

LEARNING and TEACHING POINTS

for

Chapter 22 Measurement

Children should develop their skills and understanding of measurement through practical, purposeful activities. They should learn to choose and use appropriate measuring devices, discussing the ideas of accuracy and approximation.

Do not use formal subtraction algorithms for finding the period of time from one recorded time to the next; teach an ad hoc adding-on approach.

With older children in the primary range you can discuss the effect of gravity and space travel on weight and the idea that mass does not change.

Do not use a circle to represent a day, because of the association with a 12-hour clock face.

Refer to the things we use for weighing objects on a balance as *masses* and use the language *weighs the same as a mass of so many grams*. Then encourage children to say 'the mass is so many grams', whilst acknowledging that most people incorrectly say 'the weight is so many grams'.

Most people learn to tell the time. They do this through everyday situations in which they need to know the time! That's usually the best way to teach it, not through a separate series of mathematics lessons.

It is not necessary to do much work on solid volume, measured in cubic centimetres, in the primary age range. But the measurement of liquid volume and capacity, in litres and millilitres, because of the scope for practical experience with water and various containers, is an important component of primary school mathematics.

Always introduce new aspects of measurement through direct comparison and activities involving ordering.

Introduce the idea of measuring in units via non-standard units that are familiar and appropriately sized, and use these experiences to establish the need for a standard unit.

Make collections and displays of packages or labels, discussing which items are sold by mass or by volume, and note the units used. Challenge children to find as many different masses and volumes as they can and display these in order. Discuss the significance of the large 'e' that occurs next to most measurements on food packages and labels.

Note that the symbol used for litre (l) can be confused in print with the numeral 1, so to it is often better to write or type the word *litre* in full.

Restrict the range of metric units used for practical work in the primary school to metre, centimetre, millimetre, litre, millilitre, kilogram, gram. Reference may also be made to kilometre and decimetre.

Make considerable use of estimation as a class activity, encouraging children to learn by heart the measurements of specific reference items such as those given here.

To be realistic, work on journey distances and average speeds (see Chapter 28) is most appropriately done in miles and miles per hour.

Do not ignore imperial units still in everyday use. Discuss them and bring them into practical experience in the classroom.