
# Mathematics – Measures, Geometry and Statistics Progression of Knowledge and Skills

***EYFS-Year 6***

# EYFS

## Reception

*For more information about the units covered throughout the year, refer to the White Rose Maths long-term plan/overview and medium-term plans/schemes of learning*

*Informed by new Development Matters (2020) publication*

| | Mathematics |
|---|---|
| Year Reception | • Compare length, weight and capacity.<br>• Select, rotate and manipulate shapes in order to develop spatial reasoning skills.<br>• Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.<br>• Continue, copy and create repeating patterns. |
| ELG | • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.<br>• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. |

# Key Stage 1

## Year 1

*For more information about the units covered throughout the year, refer to the White Rose Maths long-term plan/overview and medium-term plans/schemes of learning*

| | Using Measures | Money | Time | Perimeter, Area and Volume | Geometry *2-D Shape* | Geometry *3-D Shape* | Geometry *Angles and Lines* | Geometry *Position and Direction* | Statistics *Present* | Statistics *Problem Solving* |
|---|---|---|---|---|---|---|---|---|---|---|
| Year 1 | • compare, describe and solve practical problems for:<br>➢ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]<br>➢ mass/weight [for example, heavy/ligh heavier than, lighter than]<br>➢ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]<br>➢ time [for example, quicker, slower, earlier, later]<br>• measure and begin t record the following:<br>➢ lengths and heights<br>➢ mass/weight<br>➢ capacity and volume<br>➢ time (hours, minutes seconds)<br>**Spring 3**<br>**Spring 4**<br>**Summer 6** | recognise and know the value of different denominations of coins and notes<br>**Summer 5** | • sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]<br>• recognise and use language relating to dates, including days of the week, weeks, months and years<br>• tell the time to the hour and half past the hour and draw the hands on a clock face to show these times<br>**Summer 6** | | recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles]<br>**Autumn 3** | recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]<br>**Autumn 3** | | describe position, direction and movement, including whole, half, quarter and three-quarter turns<br>**Summer 3** | | |

# Key Stage 1

## Year 2

*For more information about the units covered throughout the year, refer to the White Rose Maths long-term plan/overview and medium-term plans/schemes of learning*

| | Using Measures | Money | Time | Perimeter, Area and Volume | Geometry *2-D Shape* | Geometry *3-D Shape* | Geometry *Angles and Lines* | Geometry *Position and Direction* | Statistics *Present* | Statistics *Problem Solving* |
|---|---|---|---|---|---|---|---|---|---|---|
| Year 2 | • 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, thermometers and measuring vessels<br>• compare and order lengths, mass, volume/capacity and record the results using >, < and =<br>**Spring 5 Summer 4** | • recognise and use symbols for pounds (£) and pence (p); combine amounts t make a particular value<br>• find different combinations of coi that equal the same amounts of money<br>• solve simple problems in a practical context involving addition a subtraction of mone of the same unit, including giving change<br>**Autumn 3** | • compare and sequence intervals of time<br>• tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times<br>• know the number of minutes in an hour and the number of hours in a day<br>**Summer 3** | | • identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line<br>• identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]<br>• compare and sort common 2-D shapes and everyday objects<br>**Spring 3** | • recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].<br>• compare and sort common 3-D shapes and everyday objects<br>**Spring 3** | | • order and arrange combinations of mathematical objects in patterns and sequences<br>• use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)<br>**Spring 3 Summer 1** | interpret and construct simple pictograms, tally charts, block diagrams and simple tables<br>**Spring 2** | • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity<br>• ask and answer questions about totalling and comparing categorical data<br>**Spring 2** |

# Key Stage 2

## Year 3

*For more information about the units covered throughout the year, refer to the White Rose Maths long-term plan/overview and medium-term plans/schemes of learning*

| | Using Measures | Money | Time | Perimeter, Area and Volume | Geometry *2-D Shape* | Geometry *3-D Shape* | Geometry *Angles and Lines* | Geometry *Position and Direction* | Statistics *Present* | Statistics *Problem Solving* |
|---|---|---|---|---|---|---|---|---|---|---|
| Year 3 | • measure, compare, add and subtract: lengths (m/cm/mm mass (kg/g); volume/capacity (l/ml)<br>**Spring 4 Summer 4** | add and subtract amounts of money to give change, using both £ and p in practical contexts<br>**Spring 2** | • tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks<br>• 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<br>• know the number of seconds in a minute and the number of days in each month, year and leap year<br>• compare durations of events [for example to calculate the time taken by particular events or tasks]<br>**Summer 2** | measure the perimeter of simple 2-D shapes<br>**Spring 4** | draw 2-D shapes<br>**Summer 3** | make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them<br>**Summer 3** | • recognise angles as a property of shape or a description of a turn<br>• identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle<br>• identify horizontal and vertical lines and pairs of perpendicular and parallel lines<br>**Summer 3** | | interpret and present data using bar charts, pictograms and tables<br>**Spring 3** | solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables<br>**Spring 3** |

# Key Stage 2

## Year 4

*For more information about the units covered throughout the year, refer to the White Rose Maths long-term plan/overview and medium-term plans/schemes of learning*

| | Using Measures | Money | Time | Perimeter, Area and Volume | Geometry *2-D Shape* | Geometry *3-D Shape* | Geometry *Angles and Lines* | Geometry *Position and Direction* | Statistics *Present* | Statistics *Problem Solving* |
|---|---|---|---|---|---|---|---|---|---|---|
| Year 4 | • Convert between different units of measure [for example, kilometre to metre; hour to minute]<br>• estimate, compare and calculate different measures<br>**Autumn 3 Spring 2 Summer 3** | estimate, compare and calculate different measures including money in pounds and pence<br>**Summer 2** | • read, write and convert time between analogue and digital 12- and 24-hour clocks<br>• solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days<br>**Summer 3** | • measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres<br>• find the area of rectilinear shapes by counting squares<br>**Autumn 3 Spring 2** | • compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes<br>• identify lines of symmetry in 2-D shapes presented in different orientations<br>**Summer 5** | | • identify acute and obtuse angles and compare and order angles up to two right angles by size<br>• identify lines of symmetry in 2-D shapes presented in different orientations<br>• complete a simple symmetric figure with respect to a specific line of symmetry<br>**Summer 5** | • describe positions on a 2-D grid as coordinates in the first quadrant<br>• describe movements between positions as translations of a given unit to the left/right and up/down<br>• plot specified points and draw sides to complete a given polygon<br>**Summer 6** | interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs<br>**Summer 4** | solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs<br>**Summer 4** |

# Key Stage 2

## Year 5

*For more information about the units covered throughout the year, refer to the White Rose Maths long-term plan/overview and medium-term plans/schemes of learning*

| | Using Measures | Money | Time | Perimeter, Area and Volume | Geometry *2-D Shape* | Geometry *3-D Shape* | Geometry *Angles and Lines* | Geometry *Position and Direction* | Statistics *Present* | Statistics *Problem Solving* |
|---|---|---|---|---|---|---|---|---|---|---|
| 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)<br>• understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints<br>• use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling<br>**Summer 1**<br>**Summer 4**<br>**Summer 5** | use all four operations to solve problems involving measure [for example, money]<br>**Summer 1** | solve problems involving converting between units of time<br>**Summer 4** | • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres<br>• 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<br>• estimate volume [for example, using 1 $cm^3$ blocks to build cuboids (including cubes)] and capacity [for example, using water]<br>**Autumn 5**<br>**Summer 5** | • distinguish between regular and irregular polygons based on reasoning about equal sides and angles.<br>• use the properties of rectangles to deduce related facts and find missing lengths and angles<br>**Summer 2** | • identify 3-D shapes, including cubes and other cuboids, from 2-D representations<br>**Summer 2** | • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles<br>• draw given angles, and measure them in degrees<br>• identify:<br>➢ angles at a point and one whole turn (total 360°)<br>➢ angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°)<br>➢ other multiples of 90°<br>**Summer 2** | 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<br>**Summer 3** | complete, read and interpret information in tables, including timetables<br>**Autumn 3** | solve comparison, sum and difference problems using information presented in a line graph<br>**Autumn 3** |

# Key Stage 2

## Year 6

*For more information about the units covered throughout the year, refer to the White Rose Maths long-term plan/overview and medium-term plans/schemes of learning*

| | Using Measures | Money | Time | Perimeter, Area and Volume | Geometry *2-D Shape* | Geometry *3-D Shape* | Geometry *Angles and Lines* | Geometry *Position and Direction* | Statistics *Present* | Statistics *Problem Solving* |
|---|---|---|---|---|---|---|---|---|---|---|
| Year 6 | • solve problems involving the calculation and conversion of units o measure, using decimal notation up to three decimal places where appropriate<br>• 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<br>• convert between miles and kilometres<br>**Spring 4** | | use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa<br>**Year 5 Summer 4** | • recognise that shapes with the same areas can have different perimeters and vice versa<br>• recognise when it is possible to use formulae for area and volume of shapes<br>• calculate the area of parallelograms and triangles<br>• calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ($cm^3$) and cubic metres ($m^3$), and extending to other units [for example, $mm^3$ and $km^3$]<br>**Spring 5** | • draw 2-D shapes using given dimensions and angles<br>• compare and classify geometric shapes based on their properties and sizes<br>• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius<br>**Summer 1** | • recognise, describe and build simple 3-D shapes, including making nets<br>**Summer 1** | • find unknown angles in any triangles, quadrilaterals, and regular polygons<br>• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles<br>**Summer 1** | • describe positions on the full coordinate grid (all four quadrants)<br>• draw and translate simple shapes on the coordinate plane, and reflect them in the axes<br>**Autumn 4** | interpret and construct pie charts and line graphs and use these to solve problems<br>**Summer 3** | calculate and interpret the mean as an average<br>**Summer 3** |