SPRINGBOARD 6 LESSON 15
MEASURES 1

TOTAL TIME

30 MINUTES

Objective:

- Know approximate equivalents of imperial and metric units for lb and kg, miles and km, litres and pints

Vocabulary:

- pint
- gallon
- centilitre
- capacity
- foot
- feet
- yard

By the end of the lesson children should be able to:

- identify imperial and metric units;
- order a set of imperial or metric units;
- know that 1 kg is just over 2 lb, that 1 litre is less than 2 pints and that 8 km is about 5 miles.

Resources:

- OHT 15.1
- Resource Sheet 15.1
- whiteboards and pens

ORAL AND MENTAL STARTER

5 MINUTES

Show OHT 15.1.

Explain that all of the words on the OHT are units of measurement.

Q: Which of these units can we use to measure liquid?

Explain that when we measure the space taken up by liquid or air we refer to measuring capacity.

Establish that the units, centilitres, litres, pints and gallons are all units of capacity. Record these units in the table on OHT 15.1.

Ask the children to choose one of the remaining units and to say if it used to measure a length or a weight.
Agree responses and record these in the table.

Point to the column marked 'metric' or 'imperial'. Explain that some of the units are in the metric system and some of the units are in the imperial system. Work through the units asking the children to say if a unit is metric or imperial. Children respond using whiteboards.

Collect and record the correct responses on OHT 15.1.

MAIN TEACHING ACTIVITY

Children work in pairs. Give each pair a set of the cards from Resource Sheet 15.1. Ask the children to sort the cards into 3 sets of units that are used to measure length, weight, or capacity. Check responses and correct any mistakes.

Ask the children to order the set of units of length, with the shortest unit on the left and the longest unit of length on the right.

Use the following questions to help children order the lengths.

Q: Which is longer, a cm or a foot?

Q: Is a metre longer or shorter than a yard?

Q: Is a mile more than a km?

Q: Which of the units are imperial?

Invite one pair of children to attach their ordered set to the board.

Discuss the order and invite other children to suggest any changes.

Identify the imperial and metric units and underline the imperial units as shown below.

Centimetre   Foot   Yard   Metre   Kilometre   Mile

Ensure that the imperial units are in the correct order and that the metric units are in the correct order.
Remind children that the plural for foot is feet, and 3 feet is 1 yard.
Establish that there are about 30 cm in a foot, that a metre is just over a yard, that a kilometre is just over half a mile and that 8 km is about 5 miles.

Repeat the above for weight. Remind children that 1000 g = 1 kg and that 1 kg is about 2.2 lb.

Repeat for capacity. Remind children that 100 cl = 1 litre and establish that 1 litre is about 1.75 pints and that 1 gallon is about 5 litres.

Say there are exactly 8 pints in 1 gallon.

Q: About how many litres are there in 32 pints?

Get the children to convert 32 pints to gallons and multiply the answer by 5 to convert to litres.

PLENARY

Shuffle a pack of the measurement cards from Resource Sheet 15.1.

Show a measurement card (1 litre, say).

Q: Is this an imperial or metric measurement?

Ask the children to show one of their measurement cards that is less than 1 litre, e.g. pint, and more than 1 litre, e.g. gallon.

Repeat this for other measurements.

> **Remember:**
>
> ■ The metric system uses multiples of 10, 100 and 1000.
>
> ■ Kilo means 'thousand' and centi means 'hundredth'.
>
> ■ The imperial system's main units are:
>
> miles (5 miles is about 8 km);
>
> pints (1.75 pints is about 1 litre);
>
> pounds (2.2 pounds is about 1 kg).

LESSON 15 RELATED TEST QUESTION
1999 TEST B (CALCULATOR PAPER)

10 This diagram shows the distances in miles of different towns from Birmingham.
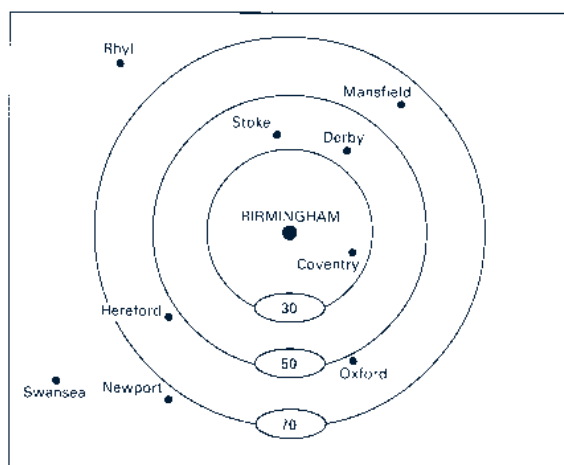
(a) Write the name of a town which is **between 30 and 50 miles** from Birmingham.

....

1 mark

(b) Use the diagram to estimate the distance in **miles** from **Birmingham** to **Mansfield**.

miles

1 mark

GUIDANCE FROM MARK SCHEME

Question	Requirement	Additional Guidance
10a	Derby **OR** Stoke	*Accept recognisable misspelling **OR** unambiguous indications on the diagram.*
10b	Answer in the range 60 to 65 inclusive.	

ANALYSIS OF CHILDREN'S ANSWERS

■ Most children working at level 4 correctly identified Stoke or Derby; the most common error was to identify Hereford. These children had not understood the 'bulls-eye' presentation.

■ Estimating the distance from Birmingham to Mansfield was a problem for nearly three-quarters of children working at level 3 and over one-third of children working at level 4. Incorrect answers were more often over-estimations.

IMPLICATIONS FOR PLANNING

■ Plan activities that introduce children to scales that are represented in unusual forms. Children should be taught how to convert one form to another, for example, converting the 'bulls-eye' scale used in Question 10 to a linear scale with Birmingham positioned at zero.

■ In the oral and mental starter children should be given more opportunity to estimate numbers and quantities and be taught how to use the information included on a scale to inform and refine their estimates.