

## 25 MEASUREMENT: WORKING WITH UNITS

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### LEARNING OBJECTIVES

- To compare different measures, including money in pounds and pence
- To compare weight
- To compare volume/capacity
- To solve problems involving calculation and conversion of units of measure

### CONTENT DOMAINS

- M1 compare, describe and order measures
- M3 money
- M9 solve problems

### STARTER ACTIVITY

- **Pounds and pence; 5 minutes; page 162**  
Recap the number of pence in a pound and then ask the student to convert the amounts on the activity sheet.

### MAIN ACTIVITIES

- **Comparing measures; 10 minutes; page 163**  
Remind the student that they need to learn what different units of measurement mean and how they relate to one another. Use the table on the activity sheet to check their knowledge. Ask the student to order the measures on the activity sheet. Check they read the units carefully and convert where required to make comparisons.
- **Problems with measures; 15 minutes**  
Show the student a number of containers (a yoghurt pot, a jug, a cup, a bowl) and ask them to put them in order, smallest to largest, in terms of capacity. Ask them to explain their thinking. Repeat with items that can be measured on scales (apple, pen, potato, watch). Ask the student to put these in order, lightest to heaviest, and explain their thought process. This time, ask them to check their estimates by weighing the items on scales.
- **Problems with measures; 15 minutes; page 164**  
Remind the student of the importance of reading questions carefully and using RNCA to help them. Challenge the student to answer the word problems related to measures.

### PLENARY ACTIVITY

- **Money, money, money; 5 minutes**  
Give the student the following problem:  
*Freya saved some of her pocket money each week. In week 1 she saved 38p, in week 2 she saved 89p, in week 3 she saved £1.65 and in week 4 she saved £1.80. How much did she save altogether in pence? (472p)*  
*What is this amount in pounds? (£4.72).*  
*If she is saving for a toy that costs £6.75, how much more does she need to save in pence? (203p).*

### HOMEWORK ACTIVITY

- **Converting measures; 25 minutes; page 165**  
Full instructions are given on the activity sheet.

### DIFFERENTIATION AND EXTENSION IDEAS

- **Pounds and pence** Support the student by showing them actual coins and letting them determine the amounts of these before starting the sheet.
- **Comparing measures** Support the student by encouraging them to choose which unit they are going to convert all the measures to in a set so that they can make easy comparisons.
- **Problems with measures** Support the student by reminding them of the steps and encouraging them to use a highlighter to identify key information.

### PROGRESS AND OBSERVATIONS

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## STARTER ACTIVITY: POUNDS AND PENCE

**TIMING: 5 MINS**

### LEARNING OBJECTIVES

- To compare different measures, including money in pounds and pence

### EQUIPMENT

none

### 1. Write these amounts in pounds and pence.

a) 75p = ..... *£0.75* .....

b) 134p = .....

c) 99p = .....

d) 306p = .....

e) 1,098p = .....

f) 20,050p = .....

### 2. Write these amounts in pence.

a) £14.09 = .....

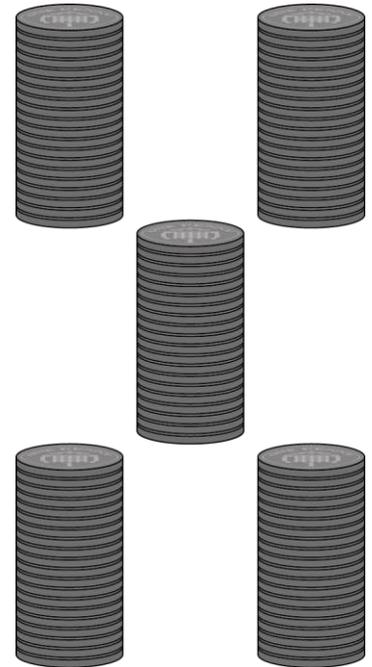
b) £240.05 = .....

c) £3.04 = .....

d) £1,000.72 = .....

e) £812.99 = .....

f) £191.72 = .....



There are 100 pence in £1

## MAIN ACTIVITY: COMPARING MEASURES

**TIMING: 10 MINS**

### LEARNING OBJECTIVES

- To compare weight
- To compare volume/capacity

### EQUIPMENT

none

You need to learn the standard units of measure that are used for length, weight and capacity. Always look carefully at the units when you want to compare two or more measures.

	<b>length</b>	<b>weight</b>	<b>capacity</b>
<b>units of measurement</b>	millimetres (mm) centimetres (cm) metres (m) kilometres (km)	grams (g) kilograms (kg) tonnes (t)	millilitres (ml) litres (l)
<b>examples of measuring equipment</b>	ruler, tape measure, metre stick, trundle wheel	balance scales, kitchen scales, bathroom scales	measuring spoons, measuring jugs

Using the table above, write these measures in order from smallest to largest.

1. 98 cm      5 m      5 cm      19 mm      67 mm

.....
2. 0.75 kg      1.5 kg      300 g      1,505 g      1.345 kg

.....
3. 0.8 litres      0.65 litres      3 litres      450 ml      1.76 litres      65 ml

.....
4. 16 cm      56 mm      0.3 km      6 cm      0.2 m

.....
5. 0.05 kg      1,660 g      30 g      0.8 kg      1.6 kg      600 g

.....

## MAIN ACTIVITY: PROBLEMS WITH MEASURES

**TIMING: 15 MINS**

### LEARNING OBJECTIVES

- To solve problems involving calculation and conversion of units of measure

### EQUIPMENT

none

When calculating with measures, remember to look carefully at the units and make sure your answer is given in the correct format. Show your working each time so you can check your calculations and answers.

**Find the answers to these calculations. Show your working out on a separate piece of paper.**

1. Sam buys five cans of drink. Each can holds 0.330 litres. What is the total volume of drink that Sam buys in millilitres?

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2. One bucket of water holds 2.732 litres and a smaller bucket holds 1,480 ml. How much water do the two buckets hold altogether? Give your answer in litres.

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3. Eliza throws a javelin three times. Her throws measured 3.6 m, 156 cm and 298 cm. What is the total of these three distances? Give your answer in metres.

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4. Xavier is training for a long-distance run. He did three training runs. On the first one he ran 5.6 km, on the second one he ran 3,456 m and on the third one he ran 4.67 km. What was the total distance he ran during his three runs? Give your answer in km.

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5. Sharon works in a fabric shop. She sells six lots of ribbon in an hour. The lengths of ribbon were 1.5 m, 345 cm, 2.8 m, 120 cm, 567 cm and 8.8 m. What was the total amount of ribbon she sold in the hour? Give your answer in metres.

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## 25 ANSWERS

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### STARTER ACTIVITY: POUNDS AND PENCE

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1. a) £0.75      b) £1.34      c) £0.99      d) £3.06      e) £10.98      f) £200.50  
2. a) 1,409p      b) 24,005p      c) 304p      d) 100,072p      e) 81,299p      f) 19,172p

### MAIN ACTIVITY: COMPARING MEASURES

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1. 19 mm, 5 cm, 67 mm, 98 cm, 5 m  
2. 300 g, 0.75 kg, 1.345 kg, 1.5 kg, 1505 g  
3. 65 ml, 450 ml, 0.65 litres, 0.8 litres, 1.76 litres, 3 litres  
4. 56 mm, 6 cm, 16 cm, 0.2 m, 0.3 km  
5. 30 g, 0.05 kg, 600 g, 0.8 kg, 1.6 kg, 1,660 g

### MAIN ACTIVITY: PROBLEMS WITH MEASURES

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1. 1,650 ml    2. 4.212 litres    3. 8.14 m    4. 13.726 km    5. 23.42 m

### HOMEWORK ACTIVITY: CONVERTING MEASURES

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1. a) £7.65    b) £11.76    c) £300.56    d) £1,234.05  
2. a) 12 cm, 156 mm, 18 cm, 0.67 m, 6.7 m, 680 cm, 0.7 km  
   b) 6 g, 0.008 kg, 0.017 kg, 28 g, 0.134 kg, 567 g, 1.045 kg, 1.405 kg  
   c) 35 ml, 0.067 litres, 0.089 litres, 95 ml, 0.156 litres, 206 ml, 1.56 litres, 1.650 litres  
3. 2.149 kg  
4. 2.5 km