Maths Curriculum

June 2014

Shape, Measure, Data

Year 1

Measurement	Geometry – properties of shapes	Geometry – position and direction
Compare, describe and solve practical problems for: *lengths and heights (long/short, longer/shorter, tall/short, double/half)* *mass/weight (heavy/light, heavier than, lighter than)* *capacity and volume (full/empty, more than, less than, half, half full, quarter)* *time (quicker, slower, earlier, later)* **Measure and begin to record the following:** *lengths and heights* *mass/weight* *capacity and volume* *time (hours, minutes, seconds)* **Recognise and know the value of different denominations of coins and notes** **Sequence events in chronological order using language** *(before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening)* **Recognise and use language relating to dates, including days of the week, weeks, months and years** **Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times**	**Recognise and name common 2-D and 3-D shapes, including:** *2-D shapes (rectangles (including squares), circles and triangles)* *3-D shapes (cuboids (including cubes), pyramids and spheres)*	**Describe position, direction and movement, including whole, half, quarter and three-quarter turns**

Year 2

Measurement	Geometry – properties of shapes	Geometry – position and direction	Statistics
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. 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 subtractions 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 Know the number of minutes in an hour and the number of hours in a day.	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 number of edges, vertices and faces Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] Compare and sort common 2-D and 3-D shapes and everyday objects.	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)	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

Measurement	Geometry – properties of shapes	Statistics
Measure, compare, add and subtract: lenths (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 and write the time from 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, am/pm, 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 [for example to calculate the time taken by particular events or tasks].	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 description of a turn 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 anfles are greater than or less than a right angle Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Interpret and present data using bar charts, pictograms and tables 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.

Year 4

Measurement	Geometry – properties of shapes	Geometry – position and direction	Statistics
Convert between different units of measure [for example, kilometre to metre; hour to minute]

Measure and calculate the perimeter of 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 digitial 12- and 24-hour clocks

Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to day. | 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. | Describe properties on a 2-D grid as co-ordinates in the first quadrant

Describe movements between positions and translations of a given unit to the left/right and up/down

Plot specified points and draw sides to complete a given polygon | 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

Measurement	Geometry – properties of shapes	Geometry – position and direction	Statistics
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 and 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.	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 (^{0}) Identify: • Angles at a point and one whole turn (total 360^0) • Angles at a point on a straight line and ½ a turn (total 180^0) • Other multiples of 90^0 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.	Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables.

Year 6

Measurement	Geometry – properties of shapes	Geometry – position and direction	Statistics
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 ($cm3$) and cubic metres ($m3$), and extending to other units [for example, $mm3$ and $km3$].	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 axes.	Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average.