

Maths – Knowledge & Skills Progression Milestone 3



Statutory Framework for the Early Years Foundation Stage

Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measure

Early learning goal – Mathematics - Number

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. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Early Learning Goal- Mathematics – Shape, Space & Measures

Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

The National Curriculum for Maths

Purpose of study

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

The programmes of study for mathematics are set out year-by-year for Key stages 1 and 2.

Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate. All schools are also required to set out their school curriculum for mathematics on a year-by-year basis and make this information available online.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content at Upper Key stage 2

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

In Year 5- Number – number and place value, pupils should be taught to:

- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- 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 all of the above
- read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

In Year 5- Number – addition and subtraction, pupils should be taught to:

- add and subtract whole numbers with more than 4 digits, including using formal written methods (column 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.

In Year 5- Number – multiplication and division, pupils should be taught to:

- 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

In Year 5- Number –fractions, pupils should be taught to:

- compare and order fractions whose denominators are all multiples of the same number
- identify, name and 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 [for example, $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$]
- 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 [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 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.

In Year 5- Measurement, pupils should be taught to:

- 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 (cm^2) and square metres (m^2) and estimate the area of irregular shapes
- estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]
- solve problems involving converting between units of time
- use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

In Year 5- Geometry – properties of shapes, pupils should be taught to:

- 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°)
 - angles at a point on a straight line and $1/2$ a turn (total 180°)

- other multiples of 90°
- 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.

In Year 5- Geometry – position and direction, pupils should be taught to:

- 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.

In Year 5- Statistics, pupils should be taught to:

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

In Year 6- Number – number and place value, pupils should be taught to:

- 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 all of the above.

In Year 6- Number – addition, subtraction, multiplication and division, pupils should be taught to:

- 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 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.

In Year 6- Number –fractions (including decimals and percentages), pupils should be taught to:

- 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 [for example, $1/4 \times 1/2 = 1/8$]
- divide proper fractions by whole numbers [for example, $1/3 \div 2 = 1/6$]
- associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $3/8$]
- 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.

In Year 6- Ratio and proportion, pupils should be taught to:

- 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.

In Year 6- Algebra, pupils should be taught to:

- use simple formulae
- 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.

In Year 6- Measurement, pupils should be taught to:

- 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 (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

In Year 6- Geometry – properties of shapes, pupils should be taught to:

- 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.

In Year 6- Geometry – position and direction, pupils should be taught to:

- describe positions on the full coordinate grid (all four quadrants)
- draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

In Year 6- Statistics, pupils should be taught to:

- interpret and construct pie charts and line graphs and use these to solve problems
- calculate and interpret the mean as an average

Maths Knowledge & Skills Progression

Milestone 3



| Skills | Prior Learning | Year 5 | Year 6 |
|----------------------------|--|---|--|
| Counting | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> use negative numbers in context, and calculate intervals across zero |
| Place Value | <ul style="list-style-type: none"> recognise the place value of each digit in a four-digit number order and compare numbers beyond 1000 round any number to the nearest 10, 100 or 1000 | <ul style="list-style-type: none"> read, write, order and compare numbers up to 1 000 000 and determine the value of each digit round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 | <ul style="list-style-type: none"> 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 |
| Representing number | <ul style="list-style-type: none"> identify, represent and estimate numbers using different representations 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 | <ul style="list-style-type: none"> read Roman numerals to 1000 (M) and recognise years written in Roman numerals recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) | |

| Skills | Prior Learning | Year 5 | Year 6 |
|---------------------------|---|---|--|
| Number facts (+/-) | | | |
| Mental +/- | | <ul style="list-style-type: none"> • add and subtract numbers mentally with increasingly large numbers | <ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers |
| Written +/- | <ul style="list-style-type: none"> • add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate | <ul style="list-style-type: none"> • add and subtract whole numbers with more than 4 digits, including using formal written methods | |
| Problems +/- | <ul style="list-style-type: none"> • estimate and use inverse operations to check answers to a calculation • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | <ul style="list-style-type: none"> • 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 | |
| Number facts (x/÷) | <ul style="list-style-type: none"> • recall multiplication and division facts for multiplication tables up to 12×12 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • identify common factors, common multiples and prime numbers |
| Mental (x/÷) | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • multiply and divide numbers mentally drawing upon known facts • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | <ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers |

| Skills | Prior Learning | Year 5 | Year 6 |
|------------------------------|--|---|---|
| Written (x/÷) | | <ul style="list-style-type: none"> 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 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 | <ul style="list-style-type: none"> 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 context |
| Problems (x/÷) | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 |
| Recognising fractions | <ul style="list-style-type: none"> count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. | <ul style="list-style-type: none"> recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number | |
| Comparing fractions | <ul style="list-style-type: none"> recognise and show, using diagrams, families of common equivalent fractions | <ul style="list-style-type: none"> compare and order fractions whose denominators are all multiples of the same number identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths | <ul style="list-style-type: none"> use common factors to simplify fractions use common multiples to express fractions in the same denomination compare and order fractions, including fractions > 1 |

| Skills | Prior Learning | Year 5 | Year 6 |
|--|---|--|---|
| Finding fractions of quantities | <ul style="list-style-type: none"> • 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 | | |
| Calculating with fractions | <ul style="list-style-type: none"> • add and subtract fractions with the same denominator | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 • divide proper fractions by whole numbers |
| Decimals as fractional amounts | <ul style="list-style-type: none"> • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ • 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 | <ul style="list-style-type: none"> • read and write decimal numbers as fractions | <ul style="list-style-type: none"> • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction • identify the value of each digit in numbers given to three decimal places |
| Ordering decimals | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | |

| Skills | Prior Learning | Year 5 | Year 6 |
|---------------------------|--|--|--|
| Calculating with decimals | | | <ul style="list-style-type: none"> multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places multiply one-digit number with up to two decimal places by whole numbers use written division methods in cases where the answer has up to two decimal places |
| Percentages | | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison |
| Fraction problems | <ul style="list-style-type: none"> solve simple measure and money problems involving fractions and decimals to two decimal places | <ul style="list-style-type: none"> solve problems involving number up to three 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 fractions with a denominator of a multiple of 10 or 25 | <ul style="list-style-type: none"> 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 & Proportion | | | <ul style="list-style-type: none"> 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 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. |
| Algebra | | | <ul style="list-style-type: none"> use simple formulae 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. |

| Skills | Prior Learning | Year 5 | Year 6 |
|--------------------|--|--|---|
| Measures | <ul style="list-style-type: none"> • Convert between different units of measure • estimate, compare and calculate different measures, including money in pounds and pence | <ul style="list-style-type: none"> • convert between different units of metric measure • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • estimate volume and capacity | <ul style="list-style-type: none"> • 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 |
| Mensuration | <ul style="list-style-type: none"> • measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • find the area of rectilinear shapes by counting squares | <ul style="list-style-type: none"> • 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 (cm²) and square metres (m²) and estimate the area of irregular shapes | <ul style="list-style-type: none"> • 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 (cm³) and cubic metres (m³), and extending to other units. |
| Money | | <ul style="list-style-type: none"> • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling | |

| Skills | Prior Learning | Year 5 | Year 6 |
|--------------------------------|---|---|--|
| Time | <ul style="list-style-type: none"> • Convert between different units of measure (e.g. Hours to minutes) • 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 | <ul style="list-style-type: none"> • solve problems involving converting between units of time | |
| Shape vocabulary | | | <ul style="list-style-type: none"> • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius |
| Properties of 2-d shape | <ul style="list-style-type: none"> • compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and sizes • 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. | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • draw 2-D shapes using given dimensions and angles compare and classify geometric shapes based on their properties and sizes |
| Properties of 3-d shape | | <ul style="list-style-type: none"> • identify 3-D shapes, including cubes and other cuboids, from 2-D representations | <ul style="list-style-type: none"> • recognise, describe and build simple 3-D shapes, including making nets • find unknown angles in any triangles, quadrilaterals, and regular polygons |

| Skills | Prior Learning | Year 5 | Year 6 |
|---------------------------------|---|--|--|
| Angles | <ul style="list-style-type: none"> • identify acute and obtuse angles and compare and order angles up to two right angles by size | <ul style="list-style-type: none"> • 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°); at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) • identify other multiples of 90° | <ul style="list-style-type: none"> • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
| Position & Direction | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes. |
| Interpreting data | <ul style="list-style-type: none"> • interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs | <ul style="list-style-type: none"> • complete, read and interpret information in tables, including timetables | <ul style="list-style-type: none"> • interpret and construct pie charts and line graphs calculate and interpret the mean as an average |
| Extract info from data | <ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs | <ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in a line graph | <ul style="list-style-type: none"> • use pie charts and line graphs to solve problems |