down  
 Before, after  
 More, less, many, few, fewer, fewest, smaller, smallest  
 Equal to, the same as  
 Odd, even  
 Digit  
 Numeral  
 Compare  
 Order  
 Size  
 Value  
 Between, halfway between  
 Subitise  
  
 Greater, lesser  
 Pair  
 Ones, tens  
 Ten more/less  
 Figure(s)  
 Integers  
 In order/ A different order  
 Above, below  
 Numbers to one hundred  
 Hundreds  
 Partition, recombine  
 Hundred more/less  
  
 Numbers to one thousand  
 Tenths, hundredths  
 Decimal (places)  
 Round (to nearest)  
 Thousand more/less  
 Negative integers  
 Count through zero  
 Roman numerals (I to C)  
 Powers of 10  
 Numbers to ten million

## ADDITION AND SUBTRACTION

Number line  
 Add, more, plus, make, sum, total, altogether  
 Double  
 Half, halve  
 Equals, is the same (including equals sign)  
 How many more to make...?  
 How many more is,,, then,,,?  
 How much more is...?  
 Subtract, take away, minus  
  
 Number bonds  
 Inverse  
 Near doubles  
 Difference between  
 How many fewer is...than...?  
 How much less is...?  
  
 Column addition and subtraction  
  
 Efficient written method  
 Order of operations

## MULTIPLICATION AND DIVISION

Odd, even  
 Double, halve  
 Share, share equally  
 Group in pairs  
 Equal groups of  
 Divide  
  
 Once, twice, three, five times  
 Count in tens (forwards from/ backwards from)  
 How many times?  
 Lots of, groups of  
 Multiple of, times, multiply, multiply by  
 Repeated addition  
 Array, row, column  
 Group in twos, threes, etc  
 Divided  
  
 Product  
 Multiples of four, eight, fifty and one hundred  
 Scale up  
 Multiplication facts (up to 12x12)  
 Division facts  
 Inverse  
 Derive  
  
 Factor pairs  
 Composite numbers, prime number, prime factors, square number, cubed number  
 Formal written method  
 Order of operations  
 Common factors, common multiples

## FRACTIONS, (DECIMALS AND PERCENTAGES)

Whole  
 Equal  
 One half  
  
 Equal parts, four equal parts  
 Two halves  
 A quarter, two quarters  
 Three quarters, one third, a third  
 Equivalence, equivalent  
  
 Numerator, denominator  
 Unit fraction, non-unit fraction  
 Compare and order  
 Tenths  
 Decimals  
 Equivalent decimals and fractions  
 Proper fractions, improper fractions, mixed numbers  
 Percentage  
 Half, quarter, fifth, two fifths, four fifths  
 Ratio, proportion  
 Degree of accuracy  
 Simplify





# MATHS PROGRESSION MAP

## YEAR 6

- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
- 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.
- Convert between miles and kilometres.
- Recognise that shapes with the same areas can have different perimeters and vice versa.
- Recognise when it is possible to use formulae for area and volume of shapes.
- Calculate the area of parallelograms and triangles.
- Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ( $\text{cm}^3$ ) and cubic metres ( $\text{m}^3$ ), and extending to other units e.g.  $\text{mm}^3$  and  $\text{km}^3$ .

## YEAR 1

- Compare, describe and solve practical problems for lengths and heights e.g. long/short, longer/shorter, tall/short, double/half.
- Compare, describe and solve practical problems for mass/weight e.g. heavy/light, heavier than, lighter than.
- Compare, describe and solve practical problems for capacity and volume e.g. full/empty, more than, less than, half, half full, quarter.
- Compare, describe and solve practical problems for time e.g. quicker, slower, earlier, later.
- Measure and begin to record mass/weight.

## YEAR 2

- Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ( $^{\circ}\text{C}$ ); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.
- Compare and order lengths, mass, volume/capacity and record the results using  $>$ ,  $<$  and  $=$ .
- Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.
- 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.
- Compare and sequence intervals of time.
- 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.
- Remember the number of minutes in an hour and the number of hours in a day.
- Read scales in divisions of ones, twos, fives and tens.
- Read scales where not all numbers on the scale are given and estimate points in between.
- Read the time on a clock to the nearest 15 minutes.

## Measurement Progression Map

## YEAR 5

- Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.
- Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.
- Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres ( $\text{cm}^2$ ) and square metres ( $\text{m}^2$ ) and estimate the area of irregular shapes.
- Estimate volume e.g. using  $1 \text{ cm}^3$  blocks to build cuboids (including cubes) and capacity e.g. using water.
- Solve problems involving converting between units of time.
- Use all four operations to solve problems involving measure e.g. length, mass, volume, money using decimal notation, including scaling.

## YEAR 4

- Convert between different units of measure e.g. kilometre to metre; hour to minute.
- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.
- Find the area of rectilinear shapes by counting squares.
- Estimate, compare and calculate different measures, including money in pounds and pence.
- Read, write and convert time between analogue and digital 12- and 24-hour clocks.
- Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

## YEAR 3

- Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).
- Measure the perimeter of simple 2-D shapes.
- Add and subtract amounts of money to give change, using both £ and p in practical contexts.
- Tell the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.
- Write the time using an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.
- Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.
- Know the number of seconds in a minute and the number of days in each month, year and leap year.
- Compare durations of events e.g. to calculate the time taken by particular events or tasks.



# MATHS PROGRESSION MAP

## YEAR 6

- Draw 2-D shapes using given dimensions and angles.
- Recognise, describe and build simple 3-D shapes, including making nets.
- Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.
- Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
- Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
- Describe positions on the full coordinate grid (all four quadrants).
- Draw and translate simple shapes on the coordinate plane, and reflect them in the axis.

## YEAR 1

- Recognise and name common 2-D shapes e.g. rectangles (including squares), circles and triangles.
- Recognise and name common 3-D shapes e.g. cuboids (including cubes), pyramids and spheres.
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

## YEAR 2

- Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.
- Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.
- Name some common 2-D and 3-D shapes from a group of shapes or from pictures of the shapes and describe some of their properties (e.g. triangles, rectangles, squares, circles, cuboids, cubes, pyramids and spheres).
- Identify 2-D shapes on the surface of 3-D shapes e.g. a circle on a cylinder and a triangle on a pyramid.
- Compare and sort common 2-D and 3-D shapes and everyday objects describing similarities and differences e.g. find 2 different 2-D shapes that only have one line of symmetry; that a cube and a cuboid have the same number of edges, faces and vertices and describe what is different about them.
- Order and arrange combinations of mathematical objects in patterns and sequences.
- 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).

## GEOMETRY Progression Map

## YEAR 5

- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
- Draw given angles, and measure them in degrees ( $^{\circ}$ ).
- Identify angles at a point and one whole turn (total  $360^{\circ}$ ).
- Identify angles at a point on a straight line and  $1/2$  a turn (total  $180^{\circ}$ ).
- Identify other multiples of  $90^{\circ}$ .
- Use the properties of rectangles to deduce related facts and find missing lengths and angles.
- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
- 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.

## YEAR 4

- Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.
- Identify acute and obtuse angles and compare and order angles up to two right angles by size.
- Identify lines of symmetry in 2-D shapes presented in different orientations.
- Complete a simple symmetric figure with respect to a specific line of symmetry.
- Begin to recognise where angles are greater than two right angles. Know the term straight angle referring to two right angles together.
- Describe positions on a 2-D grid as coordinates in the first quadrant.
- Describe movements between positions as translations of a given unit to the left/right and up/down.
- Plot specified points and draw sides to complete a given polygon.

## YEAR 3

- Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.
- Recognise angles as a property of shape or a description of a turn.
- Identify right angles and identify whether other angles are greater or less than a right angle.
- Recognise that two right angles make a half turn, three make three quarters of a turn and four a complete turn.
- Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.





# MATHS PROGRESSION MAP

## YEAR 2

- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.
- 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.

## YEAR 3

- Interpret and present data using bar charts, pictograms and tables.
- 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.

## STATISTICS, RATIO and PROPORTION, ALGEBRA Progression Map

## YEAR 6

- Interpret and construct pie charts and line graphs and use these to solve problems.
- Calculate and interpret the mean as an average.
- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts e.g. find  $\frac{7}{9}$  of 108.
- Solve problems involving the calculation of percentages e.g. 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.
- Use simple formulae e.g. perimeter of a rectangle or area of a triangle.
- Generate and describe linear number sequences.
- Express missing number problems algebraically.
- Find pairs of numbers that satisfy an equation with two unknowns.
- Enumerate possibilities of combinations of two variables.

## YEAR 4

- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

## YEAR 5

- Solve comparison, sum and difference problems using information presented in a line graph.
- Complete, read and interpret information in tables, including timetables.

# VOCABULARY

## MEASUREMENT

Full, half, empty  
Holds  
Container  
Weigh, weighs, balance  
Heavy, heavier, heaviest, light, lighter, lightest  
Scales  
Time  
Days of the week / Seasons  
Days, week, month, year, weekend  
Birthday, holiday  
Times of the day eg morning  
Today, yesterday, tomorrow  
Before, after, next, last  
Quickest, fastest, slowest  
Clock  
Once  
First, second, third  
Estimate  
Too many, too few  
Length, height  
Longer, longest, shorter, shortest, taller, tallest, higher, highest  
Money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change  
How much? How many?  
Total

## MEASUREMENT (CONT.)

Midnight  
Now, soon, early, late  
Quick, quicker, quickly, fast, slow, slower  
Old, older, oldest, new, newer, newest  
Takes longer, takes less time  
Hour, o'clock, half past  
Watch, hands  
How long ago?  
How long will it be/take to...?  
How often?  
Always, never, often, sometimes, usually  
Close to, about the same as, just over, just under, (not) enough, Width, depth  
Long, short, tall, high  
Low, wide, narrow, deep, shallow, thick, thin  
Far, near, close  
Metre, ruler, metre stick  
Costs more/less, dear(er), cheaper, costs the same as  
  
Quarter past/to  
m/km, g/kg, ml/l  
Temperature (degrees)  
Leap year  
Twelve hour/twenty-four hour clock  
Roman numerals I to XIII  
Convert  
  
Volume  
Imperial units, metric units

## GEOMETRY POSITION AND DIRECTION

Over, under, underneath, above, below, top, bottom, side  
On, in, outside, inside In front, behind  
Front, back  
Before, after  
Beside, next to  
Middle  
Up, down, forwards, backwards  
Sideways  
Close, far  
Through  
Towards, away from  
Side, roll, turn  
  
Position  
Around, opposite, apart  
Between, edge, centre  
Direction  
Journey  
Left, right  
Across, near, along  
To, from  
Movement  
Whole turn, half turn  
Stretch, bend  
Rotation  
Clockwise, anticlockwise  
Straight line  
Ninety degree turn, right angle  
  
Greater/less than ninety degrees  
Orientation (same orientation, different orientation)  
Coordinates  
Translation  
Quadrant x-axis, y-axis  
Perimeter and area  
  
Dimensions  
Four quadrants (for coordinates)

## GEOMETRY PROPERTIES OF SHAPE

Sort  
Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square  
Shape  
Flat, curved, straight, round  
Solid  
Corner, vertex  
Face, side  
Make, build, draw  
  
Group  
Hollow  
Point, pointed  
Edge  
Size  
Bigger, larger, smaller  
Symmetrical, line of symmetry  
Fold  
Match  
Mirror line, reflection  
Pattern, repeating pattern  
  
Horizontal, vertical, perpendicular and parallel lines  
Quadrilaterals  
Triangles  
Right angle, acute and obtuse angles  
  
Regular and irregular Polygons  
Reflex angle  
Vertically opposite (angles)  
Circumference, radius, diameter

# VOCABULARY

## STATISTICS, RATIO AND PROPORTION, ALGEBRA

Count, tally, sort  
Vote  
Graph, block graph, pictogram, Represent  
Group, set, list, table  
Label, title  
Most popular, most common, least popular, least common

Chart, bar chart, frequency table, Carroll diagram, Venn diagram  
Axis, axes  
Diagram  
Continuous data  
Line graph

Mean  
Pie chart  
Construct

ALGEBRA  
Formula  
Linear number sequence  
Substitute  
Variables  
Symbol  
Known values

## GENERAL / PROBLEM SOLVING

Place, fit  
Arrange, rearrange  
Change, change over  
Split, separate  
Carry on, continue, repeat  
Choose, collect  
Record, trace, copy, complete, finish, end  
Fill in, shade, colour, cross, draw, draw a line between, join (up), arrow  
Answer, check, same number(s), different number(s), missing number(s)  
Number facts  
Number sentence  
Calculation  
Dienes, rods, cubes, counters, number  
Best way, another way  
Bar model, part-whole model  
Method, strategy  
Efficient