

Can I choose sensible units to measure?

Teaching guidance


Key vocabulary

unit, centimetre (cm), metre (m), kilogram (kg), half-kilogram, litre (l), half-litre, ruler, metre stick, tape measure, balance, scales, container, measuring jug, capacity, weight, length, roughly, about, nearly, estimate, width, height, depth, size, long, short, tall, high, low, wide, narrow, deep, shallow, thick, thin and comparatives such as longer/longest, heavier/heaviest, holds more/holds most

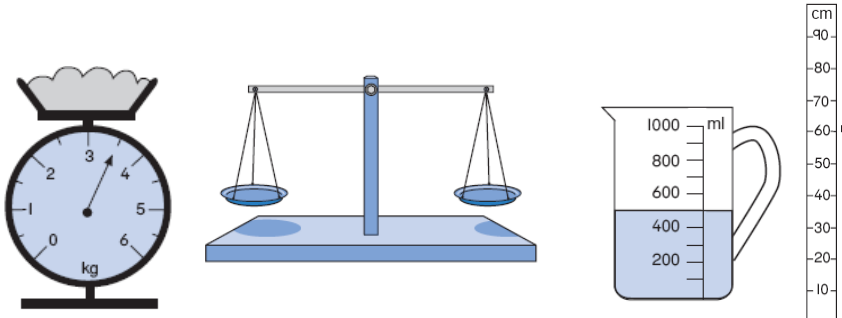
Models and images, resources and equipment

Provide access to a wide range of uniform non-standard equipment and standard measuring equipment

Uniform non-standard



Standard



The image illustrates the difference between uniform non-standard units and standard measuring equipment. Under 'Uniform non-standard', there is a stack of six colorful blocks and a spoon. Under 'Standard', there is a kitchen scale, a balance scale, a measuring jug with a ruler, and a vertical ruler.

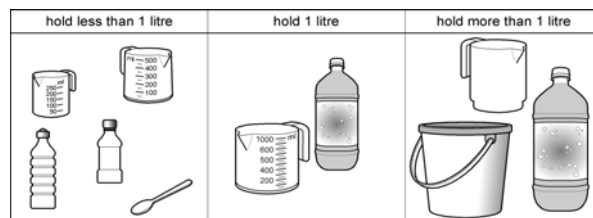
Teaching tips

- To understand and use units of measure children will need to have had practical experience of:
 - using lots of a chosen unit to establish that measuring requires counting all the units, e.g. measuring the length of the table by laying 10cm rods along the table;
 - using one uniform or standard unit to establish that you do not need the actual number of physical units but can use the one unit repeatedly, e.g. measuring the length of a table using one 10cm rod again and again;
 - using standard units and having a feel for the size of a unit.

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Overcoming barriers in mathematics – helping children move from level 1 to level 2

- Children need to develop confidence using uniform and standard units as well as practising the skills of identifying suitable units and having a feel for the size of a unit. Children who can use a ruler but have no idea how long a metre is or what a metre is used for are unlikely to be able to use measures confidently.
- Children learn about how to measure and gain understanding of the size of units by measuring for themselves. Plan plenty of opportunities for practical activities both in the mathematics lesson and in cross-curricular contexts.
- Allow children to follow a line of enquiry and make choices about equipment and units of measurement. Begin with uniform non-standard units to help them understand the need for standard units.
- Offer resources such as matchsticks, pencils, garden canes, boxes filled with sand, multilink cubes, cups and jugs as well as standard units of measure. These will consolidate discussions about how to choose something suitable to carry out a measurement. Suggest what uniform non-standard measure and what standard measure could be used to measure:
 - the height of a table
 - the width of a book
 - the weight of a shoe.
- Use a range of activities such as:
 - finding a selection of objects that could be measured in centimetres, metres and kilograms;
 - selecting a suitable label to match an object, for example choosing from 2 metres, 2 centimetres, 2 litres and 2 kilograms to label a lemonade bottle;
 - giving a group of children a unit of measure, for example litres, and challenging them to take photographs of things they can find around the school that they could measure using that unit;
 - sorting a set of objects according to a given criterion, for example containers that hold less, more, or exactly one litre, and recording findings in a simple table.



- Link suggesting sensible units to estimating and checking. For example, while asking children what units they would use to find the weight of a given object, also ask them to estimate how heavy they think it is and how they can check the accuracy of their estimate. Children should not be afraid of getting an estimate wrong so repeat this several times to help them begin to become more accurate with their estimates.
- Develop confidence with the approximate nature of measurement by asking questions such as:
 - What is about 10cm long/tall/wide/deep?
 - What will balance about 1kg?
 - What holds about 1 litre?
 - How tall do you think I am, roughly?