

Measurements

Comparing and estimating					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] <p>time [e.g. quicker, slower, earlier, later]</p>	<p>compare and order lengths, mass, volume/capacity and record the results using >, < and =</p>		<p>estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring)</p>	<p>calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes (also included in measuring)</p> <p>estimate volume (e.g. using 1 cm³ blocks to build cubes and cuboids) and capacity (e.g. using water)</p>	<p>calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm³) and cubic metres (m³), and extending to other units such as mm³ and km³.</p>
<p>sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p>	<p>compare and sequence intervals of time</p>	<p>compare durations of events, for example to calculate the time taken by particular events or tasks</p> <p>estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight</p>			

Measuring and calculating

<p>measure and begin to record the following:</p> <ul style="list-style-type: none"> * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds) 	<p>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</p>	<p>measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p>	<p>estimate, compare and calculate different measures, including money in pounds and pence (appears also in Comparing)</p>	<p>use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.</p>	<p>solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Converting)</p>
		<p>measure the perimeter of simple 2-D shapes</p>	<p>measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</p>	<p>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p>	<p>recognise that shapes with the same areas can have different perimeters and vice versa</p>
<p>recognise and know the value of different denominations of coins and notes</p>	<p>recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p>	<p>add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p>find different combinations of coins that equal the same amounts of money</p> <p>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p>			
			<p>find the area of rectilinear shapes by counting squares</p>	<p>calculate and compare the area of squares and rectangles including using</p>	<p>calculate the area of parallelograms and triangles</p>

				<p>standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes</p> <p><i>recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</i></p>	<p>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 [e.g. mm^3 and km^3].</p> <p>recognise when it is possible to use formulae for area and volume of shapes</p>
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Telling the time

tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks	read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)		
recognise and use language relating to dates, including days of the week, weeks, months and years	know the number of minutes in an hour and the number of hours in a day. (appears also in Converting)	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating)			
			solve problems involving converting from hours to minutes; minutes to	solve problems involving converting between units of time	

			seconds; years to months; weeks to days (appears also in Converting)		
Converting					
	know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)	know the number of seconds in a minute and the number of days in each month, year and leap year	convert between different units of measure (e.g. kilometre to metre; hour to minute)	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
			read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)	solve problems involving converting between units of time	solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate (appears also in Measuring and Calculating)
			solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Telling the Time)	understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	convert between miles and kilometres

Geometry: Properties of shape

Identifying shapes and their properties					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres]. 	<p>identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</p>		<p>identify lines of symmetry in 2-D shapes presented in different orientations</p>	<p>identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p>	<p>recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing)</p> <p>illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</p>
Drawing and constructing					
		<p>draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p>	<p>complete a simple symmetric figure with respect to a specific line of symmetry</p>	<p>draw given angles, and measure them in degrees ($^{\circ}$)</p>	<p>draw 2-D shapes using given dimensions and angles</p> <p>recognise, describe and build simple 3-D shapes, including making nets</p>
		<p>measure the perimeter of simple 2-D shapes</p>	<p>measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</p>	<p>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p>	<p>recognise that shapes with the same areas can have different perimeters and vice versa</p>

Comparing and classifying

	compare and sort common 2-D and 3-D shapes and everyday objects		compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
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Angles

		recognise angles as a property of shape or a description of a turn		know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	
		identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle	identify acute and obtuse angles and compare and order angles up to two right angles by size	identify: * angles at a point and one whole turn (total 360°) * angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) * other multiples of 90°	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
		identify horizontal and vertical lines and pairs of perpendicular and parallel lines			

Geometry: Position and direction

Position, direction and movement					
describe position, direction and movement, including half, quarter and three-quarter turns.	use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)		describe positions on a 2-D grid as coordinates in the first quadrant 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	identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
Pattern					
	order and arrange combinations of mathematical objects in patterns and sequences				

Statistics

Interpreting, constructing and representing data

	interpret and construct simple pictograms, tally charts, block diagrams and simple tables	interpret and present data using bar charts, pictograms and tables	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	complete, read and interpret information in tables, including timetables	interpret and construct pie charts and line graphs and use these to solve problems
	ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity				
	ask and answer questions about totalling and comparing categorical data				

Solving problems

		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.	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	solve comparison, sum and difference problems using information presented in a line graph	calculate and interpret the mean as an average
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Algebra

Equations					
<p>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$ (copied from Addition and Subtraction)</p>	<p>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. (copied from Addition and Subtraction)</p>	<p>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. (copied from Addition and Subtraction)</p> <p>solve problems, including missing number problems, involving multiplication and division, including integer scaling</p>		<p>use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes)</p>	<p>express missing number problems algebraically</p>
	<p>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (copied from Addition and Subtraction)</p>				<p>find pairs of numbers that satisfy number sentences involving two unknowns</p>
<p>represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction)</p>					<p>enumerate all possibilities of combinations of two variables</p>
Formulae					
			<p>Perimeter can be expressed algebraically as $2(a + b)$ where a and b are</p>		<p>use simple formulae</p> <p>recognise when it is possible to use formulae</p>

			the dimensions in the same unit. (Copied from NSG measurement)		for area and volume of shapes (copied from Measurement)
Sequences					
sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (copied from Measurement)	compare and sequence intervals of time (copied from Measurement) order and arrange combinations of mathematical objects in patterns (copied from Geometry: position and direction)				generate and describe linear number sequences