

# Unit 9

## Measures and problem solving

Five daily lessons

National  
Numeracy Strategy

Year 6  
Spring term

### Unit Objectives Year 6

- Use, read and write standard metric units (km, m, cm, mm, kg, g, l, cl, ml) of length, mass and capacity, including their abbreviations, and relationships between them.
- Convert smaller to larger units (e.g. m to km, cm or mm to m, g to kg, ml to l) and vice versa.
- Know rough equivalents of lb and kg, oz and g, miles and km, litres and pints or gallons.
- **Identify and use appropriate operations (including combinations of operations) to solve word problems involving numbers and quantities** based on 'real life', money or measures, using one or more steps, and calculating percentages such as VAT.
- Suggest suitable units to estimate or measure length, mass or capacity.
- Suggest suitable measuring equipment.
- Record estimates and readings from scales to a suitable degree of accuracy.

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This Unit Plan is designed to guide your teaching.

You will need to adapt it to meet the needs of your class.

### Resources needed to teach this unit:

- Resource sheet 9.1
- Resource sheet 9.2
- OHT 9.1
- OHT 9.2
- OHT 9.3
- OHT 9.4
- OHP calculator
- Calculators
- Whiteboards
- Counting stick
- Selection of boxes/cartons/containers
- Packet of tea
- Carton of orange juice
- Related Key Stage 2 national test questions

Year 5

### Link Objectives

Year 7

- Use, read and write standard metric units (km, m, cm, mm, kg, g, l, ml), including their abbreviations, and relationships between them.
- Convert larger to smaller units (e.g. km to m, m to cm or mm, kg to g, l to ml). Know imperial units (mile, pint, gallon).
- Suggest suitable units and measuring equipment to estimate or measure length, mass or capacity.
- **Use all four operations to solve simple word problems involving numbers and quantities** based on 'real life', money and measures, using one or more steps, and finding simple percentages.

- Use names and abbreviations of units of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area, mass, capacity, time and angle.
- **Convert one metric unit to another (e.g. grams to kilograms).**

(Key objectives in bold)

department for  
education and skills

Item	Cost
Ham	60p for 100 grams
Cheese	£4.80 for 1 kg
Tea	90p for 200 grams
Coffee	£1.20 for 125 grams
Milk	75p for 1 litre

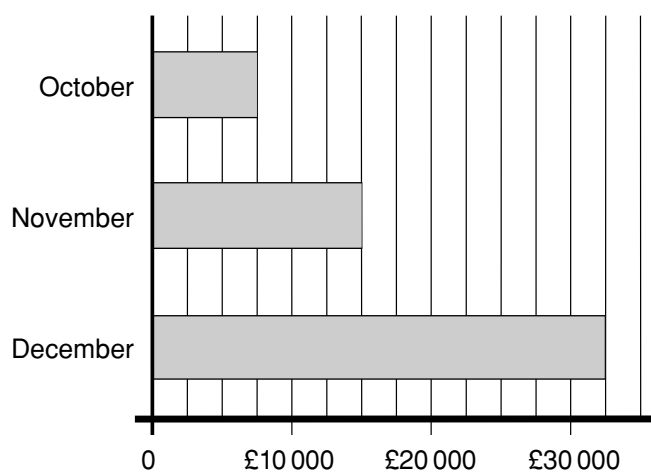
### **Cake Recipe for 6 Slices**

5 oz margarine  
4 oz caster sugar  
2 eggs  
6 oz flour

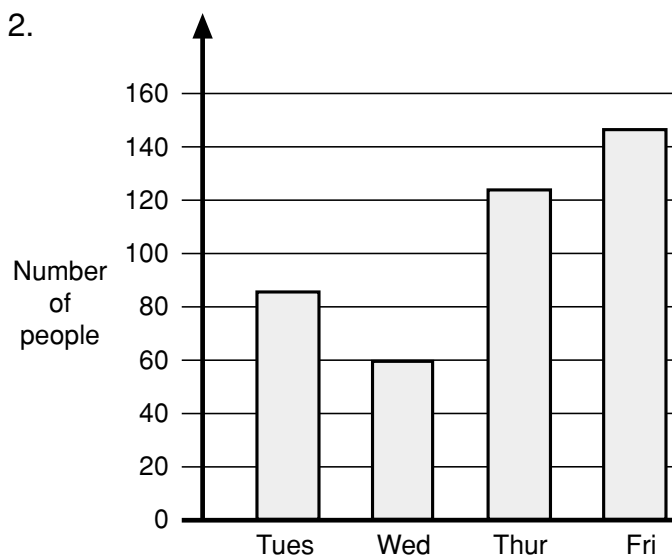
### **Toffee Apple Recipe for 8 Apples**

450 g sugar  
50 g butter  
10 ml vinegar  
150 ml water  
15 ml syrup  
8 apples  
8 sticks

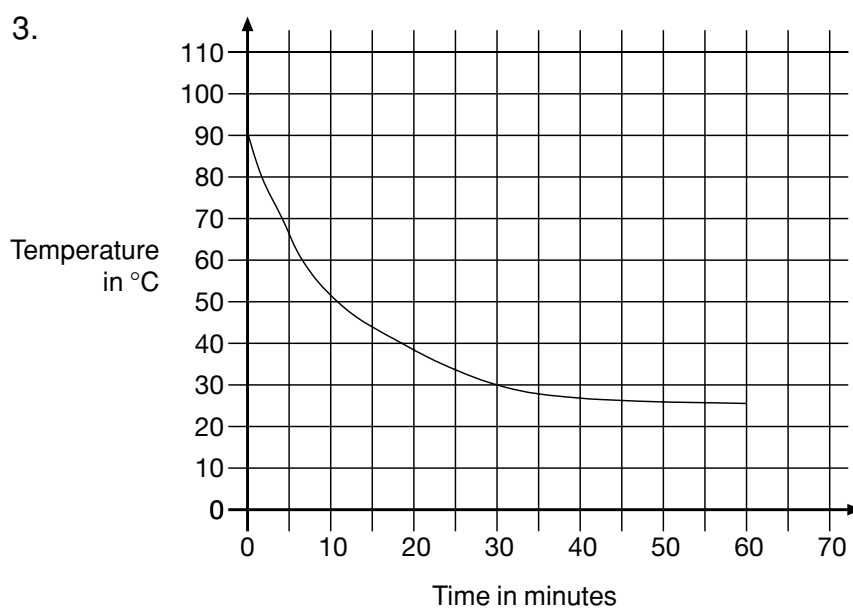
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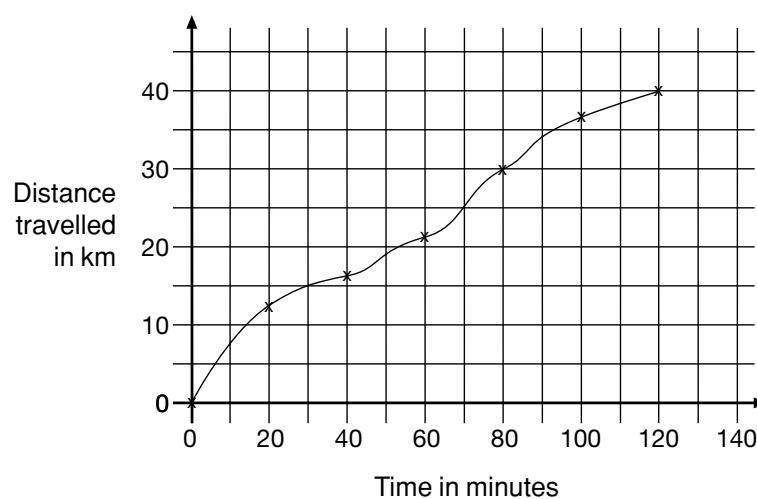
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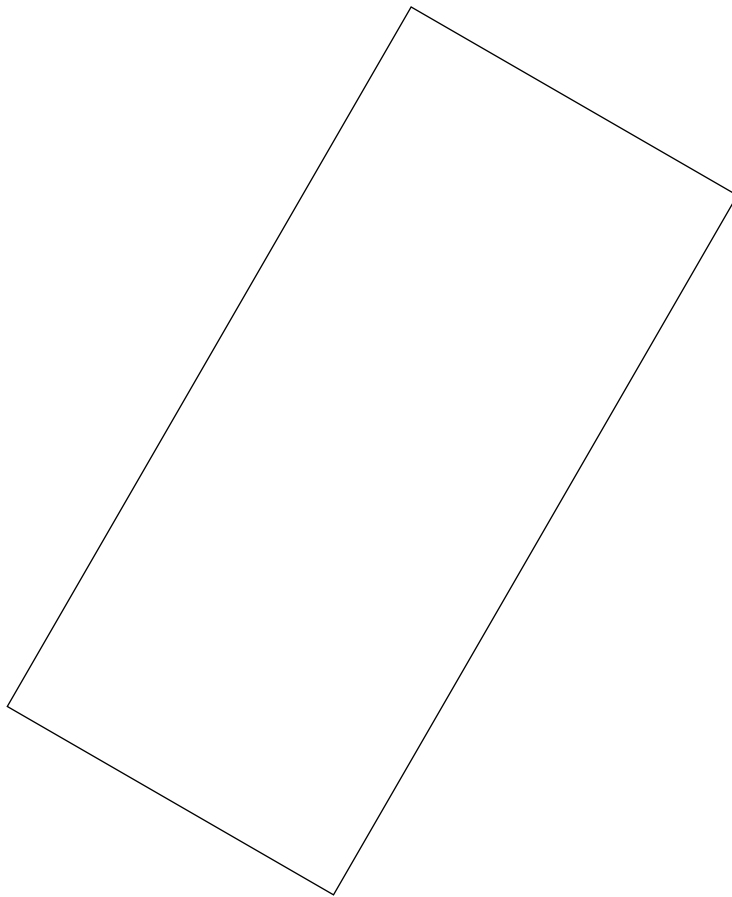


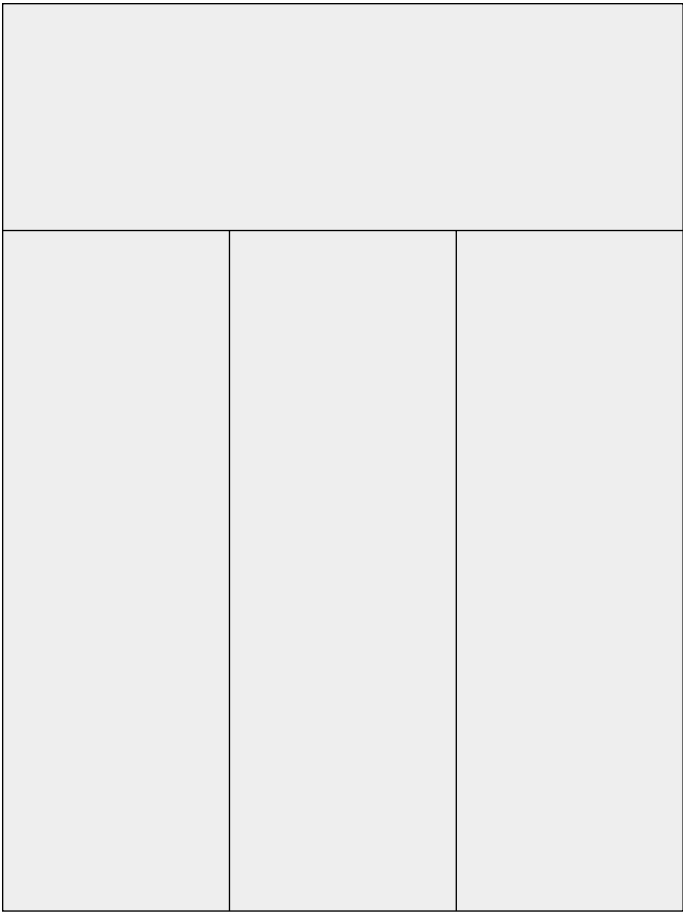
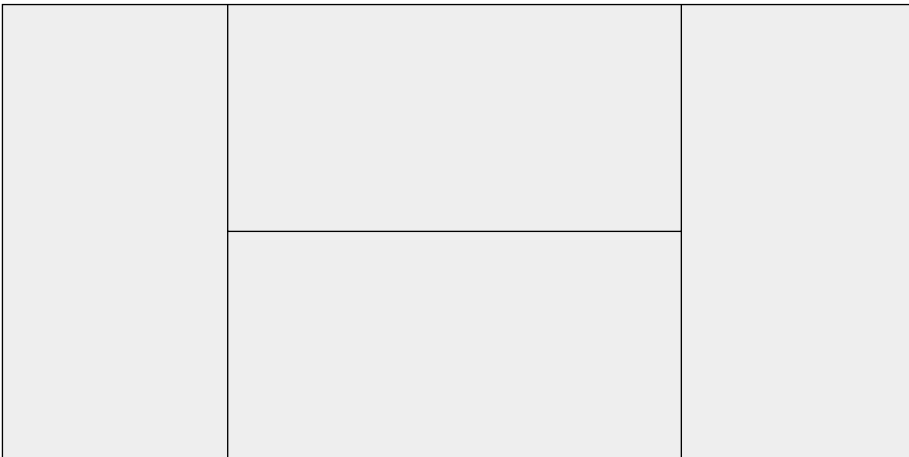
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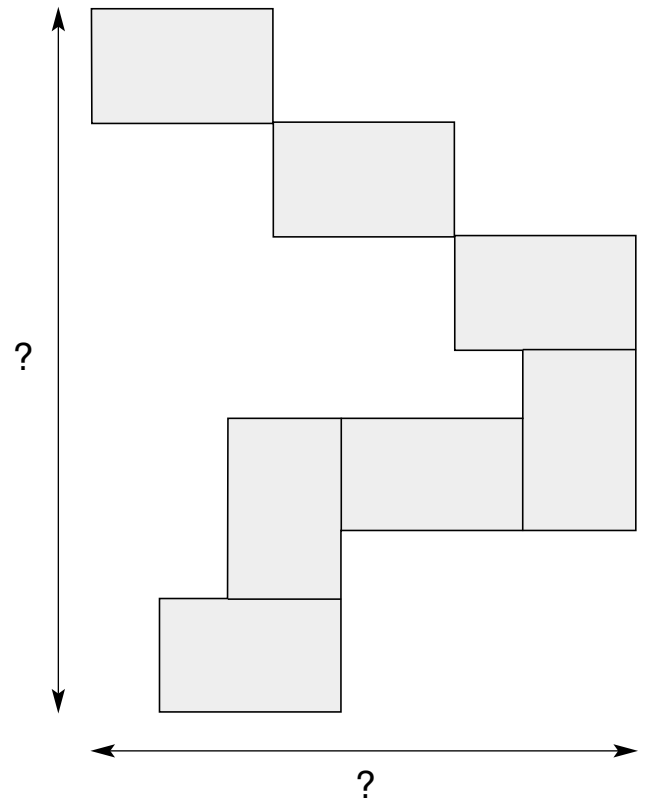
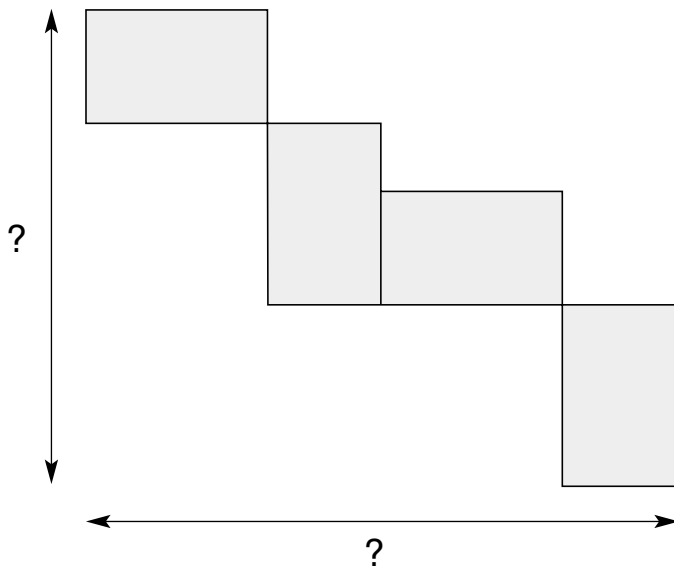
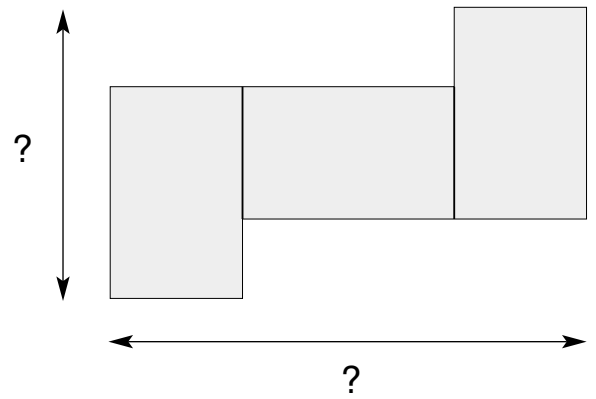
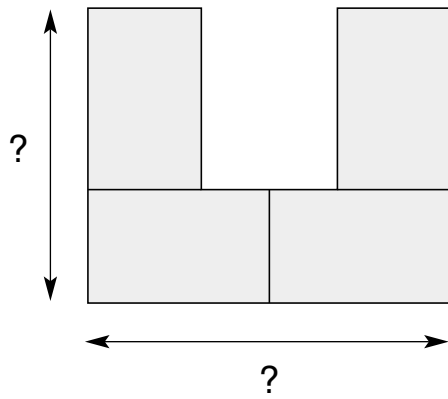
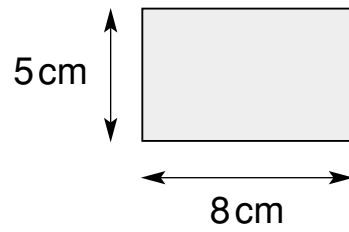


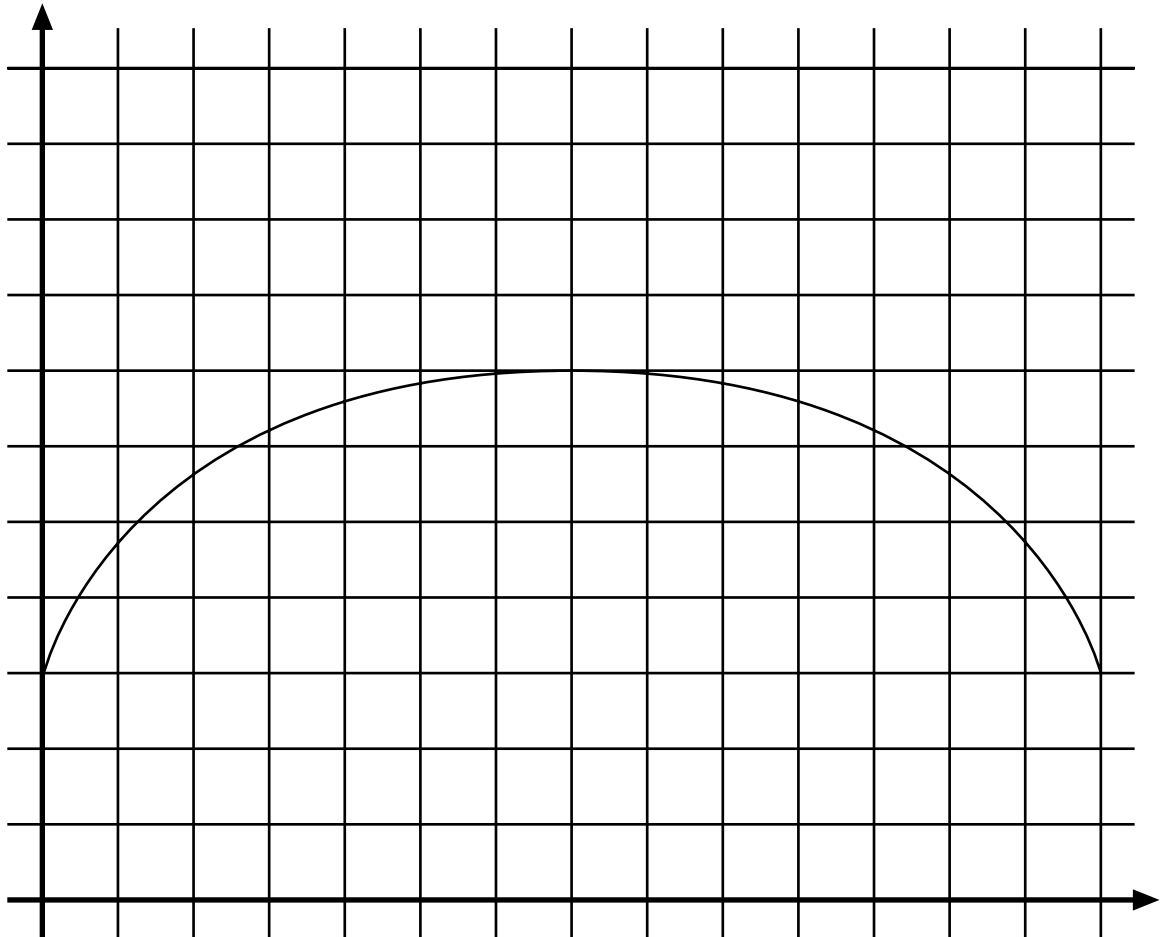
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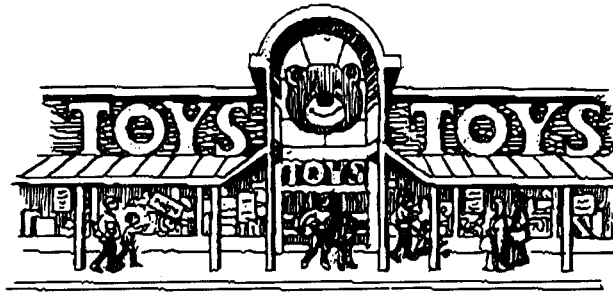




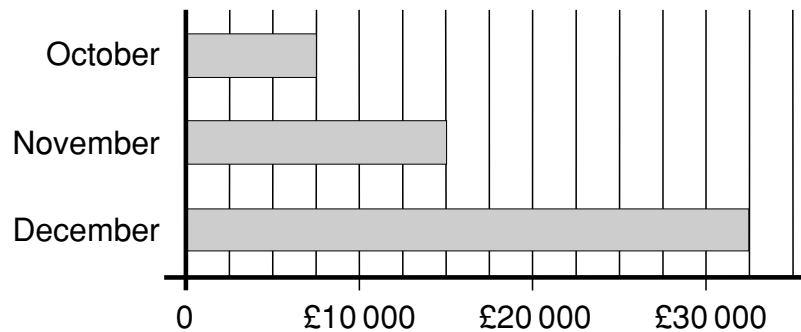
Related Key Stage 2 national test questions:

2001 Test A

22



The chart shows the amount of money spent in a toy shop in three months.



How much **more** money was spent in the shop in **December** than in **November**?



£

22a

1 mark

Stepan says,

***'In November there was a 100% increase on the money spent in October'.***

Is he correct?  
Circle Yes or No.



Yes / No

Explain how you can tell from the chart.



.....

.....

.....

22b

1 mark

Total



2001 Test B

19

Here is a recipe for raspberry ice cream.

raspberry ice cream  
for 8 people

$\frac{1}{2}$  litre of cream

1 kg raspberries

250 g sugar



This recipe is for **8 people**.

Josie makes enough raspberry ice cream for **12 people**.

How much **cream** does she use?



litre

19a

1 mark

Fred makes raspberry ice cream in the same way.

He uses  **$2\frac{1}{2}$  kg** of **raspberries**.

How much **sugar** does he use?



Show  
your **method**.  
You may get  
a mark.

g

19b

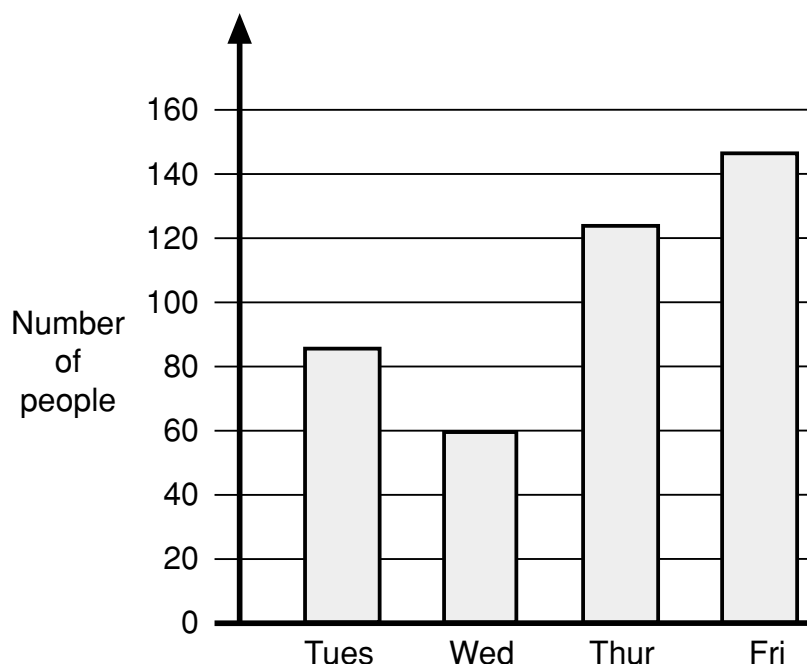
2 marks

Total

## 2000 Test B

10

This bar chart shows how many people went to a school play.



Estimate the number of people who went there on **Thursday** and **Friday** altogether.




1 mark

10a

Each person paid **£2.25** for a **ticket** to get in.

How much **ticket money** was collected on **Wednesday**?



Show your **method**.  
You may get a mark.

£

2 marks

10b

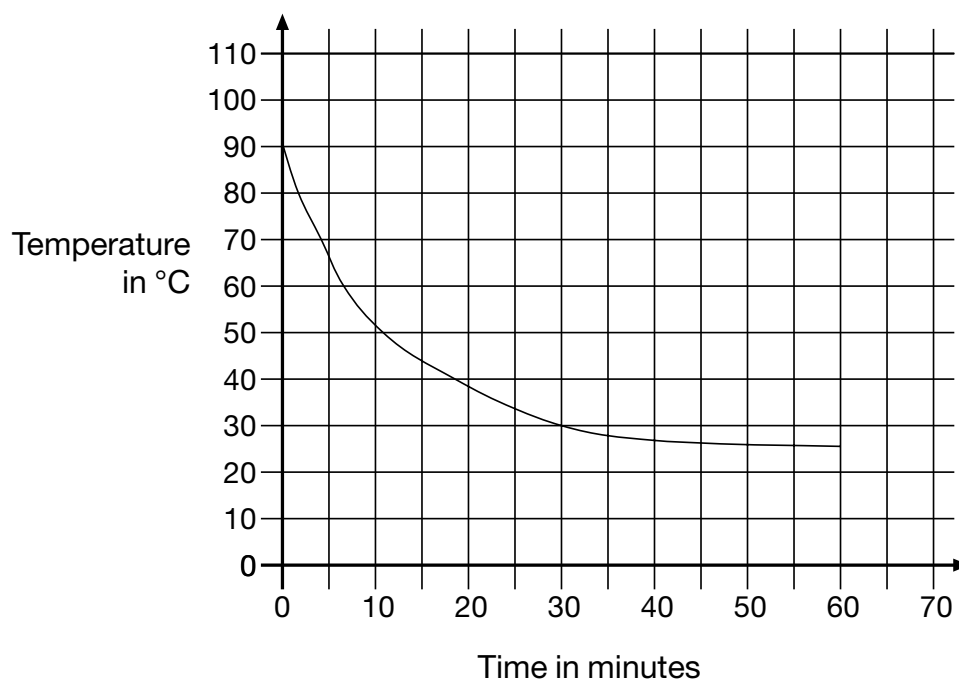
Total

## 2001 Test B

25

A hot liquid is left to cool in a science experiment.

This graph shows how the temperature of the liquid changes as it cools.



Read from the graph **how many minutes** it takes for the temperature to reach **40°C**.



25a

1 mark

Read from the graph **how many minutes** the temperature is **above 60°C**.



25b

1 mark

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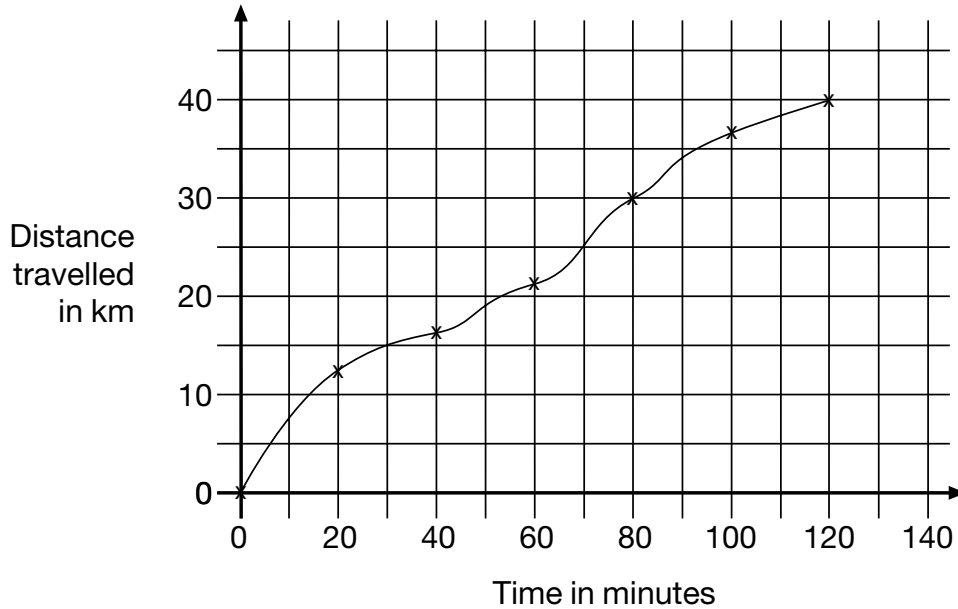
Total

## 2000 Test B

19

Carol went on a **40-kilometre** cycle ride.

This is a graph of how far she had gone at different times.



How many minutes did Carol take to travel the **last 10 kilometres** of the ride?



minutes

19a

1 mark

Use the graph to estimate the distance travelled in the **first 20 minutes** of the ride.



km

19b

1 mark

Carol says,

***'I travelled further in the first hour than in the second hour'.***

Explain how the graph shows this.



.....

.....

.....

19c

1 mark

Total

15



Peanuts cost **60p** for **100 grams**.

What is the cost of **350 grams** of peanuts?



Show  
your **method**.  
You may get  
a mark.

15a

2 marks

Raisins cost **80p** for **100 grams**.

Jack pays **£2** for a bag of raisins.

How many **grams of raisins** does he get?



Show  
your **method**.  
You may get  
a mark.

**g**

15b

2 marks

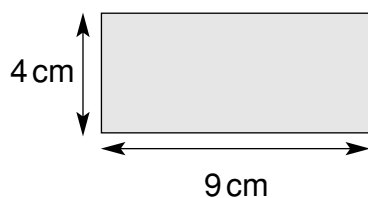
**Total**

# 2000 Test A

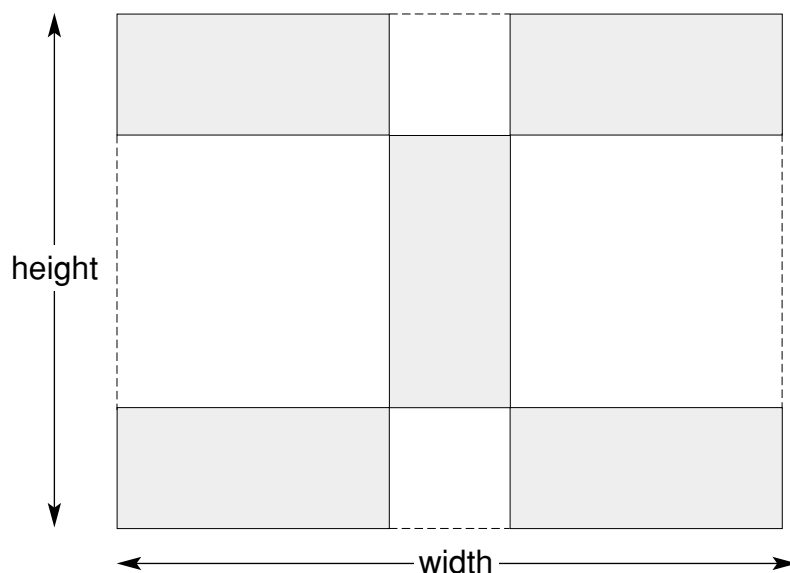
16

Kim has some rectangular tiles.

Each one is **4 centimetres** by **9 centimetres**.



She makes a design with them.



Calculate the **width** and **height** of her design.



width =

 cm


height =

 cm

16a

1 mark

16b

1 mark

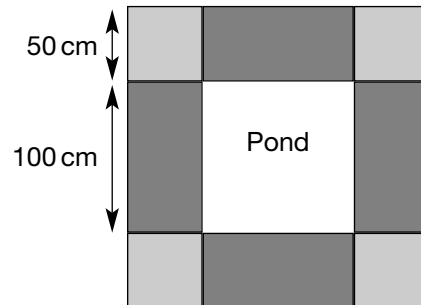
Total

# 2002 Test A

11

Mr Singh buys paving slabs to go around his pond.

PAVING SLABS	
£1.95 each	Square slabs 50 cm by 50 cm
£3.50 each	Rectangular slabs 100 cm by 50 cm



He buys 4 rectangular slabs and 4 square slabs.

What is the total cost of the slabs he buys?



Show your **working**.  
You may get a mark.

£

Mr Singh says,

***'It would cost more to use square slabs all the way round.'***

Explain why he is correct.



.....

.....

.....



11a

2 marks



7

1 mark

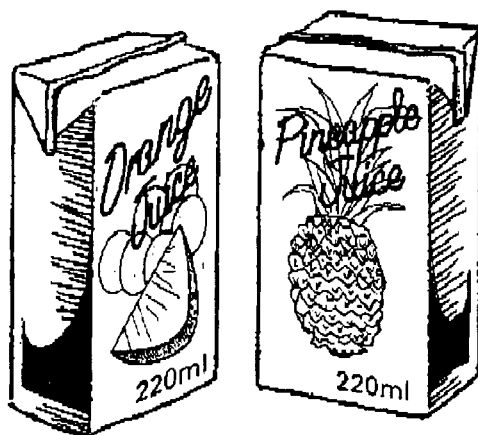
**Total**

## 2002 Test B

7

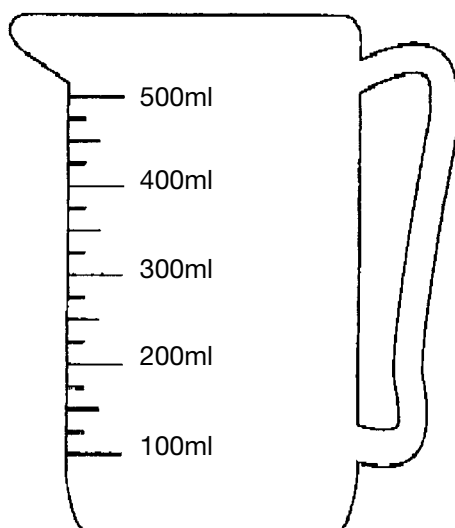
Mina has two cartons of juice.

Each carton contains **220 ml**.



She empties them both into this jug.

Draw an arrow (→) to show the level of the mixture in the jug.



10b

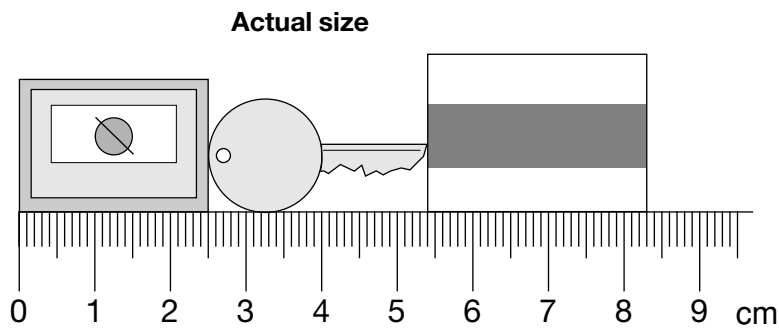
2 marks

Total



2002 Test A

13 Here is a pencil sharpener, a key and a rubber.



What is the length of **all three things** together?


Give your answer in **millimetres**.



13a  
1 mark

What is the length of the **key**?

Give your answer in **millimetres**.



13b  
1 mark

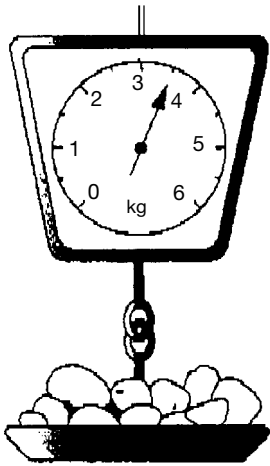
2002 Test A

15 This table shows the weight of some fruits and vegetables.

Complete the table.



	grams	kilos
potatoes	3500	3.5
apples		1.2
grapes	250	
ginger		0.03

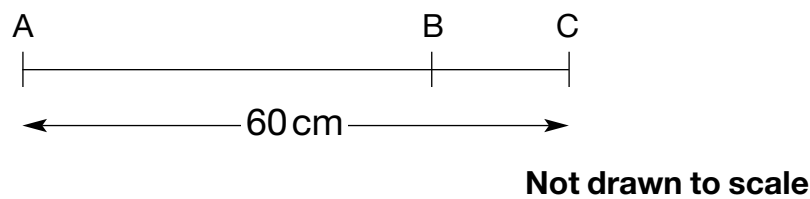


15  
2 marks

Total

21

2002 Test B



The distance from **A to B** is three times as far as from **B to C**.

The distance from **A to C** is **60 centimetres**.

Calculate the distance from **A to B**.

Show your **working**.  
You may get a mark.

cm

21

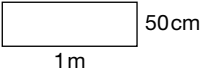
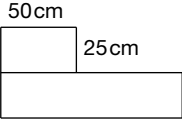
2 marks

2002

Mental Arithmetic

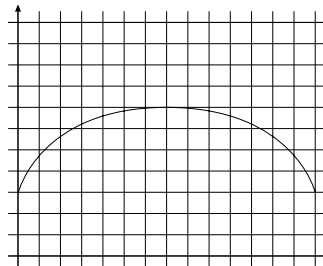
6	Look at the table of prices on your answer sheet. What is the cost of two kilograms of apples?	£	
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Planning sheet	Day One	Unit 9 Measures and problem solving	Term: Spring	Year Group: 6	
Oral and Mental		Main Teaching		Plenary	
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities / Focus Questions	
<p>Count on or back in different increments related to mass/ capacity.</p> <p>VOCABULARY capacity mass kilogram kg millilitre ml</p> <p>RESOURCES Counting stick Carton of orange juice Packet of tea</p>	<ul style="list-style-type: none"><li>Show a carton of orange juice and a packet of tea.<div>Q What units are used on these packages?</div><p>Establish that capacity (the orange juice) is measured in litres while mass/weight is measured in grams.</p></li><li>Write on the board: 1 l = 1000 ml 1 kg = 1000 g</li><li>Remind children that: kilo means thousand milli means thousandth.</li><li>Use the counting stick to count in increments of 100g from different starting points and crossing the kg boundary.</li><li>Change to kg and count in 0.1 kg.</li><li>Count in 10g intervals, change to kg and count in 0.01 kg intervals.</li><li>Repeat this for measures of capacity, 100ml, 200ml, 0.1 l, 0.2 l.</li><li>Make the links between the conversions by pointing to any one point and expressing it as ml and l.</li></ul>	<p>Use, read and write standard metric units and know their abbreviations.</p> <p>Know imperial units.</p> <p>Suggest suitable units and equipment to estimate or measure length, mass or capacity.</p> <p>VOCABULARY pint pt miles m gallon g ounces oz pounds lb litres l</p> <p>RESOURCES Selection of boxes Cartons Containers</p>	<ul style="list-style-type: none"><li>Show the children a selection of boxes and cartons (cereal, sugar, milk, fizzy drink ...etc.)<div>Q What units of measurement would we find on these containers?</div><p>Discuss whether the units represent mass, capacity ...</p></li><li>Write on board/OHT the list:<ul style="list-style-type: none"><li>milk in a bottle</li><li>distance from Sydney to Paris</li><li>diameter of a strand of hair</li><li>thickness of the page of a book</li><li>length of a running track</li><li>strength of the wind</li><li>strength of an earthquake</li><li>weight of a child</li><li>volume of petrol in a tanker.</li></ul><div>Q How could we measure the following and what units would we use?</div><p>Allow children a few minutes to discuss in pairs then collect responses.</p></li><li>Collect responses. Use opportunities to consolidate relationships between units as appropriate.</li><li>State some imperial units of measurement such as pint, gallon, pound, mile, ounce ... In pairs, the children are to identify three things that would be measured in that unit.</li><li>Take brief feedback, e.g. pint (milk, blood, drinks).</li></ul>	<ul style="list-style-type: none"><li>Show the children a range of boxes; cartons and containers.<div>Q What units are the contents measured in? Q What would be a reasonable estimate of the mass or capacity? Q What equipment would you need to measure this?</div><p>Take brief feedback and discuss the reasons for the children's answers.</p></li><li>On the board, draw a capacity number line from 0 to 2 l. Mark different values and ask the children to identify the capacities on the number line, e.g. 1.5 l, 300 ml.</li><li>Ask them to place the capacity of different containers on the number line.<p>Ensure the placements are reasonably accurate and that the class agrees with them.</p></li><li>Ask the children to solve the following problem:<div>Q There is 320 ml of juice in a carton: a big bottle holds five and a quarter times as much. How much juice does the bottle hold?</div></li><li>Compare the methods the children use. Draw attention to units and conversion to l.</li><li>Repeat posing other simple problems.</li></ul>	<ul style="list-style-type: none"><li>Write some different units of capacity on the board.<div>Q What might we measure using l, cl, pints, etc?</div><p>Repeat for length and weight.</p></li><li>Pose the following:<div>Q If I cut 75 cm and 1.4 m lengths from a 3 m length of cloth, how much cloth is left?</div></li><li>Discuss the units and the children's methods of solving this problem.</li></ul> <div>By the end of the lesson the children should be able to:</div> <ul style="list-style-type: none"><li>Suggest how you could measure: the thickness of a piece of paper, etc;</li><li>Respond to oral questions like: 'Do you think this container holds ... ?'</li><li>Suggest things you would measure in kilometres/ tonnes/litres/miles etc.</li></ul> <p>(Refer to Supplement of examples, section 6, page 93.)</p>

Planning sheet	Day Two	Unit 9 <i>Measures and problem solving</i>	Term: <i>Spring</i>	Year Group: 6
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities / Focus Questions
<p>Calculate the area and perimeter of rectangles and compound shapes.</p> <p>VOCABULARY perimeter area cm<sup>2</sup></p> <p>RESOURCES OHT 9.1 Whiteboards</p>	<ul style="list-style-type: none"> <li>Show OHT 9.1.</li> </ul> <div> <p><b>Q</b> What shape is this?</p> <p><b>Q</b> How do we find its area and perimeter?</p> </div> <p>Establish it is a rectangle and confirm how to find area and perimeter.</p> <ul style="list-style-type: none"> <li>It is useful for children to see a rectangle in a different orientation. So with the rectangle in this position, add the dimensions.</li> </ul> <div>  </div> <div> <p><b>Q</b> What is the area and perimeter of this rectangle?</p> </div> <p>Children write their answers on whiteboards. Discuss the units in m and cm. Compare the answers for area  <math>1 \times 0.5 = 0.5\text{m}^2</math> and <math>100 \times 50 = 5000\text{cm}^2</math>.</p> <div> <p><b>Q</b> How many cm<sup>2</sup> in 1m<sup>2</sup>?</p> </div> <p>Using the answers confirm there are 10 000 cm<sup>2</sup> in 1 m<sup>2</sup>, (100cm <math>\times</math> 100cm).</p> <ul style="list-style-type: none"> <li>Remind children the perimeter is a length and, when we find the perimeter, we are adding lengths rather than multiplying them.</li> <li>On the rectangle on the OHT draw additional rectangles, e.g.</li> </ul> <div>  </div> <div> <p><b>Q</b> What is the area and perimeter of this new shape?</p> </div> <p>Collect answers via children's whiteboards. Repeat changing the shape, by adding or removing rectangles.</p>	<p>Convert smaller to larger units of capacity and mass and vice versa.</p> <p>VOCABULARY convert units imperial</p>	<ul style="list-style-type: none"> <li>Remind the class that 1 kg = 1000g.</li> <li>Ask the children to convert kilograms to grams, e.g. 3kg, 0.5kg, <math>\frac{1}{4}</math>kg, etc.</li> </ul> <p>Collect answers and discuss methods. Ask the class to convert grams to kilograms e.g.</p> <p>What would 100g, 500g, 50g, 25g, 5g, 750g, 625g, 3125g... be in kg?</p> <p>Collect answers and discuss methods. Repeat for l and ml.</p> <ul style="list-style-type: none"> <li>Remind the class that in solving word problems we often need to convert from one unit to another.</li> </ul> <p>Pose the question:</p> <p>Which is better value, 3l of lemonade for £2.40 or 300ml for 25p?</p> <p>Ask children to answer question and discuss answers and methods.</p> <div> <p><b>Q</b> What information did you use?</p> <p><b>Q</b> What units did you use to compare costs?</p> </div> <p>Repeat with question:</p> <div> <p><b>Q</b> Which is cheaper, 2kg of washing powder at £5.80 or 300g for 89p?</p> </div> <ul style="list-style-type: none"> <li>Set the class similar problems that require the conversion of units in order to make comparisons.</li> </ul> <p>Collect answers and correct any mistakes and misunderstandings.</p>	<ul style="list-style-type: none"> <li><b>Q</b> What key conversion facts have you used in this lesson?</li> </ul> <p>Collect responses and note key facts on the board.</p> <ul style="list-style-type: none"> <li>Show the children a series of number sentences and ask them to fill in the blanks e.g.</li> </ul> <div> <p>0.6kg = 250g + g</p> </div> <p>making sure the position of the empty box changes</p> <div> <p>l - 280ml = 0.22l</p> </div> <div> <p><b>By the end of the lesson the children should be able to:</b></p> <ul style="list-style-type: none"> <li><b>Convert a larger metric unit to a smaller;</b></li> <li><b>Begin to convert a smaller unit to a larger.</b></li> </ul> <p>(Refer to supplement of examples, section 6, page 91.)</p> </div>

Planning sheet	Day Three	Unit 9 Measures and problem solving	Term: Spring	Year Group: 6
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities / Focus Questions
<p>Calculate the area and perimeter of compound shapes.</p> <p>VOCABULARY length width</p> <p>RESOURCES OHT 9.2 Whiteboards</p>	<ul style="list-style-type: none"> <li>Show the top diagram on OHT 9.2. Explain that the four rectangles are identical. Say that the width of the rectangles is 6cm.</li> </ul> <div>Q What is perimeter and area of each rectangle?</div> <p>Children to work this out on their whiteboards. Collect answers and discuss strategies. Repeat this twice changing the length of the rectangle to 14 cm.</p> <ul style="list-style-type: none"> <li>Show second diagram on OHT 9.2. Explain that these four rectangles are also identical.</li> </ul> <p>Say that area of the large shape is 48cm<sup>2</sup>.</p> <div>Q What are the dimensions of the four rectangles this time?</div> <p>Collect answers and discuss strategies.</p> <div>Q If the perimeter of large shape is 42cm what is the perimeter of each of the four rectangles?</div> <p>Discuss strategies for working this out.</p>	<p>Know rough equivalents of lb and kg, oz and g, miles and km and pints or gallons and litres.</p> <p>VOCABULARY conversion estimates rounding imperial metric</p> <p>RESOURCES Set of calculators OHP calculator</p>	<ul style="list-style-type: none"> <li>Remind children that kg, g, km, m, l, cl are units within the metric system that uses multiples of 10, 100, 1 000 to convert g to kg, etc.</li> </ul> <div>Q What units are used in the imperial system?</div> <p>Collect responses and record these on the boards.</p> <ul style="list-style-type: none"> <li>Write: 1 kg is about 2.2lb 16oz in 1lb</li> </ul> <div>Q How many grams in 1oz?</div> <p>Give out calculators and using an OHP calculator work through the conversion to establish: 1 oz is about 30g.</p> <ul style="list-style-type: none"> <li>Write: 4.5l is about 1 gallon 8 pints in 1 gallon</li> </ul> <div>Q How many ml in 1 pint?</div> <p>Using an OHP calculator work through the conversion to establish: 1 pint is about 570ml.</p> <ul style="list-style-type: none"> <li>Write: 8km is about 5 miles</li> </ul> <div>Q How many metres in 1 mile?</div> <ul style="list-style-type: none"> <li>Explain that when we are discussing miles and metres at the same time, it helps not to use abbreviations to avoid confusion.</li> </ul> <p>Using an OHP calculator establish there are about 1 600m in 1 mile. Set conversion questions for children to use the above facts, e.g.</p> <div>           Q What is half a pound in grams?            Q What is 44km in miles?            Q What is 3l in pints?         </div> <ul style="list-style-type: none"> <li>Collect answers and discuss strategies. Ensure children understand that the conversions are estimates, using examples to highlight when it is appropriate to round their answers to the nearest 1 or 10.</li> </ul>	<ul style="list-style-type: none"> <li>Write on the board the cake recipe: 4 oz currants 8oz raisins 2 oz candied peel 10oz flour 6oz butter 9oz sugar 4 eggs</li> </ul> <p>Ask children to convert the recipe to metric units.</p> <p>Collect answers and discuss methods.</p> <p>HOMEWORK – Ask the children to look for packets, jars, bottles, etc. that have metric/imperial on them and note down the information. Ask them to produce a conversion line for miles and km, up to 100 miles. Remind them that 5 miles is approximately 8km.</p> <p>0                      50                      100 miles</p> <p>with intervals of 10 miles.</p> <div> <p><b>By the end of the lesson the children should be able to:</b></p> <ul style="list-style-type: none"> <li><b>Know the approximate equivalence between commonly used imperial units and metric units.</b></li> </ul> <p>(Refer to supplement of examples, section 6, page 91.)</p> </div>

Planning sheet	Day Four	Unit 9 <i>Measures and problem solving</i>	Term: <i>Spring</i>	Year Group: 6
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities / Focus Questions
<p>Find dimensions of compound shapes.</p> <p>RESOURCES OHT 9.3 Whiteboards</p>	<ul style="list-style-type: none"> <li>Show the tile on OHT 9.3. Explain that there are a number of different arrangements using this tile.</li> <li>Show the first arrangement.</li> </ul> <div>Q What is the height and width of this arrangement of tiles?</div> <p>Children to record their answers on whiteboards. Encourage them to use jottings and diagrams of their own.</p> <p>Collect responses and discuss the strategies.</p> <ul style="list-style-type: none"> <li>Repeat for each of the other arrangements of tiles.</li> <li>If time permits, discuss finding the perimeter of each arrangement.</li> </ul>	<p>Solve word problems involving numbers and quantities based on 'real life', money and measures.</p> <p>VOCABULARY scaling up scaling down</p> <p>RESOURCES OHP calculator Calculators Counting stick Resource sheet 9.1</p>	<ul style="list-style-type: none"> <li>Discuss the homework. Collect children's metric and imperial measures from packets, etc. Select some to check using the estimates from the last lesson. Use the OHP calculator with children using calculators and emphasise that they are approximate values.</li> <li>Use a counting stick marked in 10 intervals. The stick is to represent 0 to 100 miles. Point to different intervals and ask the children to identify the value.</li> </ul> <div>Q What is 70 miles in km?</div> <p>Children to use their conversion line from the homework task to give the approximations in km.</p> <ul style="list-style-type: none"> <li>Give out Resource sheet 9.1. Explain that the sheet has the costs of different items and two recipes. Discuss the costs of the items. Ask children to work out the costs of various quantities of the items listed. Start by scaling up the quantities, for example:</li> </ul> <div>           Q What would 200g of ham cost?            Q What would 3l of milk cost?            Q What would 500g of tea cost?         </div> <p>Collect answers, discuss methods and correct any misunderstandings.</p> <ul style="list-style-type: none"> <li>Ask questions that involve scaling down the quantities, for example:</li> </ul> <div>           Q What would 50g of ham cost?            Q What would 100g of tea cost?            Q What would 250g of cheese cost?         </div> <p>Collect answers, discuss methods and correct any misunderstandings.</p>	<ul style="list-style-type: none"> <li>Discuss the toffee apple recipe on Resource sheet 9.1. Say you were asked for the recipe for toffee apples for a party of 30.</li> </ul> <div>Q What quantities of ingredients are needed?</div> <ul style="list-style-type: none"> <li>Discuss methods e.g. I multiply by 3 to get quantities for 24 then divide this by 4 to get quantities for 6 and add these together.</li> </ul> <div> <p><b>By the end of the lesson the children should be able to:</b></p> <ul style="list-style-type: none"> <li><b>Solve 'story' problems involving metric and imperial measures.</b></li> </ul> <p>(Refer to supplement of examples, section 6, pages 83, 87.)</p> </div>

Planning sheet	Day Five	Unit 9 <i>Measures and problem solving</i>	Term: <i>Spring</i>	Year Group: 6
Oral and Mental		Main Teaching		Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities / Focus Questions
Find simple percentages.	<ul style="list-style-type: none"> <li>Write on the board:               <div>25% of £100</div> <div>10% of £300</div> <div>40% of £90</div> <div>70% of £50</div> <div>5% of £500</div> <div>50% of £64</div> <div>80% of £40</div> <div>90% of £40</div> </li> </ul> <div>Q Which one of these would you rather have?</div> <p>Children to work this out on their whiteboards.</p> <ul style="list-style-type: none"> <li>Discuss answers and methods used.</li> </ul> <p>Agree that 40% of £90 and 90% of £40 give the same answer.</p> <ul style="list-style-type: none"> <li>Write on the board:               <div>17½% of £120 is £23.</div> </li> </ul> <div>Q True or false?</div> <p>Children to decide and support their view with a calculation. Encourage children to use jottings, e.g. 10%, 5%, 2½% and add.</p> <ul style="list-style-type: none"> <li>Repeat setting other true or false questions involving percentages.</li> </ul>	<p>Solve word problems involving numbers and quantities based on 'real life', money or measures.</p> <p>VOCABULARY bar chart graph scales curve axes</p> <p>RESOURCES Resource sheet 9.2 OHT 9.4</p>	<ul style="list-style-type: none"> <li>Give out Resource sheet 9.2. Ask children to look at the first bar chart.               <div>Q What information is shown on the bar chart?</div> <p>In pairs get children to make up a 'story' from the bar chart. Ensure they can interpret the scales correctly and read each bar. Use one of the contexts they provide and ask questions, e.g.</p> <div>Q How much more money was spent/collected in December than in October and November?</div> <div>Q What percentage of November's money was spent/collected in October?</div> <div>Q If 20% of December's money is profit, how much profit was made?</div> <p>Collect answers and discuss other questions involving percentages.</p> </li> <li>Repeat using the second bar chart. Highlight the need to estimate as the bars do not always end on a line. Agree estimates for each day.               <div>Q What might we do to help us get a better estimate?</div> <p>Demonstrate how using a ruler might help.</p> <div>Q If the figure for Wednesday was increased by 30% would this number be greater than Tuesday's figure?</div> <p>Collect answers and discuss the children's methods.</p> </li> <li>Ask children to look at the remaining two graphs.               <div>Q In what ways do these graphs differ from the bar charts?</div> <p>Emphasise that time, temperature and distance can all be measured so that intermediate values on the axes and graph have meaning.</p> <p>Ask children, in pairs, to set the graphs in context. Use a context to ask questions involving the reading of values from one axes to the other.</p> <div>Q What was the temperature after 10 minutes?</div> <div>Q When did the temperature first reach 30°C?</div> <div>Q In which 20 minute interval was the least/greatest distance travelled?</div> <p>Collect answers and correct any errors and misunderstandings.</p> </li> </ul>	<ul style="list-style-type: none"> <li>Show OHT 9.4                <div>Q What could the two axes represent?</div> <div>Q What story does the graph tell us?</div> <p>Ensure children can interpret the increase and decrease correctly. Emphasise that the graph represents data that has been collected by measuring.</p> <div>By the end of the lesson the children should be able to:</div> <ul style="list-style-type: none"> <li>Interpret simple bar charts;</li> <li>Interpret a graph in which intermediate values have meaning.</li> </ul> <p>(Refer to supplement of examples, section 6, pages 115, 117.)</p> </li> </ul>

RESOURCES  
Whiteboards