

Strand – Measurement					
Rationale					
<p>The measurement strand of maths is taught throughout primary school. It is made up of four sections: comparing and estimating; measuring and calculating; telling the time; converting. Measurement is important in providing links between strands of mathematics. For example, it provides a rich and meaningful context for the use of number skills and of spatial concepts. Measurement also provides links between mathematics and other school subjects. Measuring skills, especially estimating, have an important place in many games and sports. In addition to being required in many science investigations they also play a part in some artistic and musical experiences.</p>					
Learning					
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 (cm^2) and square metres (m^2) and estimate the area of irregular shapes (also included in measuring)</p> <p>estimate volume (e.g. using 1 cm^3 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 (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3.</p>

sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	compare and sequence intervals of time	compare durations of events, for example to calculate the time taken by particular events or tasks			
		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 Telling the Time)			
Measuring and calculating					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds)	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,	measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	estimate, compare and calculate different measures , including money in pounds and pence (appears also in Comparing)	use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.	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)

	thermometers and measuring vessels				
		measure the perimeter of simple 2-D shapes	measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	recognise that shapes with the same areas can have different perimeters and vice versa
recognise and know the value of different denominations of coins and notes	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	add and subtract amounts of money to give change, using both £ and p in practical contexts			
			find the area of rectilinear shapes by counting squares	calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm ²) and square metres (m ²)	calculate the area of parallelograms and triangles calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic

				and estimate the area of irregular shapes	centimetres (cm ³) and cubic metres (m ³), and extending to other units [e.g. mm ³ and km ³].
				recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) (copied from Multiplication and Division)	recognise when it is possible to use formulae for area and volume of shapes
Telling the time					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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)			

			<p>solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting)</p>	<p>solve problems involving converting between units of time</p>	
Converting					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)</p>	<p>know the number of seconds in a minute and the number of days in each month, year and leap year</p>	<p>convert between different units of measure (e.g. kilometre to metre; hour to minute)</p>	<p>convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</p>	<p>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</p>
			<p>read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting)</p>	<p>solve problems involving converting between units of time</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 Measuring and Calculating)</p>
			<p>solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</p>	<p>understand and use equivalences between metric units and common imperial units such as inches, pounds and pints</p>	<p>convert between miles and kilometres</p>

			(appears also in Telling the Time)		
Key Vocabulary					
<p>measure, measurement size compare unit, standard unit metric unit, imperial unit measuring scale, division guess, estimate enough, not enough too much, too little too many, too few nearly, roughly, about, close to about the same as, approximately just over, just under</p>	<p>length, width, height, depth, breadth long, short, tall, high, low wide, narrow, deep, shallow, thick, thin longer, shorter, taller, higher... and so on longest, shortest, tallest, highest... and so on far, further, furthest, near, close distance apart/between, distance to... from... edge, perimeter, circumference kilometre (<i>km</i>), metre (<i>m</i>) centimetre (<i>cm</i>), millimetre (<i>mm</i>) mile, yard, feet, foot, inches, inch ruler, metre stick, tape measure, compasses</p>	<p>mass: big, bigger, small, smaller, balances weight: heavy/light, heavier/lighter, heaviest/lightest weigh, weighs tonne, kilogram (<i>kg</i>), half-kilogram, gram (<i>g</i>) pound (lb), ounce (oz) balance, scales</p>			
<p>capacity full, half full, empty holds, contains litre (<i>l</i>), half-litre, centilitre (cl), millilitre (<i>ml</i>) pint, gallon container, measuring cylinder area, covers, surface square centimetre (<i>cm²</i>), square metre (<i>m²</i>) square millimetre (<i>mm²</i>)</p>	<p>time days of the week: Monday, Tuesday... months of the year: January, February... seasons: spring, summer, autumn, winter day, week, fortnight, month year, leap year, century, millennium weekend, birthday, holiday calendar, date, date of birth morning, afternoon, evening, night am, pm, noon, midnight today, yesterday, tomorrow before, after, next, last now, soon, early, late, earliest, latest quick, quicker, quickest, quickly fast, faster, fastest, slow, slower, slowest, slowly old, older, oldest, new, newer, newest</p>	<p>takes longer, takes less time how long ago? how long will it be to...? how long will it take to...? timetable, arrive, depart hour, minute, second o'clock, half past, quarter to, quarter past clock, watch, hands digital/analogue clock/watch, timer 24-hour clock, 12-hour clock Greenwich Mean Time, British Summer Time International Date Line how often? always, never, often, sometimes, usually</p>			