National Centre for Excellence in the Teaching of Mathematics

# Measurement

| COMPARING AND ESTIMATING | | | | | |
|---|---|---|---|---|---|
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| compare, describe and solve practical problems for:<br>* lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]<br>* mass/weight [e.g. heavy/light, heavier than, lighter than]<br>* capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]<br>* time [e.g. quicker, slower, earlier, later] | compare and order lengths, mass, volume/capacity and record the results using >, < and = | | estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring) | 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)<br>estimate volume (e.g. using 1 $cm^3$ blocks to build cubes and cuboids) and capacity (e.g. using water) | 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 $km^3$. |
| 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 | | | |

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| | | 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:<br>* **lengths and heights**<br>* **mass/weight**<br>* **capacity and volume**<br>* **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, thermometers and measuring vessels | 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) |
| | | 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 |

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| MEASURING and CALCULATING | | | | | |
|---|---|---|---|---|---|
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| 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 | add and subtract amounts of **money** to give change, using both £ and p in practical contexts | | | |
| | 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 | | | | |

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| | | | 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 ($m^2$) and estimate the area of irregular shapes<br><br>*recognise and use square numbers and cube numbers, and the notation for squared ($^2$) and cubed ($^3$)*<br>(copied from Multiplication and Division) | calculate the area of parallelograms and triangles<br><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 [e.g. $mm^3$ and $km^3$].<br><br>recognise when it is possible to use formulae for area and volume of shapes |

| TELLING THE TIME | | | | | |
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| 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<br>(appears also in Converting) | | |
| recognise and use language relating to dates, including days of the | know the number of minutes in an hour and | estimate and read time with increasing accuracy to the nearest | | | |

# Measurement

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| week, weeks, months and years | the number of hours in a day.<br>(appears also in Converting) | 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<br>(appears also in Comparing and Estimating) | | | |
| | | | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days<br>(appears also in Converting) | solve problems involving converting between units of time | |

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| CONVERTING | | | | | |
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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | know the number of minutes in an hour and the number of hours in a day.<br>(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<br>(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<br>(appears also in Measuring and Calculating) |
| | | | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days | understand and use equivalences between metric units and common imperial units such as inches, pounds and pints | convert between miles and kilometres |

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| | | | (appears also in Telling the Time) | | |