



# MATHEMATICS



**N.S. Yr. 5 P.95**

**Suggest suitable measuring equipment and  
record estimates and readings.**

## Equipment

Paper, pencil,  
Selection of instruments and equipment for measuring length, mass, volume  
etc.

# MathSphere

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### **Concepts**

Children should be able to choose a suitable measuring instrument for a given measuring task. They should also have a good idea of what units to use for measuring. For example, it is better to find the mass of their own bodies in kilograms rather than in grams.

Children should also be able to read a scale to the nearest division. This is a difficult task and much practice will be required to master this. (Great patience will often be needed!) The problem is that larger units are often divided into different sub-units. For example, a measuring cylinder with the units marked in 100ml steps (0, 100, 200, 300ml etc) may have sub divisions of 10ml or 20ml or 50ml and children must first work out how big each step is before trying to read the volume of a sample of water etc. Rather than use the worksheets in this module in isolation, they should be used in conjunction with practical work so that children may see how the diagrams relate to real equipment.

Children should be able to record an estimate and then record the actual reading in a suitable form (e.g. a table) to the nearest half, quarter or tenth of 1km, 1kg or 1 litre (e.g. record 2300ml as 2.3 litres and 300m as 0.3km).

Children should also be able to add or subtract amounts from a reading on a scale and give the distance between two measurements on a scale.

**Measuring to the nearest millimetre**

Use a ruler to measure these lines to the nearest millimetre.

Write the answers in centimetres (e.g. 5.0cm or 9.4cm)

Eg **a.** \_\_\_\_\_ line **a** is 4.9cm long

1. \_\_\_\_\_

2. \_\_\_\_\_

3.



4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8.

\_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

**Measuring to the nearest millimetre**

Use a ruler to measure these lines to the nearest millimetre.

Write the answers in centimetres (e.g. 5.0cm or 9.4cm)

Eg **a.** \_\_\_\_\_ line **a** is 4.8cm long

1. \_\_\_\_\_

2. \_\_\_\_\_

3.



4. \_\_\_\_\_

5.

\_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8.

\_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

**Measuring to the nearest millimetre**

Use a ruler to measure these lines to the nearest millimetre.

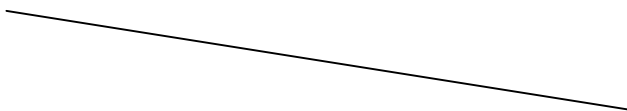
Write the answers in centimetres (e.g. 4.0cm or 9.4cm)

Eg **a.**  line **a** is 5.0cm long

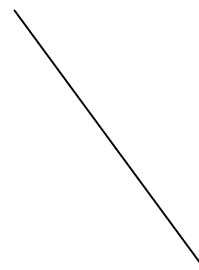
**1.**



**2.**



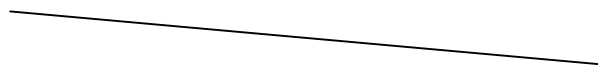
**3.**



**4.**



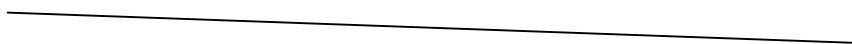
**5.**



**6.**



**7.**



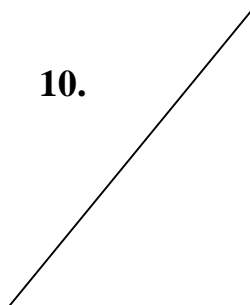
**8.**



**9.**



**10.**



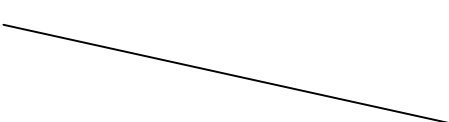
**Measuring to the nearest millimetre**

Use a ruler to measure these lines to the nearest millimetre.

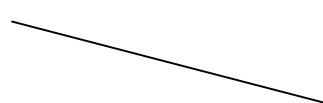
Write the answers in centimetres (e.g. 3.0cm or 7.8 cm)

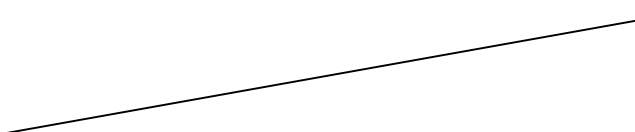
Eg **a.**  line **a** is 4.4 cm long

**1.** 

**2.** 


**3.** 

**4.** 

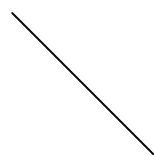
**5.** 

**6.** 

**7.** 

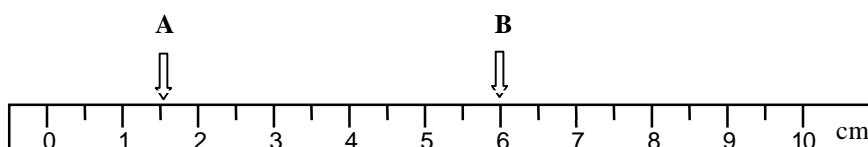
**8.** 

**9.** 

**10.** 

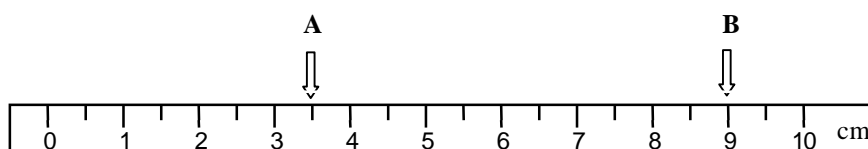
**Finding the distance between two measurements**

1.



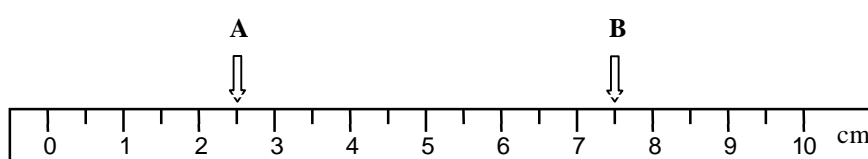
- What is the reading on arrow A ?
- What is the reading on arrow B ?
- What is the distance between arrow A and arrow B ?

2.



- What is the reading on arrow A ?
- What is the reading on arrow B ?
- What is the distance between arrow A and arrow B ?

3.



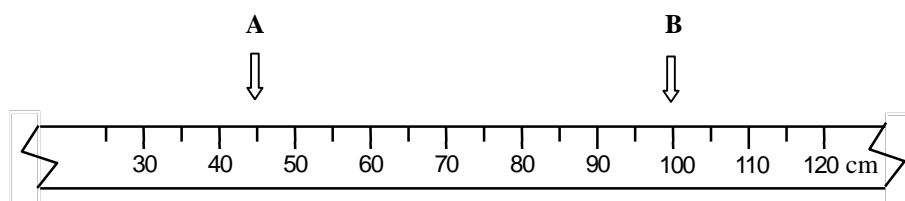
- What is the reading on arrow A ?
- What is the reading on arrow B ?
- What is the distance between arrow A and arrow B ?

All these arrows everywhere.  
Things are getting hairy  
round here!!!!!!



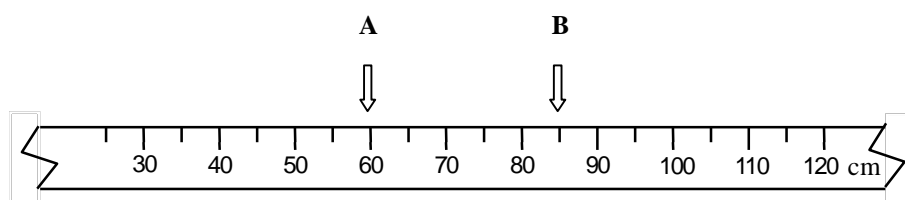
**Finding the distance between two measurements**

1.



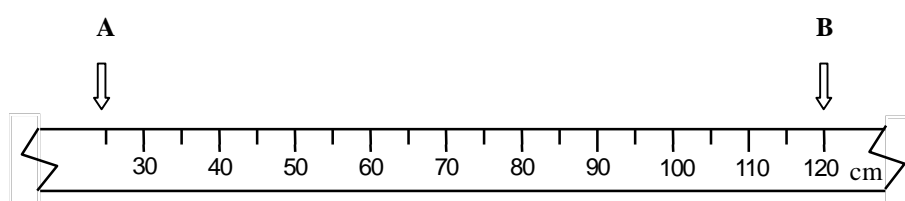
- What is the reading on the two arrows ?
- What is the distance between them in centimetres ?
- What is the distance between them in millimetres ?

2.



- What is the reading on the two arrows ?
- What is the distance between them in centimetres ?
- What is the distance between them in millimetres ?

3.



- What is the reading on the two arrows ?
- What is the distance between them in centimetres ?
- What is the distance between them in millimetres ?

Don't forget, there are ten millimetres in a centimetre.



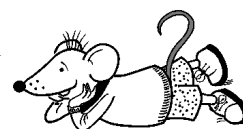


**Estimate and measure mass**

Estimate the mass of some objects. Then use scales to find their masses to the nearest **tenth** of a kilogram. Remember **one tenth of a kilogram is 100 grams**. Record your results in this table.

Object	Estimate	Measurement
E.g. Bucket of sand	6 kg	8.4 kg

It might be easier to work  
with a friend. Cosier too!



**Estimate and measure mass**

Estimate the mass of some objects. Then use scales to find their masses to the nearest **quarter** of a kilogram. You may need to know that **one quarter of a kilogram is 250 grams**. Record your results in this table.

Object	Estimate	Measurement
E.g. Dictionary	2 kg	1.75 kg

A Maths Rat can do this lying down.



**Estimate and measure volume and capacity**

Estimate the volume of the water or sand in some containers. Pour the water or sand into a measuring cylinder and find its real volume to the nearest **tenth** of a litre. Remember that **one tenth of a litre is 100 millilitres**.

Object	Estimate	Measurement
E.g. Cup of sand	0.5 litre	0.4 litre

I hope you have your thinking caps on! This is hard stuff.



**Estimate and measure volume and capacity**

Estimate the volume of the water or sand in some containers. Pour the water or sand into a measuring cylinder and find its real volume to the nearest **quarter** of a litre. You might need to remember that **one quarter of a litre is 250 millilitres**.

Object	Estimate	Measurement
E.g. Bucket of water	6 litres	7.5 litres

**Genius**

When you have finished all this, you will be a genius like me!



**Estimate and measure distance**

For this work you will need an Ordnance Survey map. Estimate the distance between two places on the map. Then measure the distance to the nearest **tenth** of a kilometre (a piece of string may help). Remember that **one tenth of a kilometre is 100 metres**.

Places	Estimate	Measurement
E.g. Upper Treading to Metham Village	6 km	5.8 km

I didn't get where I am today  
without a good map!



**Estimate and measure distance**

For this work you will need an Ordnance Survey map. Estimate the distance between two places on the map. Then measure the distance to the nearest **quarter** of a kilometre (a piece of string may help). Remember that **one quarter of a kilometre is 250 metres**.

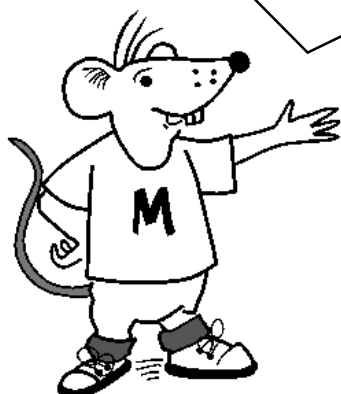
Places	Estimate	Measurement
E.g. Dragons Green to Itchy Leg	15 km	17.75 km

Help! I've just been shot  
with a speech bubble!

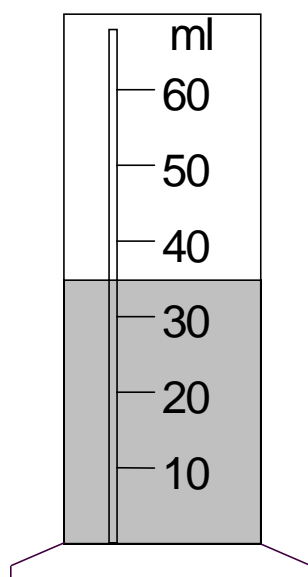


### Reading measuring scales

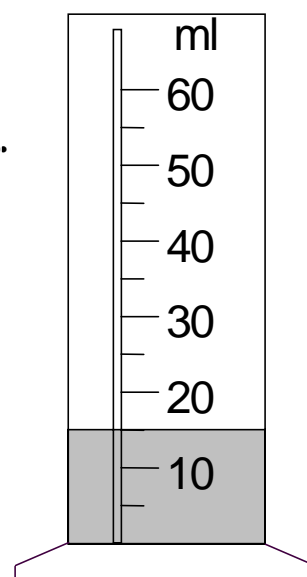
Add the amounts written under each measuring cylinder to the liquid already in the cylinder. E.g. in question one,  $35 \text{ ml} + 25 \text{ ml} = 60 \text{ ml}$ .



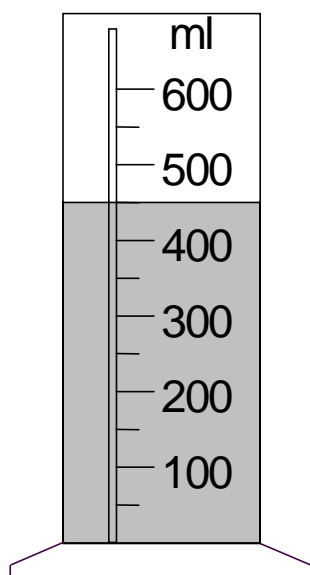
1.

**25 ml**

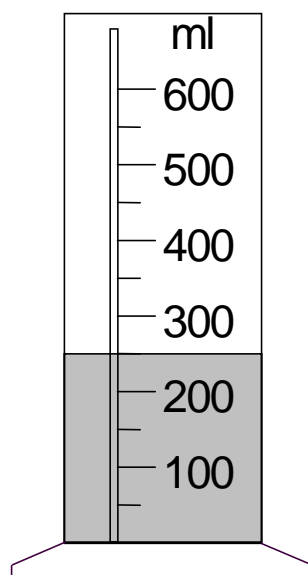
2.

**40 ml**

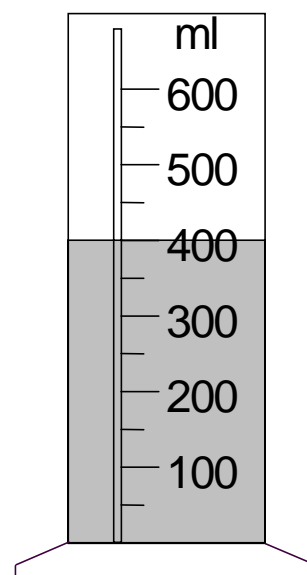
3.

**100 ml**

4.

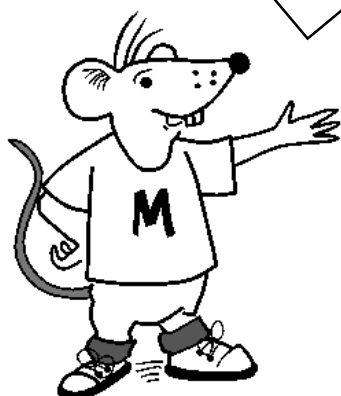
**150 ml**

5.

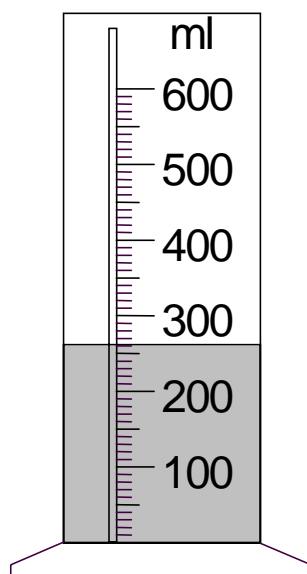
**150 ml**

### Reading measuring scales

Add the amounts written under each measuring cylinder to the liquid already in the cylinder.

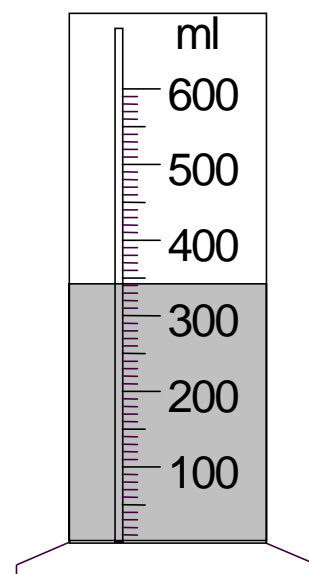


1.



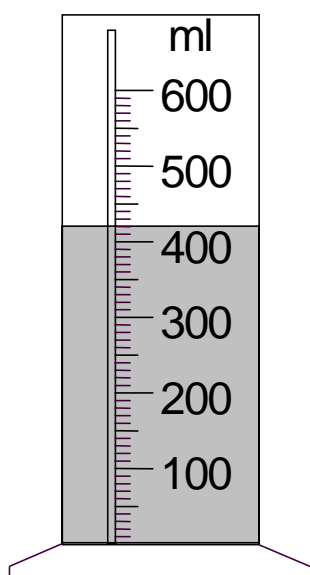
230 ml

2.



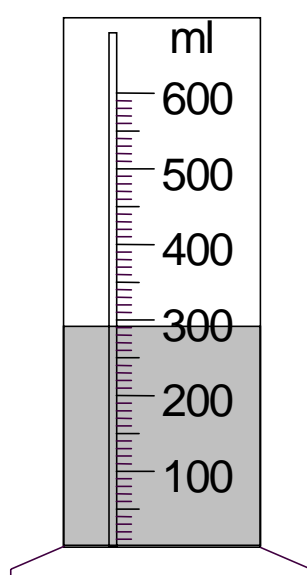
80 ml

3.



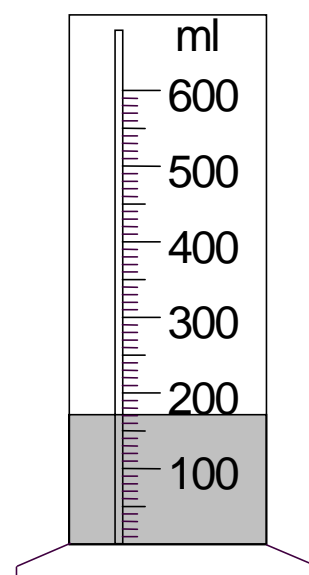
120 ml

4.



310 ml

5.



280 ml

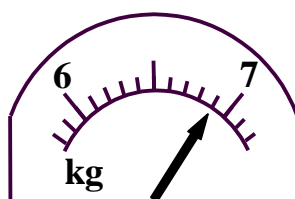


**Adding to, or subtracting from, scale readings**

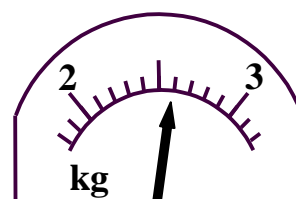
Read these scales, then **add** or **subtract** the amounts shown under the scales. Write your answers in kilograms (e.g. 6.700 kg).



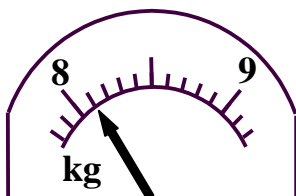
1.

**Add 200 g**

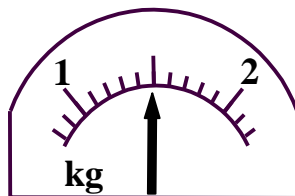
2.

**Add 400 g**

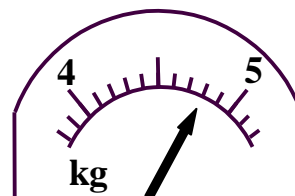
3.

**Subtract 100 g**

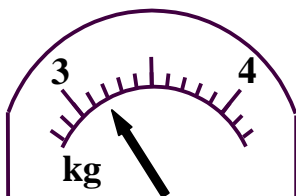
4.

**Add 600 g**

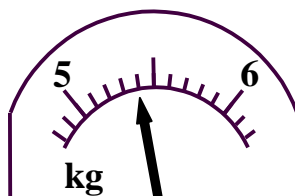
5.

**Subtract 500 g**

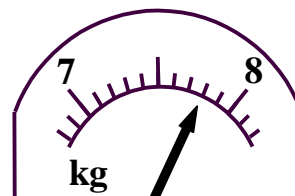
6.

**Subtract 300 g**

7.

**Subtract 500 g**

8.

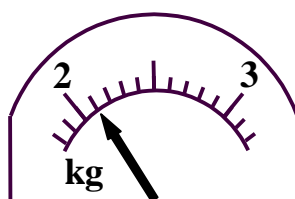
**Add 400 g**

### Adding to, or subtracting from, scale readings

Read these scales, then **add** or **subtract** the amounts shown under the scales. Write your answers in kilograms (e.g. 4.900 kg).

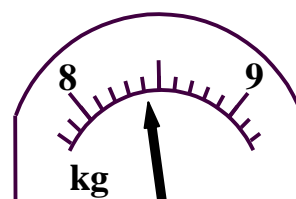


1.



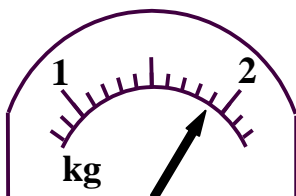
Add 800 g

2.



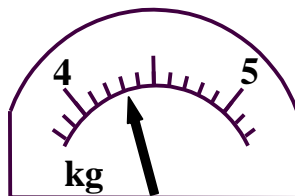
Add 500 g

3.



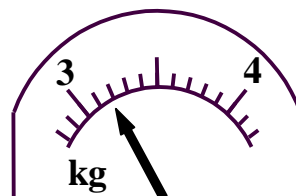
Subtract 900 g

4.



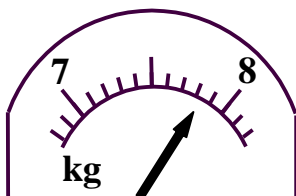
Add 700 g

5.



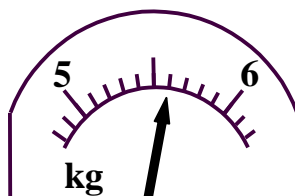
Subtract 600 g

6.



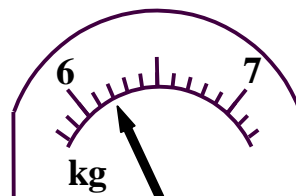
Subtract 800 g

7.



Add 700 g

8.



Subtract 600 g

1.



Okay, Guys. Try rounding these masses to the **nearest kilogram**.

**Hint:** The answer to the first one is 3 kg !

- a. 3 400 g      b. 8 900 g      c. 6 200 g      d. 7 500 g      e. 900 g  
f. 5 735 g      g. 3 955 g      h. 7 892 g      i. 6 393 g      j. 3 827 g  
k. 1 111 g      l. 2 284 g      m. 9 372 g      n. 9 999 g

2.

Well done! Now try rounding these volumes to the nearest litre.

**Hint:** The answer to the first one is 2 litres!



- a. 2 045 ml      b. 4 539 ml      c. 8 349 ml      d. 9 473 ml      e. 6 666 ml  
f. 8 522 ml      g. 4 466 ml      h. 7 473 ml      i. 8 734 ml      j. 8 053 ml  
k. 8 466 ml      l. 16 784 ml      m. 23 734 ml      n. 87 342 ml

**Answers****Page 3** (Allow 1mm error either side for pages 3 to 6)

1. 7.6cm    2. 4.6cm    3. 2.1cm    4. 2.6cm    5. 5.8cm  
 6. 8.2cm    7. 11.5cm    8. 3.2cm    9. 5.8cm    10. 11.7cm

**Page 4**

1. 12.2cm    2. 6.4cm    3. 2.6cm    4. 4.3cm    5. 7.3cm  
 6. 7.6cm    7. 9.4cm    8. 6.5cm    9. 7.4cm    10. 10.5cm

**Page 5**

1. 8.4cm    2. 8.3cm    3. 4.3 cm    4. 3.8 cm    5. 7.9 cm  
 6. 13.6 cm    7. 11.3 cm    8. 5.5 cm    9. 9.1cm    10. 5.1cm

**Page 6**

1. 6.2cm    2. 6.1cm    3. 3.3 cm    4. 4.3 cm    5. 8.6 cm  
 6. 11.8 cm    7. 10.7 cm    8. 5.6 cm    9. 14.8cm    10. 2.7cm

**Page 7**

1. a. 1.5cm    b. 6.0 cm    c. 4.5 cm    2. a. 3.5cm    b. 9.0 cm    c. 5.5 cm  
 3. a. 2.5cm    b. 7.5 cm    c. 5.0 cm

**Page 8**

1. a. A: 45 cm B: 100 cm    b. 55 cm    c. 550 mm  
 2. a. A: 60 cm B: 85 cm    b. 25 cm    c. 250 mm  
 3. a. A: 25 cm B: 120 cm    b. 95 cm    c. 950 mm

**Page 15**

1. 60ml    2. 55ml    3. 550ml    4. 400ml    5. 550ml

**Page 16**

1. 490ml    2. 420ml    3. 540ml    4. 600ml    5. 450ml

**Page 17**

1. 7.100 kg    2. 3.000 kg    3. 8.000 kg    4. 2.100 kg  
 5. 4.300 kg    6. 2.900 kg    7. 4.900 kg    8. 8.200 kg

**Page 18**

1. 2.900 kg    2. 8.900 kg    3. 1.000 kg    4. 5.000 kg  
 5. 2.600 kg    6. 7.000 kg    7. 6.300 kg    8. 5.600 kg

**Page 19**

1. a. 3 kg    b. 9 kg    c. 6 kg    d. 8 kg    e. 1 kg    f. 6 kg  
 g. 4 kg    h. 8 kg    i. 6 kg    j. 4 kg    k. 1 kg    l. 2 kg  
 m. 9 kg    n. 10 kg

2. a. 2 l    b. 5 l    c. 8 l    d. 9 l    e. 7 l    f. 9 l  
 g. 4 l    h. 7 l    i. 9 l    j. 8 l    k. 8 l    l. 17 l  
 m. 24 l    n. 87 l