



# MATHEMATICS



**N.S. Yr. 4 P.94**

**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. For example, they should see that a meter stick, long measuring tape or trundle wheel would be a much better instrument for measuring the length of a classroom than a 30cm ruler. 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).

They should be able to record in single or mixed units (e.g. know that 5 kilograms and 354 grams is 5 354 grams).

Lastly, they should be able to round units to the nearest ten or a hundred units (e.g. 123 cm is 120 cm to the nearest ten cm and 7 358g is 7 400g to the nearest 100g).

**N.B. The first two pages of measuring lines to the nearest half centimetre contain straight lines that are an exact multiple of half a centimetre long. The next two pages contain lines of any length and the children must round to the nearest half centimetre. The final two contain curved lines for which string or cotton will be required.**

**Measuring to the nearest half centimetre**

Use a ruler to measure these lines to the nearest 0.5 cm (half centimetre).

Write the answers in centimetres (e.g. 3cm or 7.5cm)

Eg **a.** \_\_\_\_\_ line **a** is 4.5cm long

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

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

3.



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

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

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

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

8. \_\_\_\_\_

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

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

**Measuring to the nearest half centimetre**

Use a ruler to measure these lines to the nearest 0.5 cm (half centimetre).

Write the answers in centimetres (e.g. 8cm or 12.5cm)

Eg **a.** \_\_\_\_\_ line **a** is 3.5cm long

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

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

3. \_\_\_\_\_

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

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

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

\_\_\_\_\_

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

8. \_\_\_\_\_

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

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

**Measuring to the nearest half centimetre**

Use a ruler to measure these lines to the **nearest** 0.5 cm (half centimetre).

Write the answers in centimetres (e.g. 3cm or 7.5cm)

Eg **a.** \_\_\_\_\_ line **a** is 5cm long (to the nearest 0.5cm)

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

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

3. \_\_\_\_\_

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

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

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

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

8. \_\_\_\_\_

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

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

**Measuring to the nearest half centimetre**

Use a ruler to measure these lines to the **nearest** 0.5 cm (half centimetre).

Write the answers in centimetres (e.g. 3cm or 7.5cm)


Eg **a.**  line **a** is 2cm long (to the nearest 0.5cm)


1. 

2. 


3.




4. 

5. 

6. 

7. 

8. 

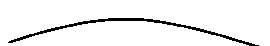
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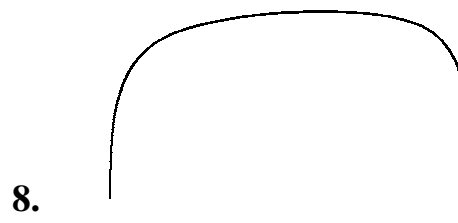
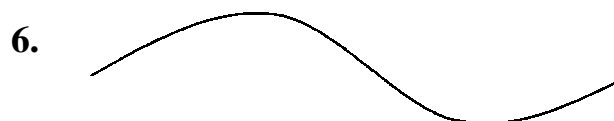
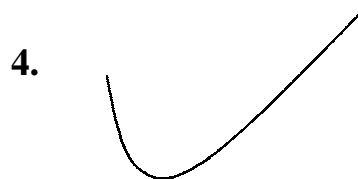
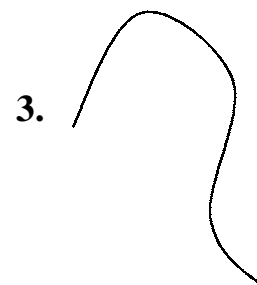
10. 

**Measuring to the nearest half centimetre**

Use a ruler and a piece of cotton or string to measure these lines to the **nearest** 0.5 cm (half centimetre).

Write the answers in centimetres (e.g. 3cm or 7.5cm)

Eg **a.**  line **a** is 3.5cm long (to the nearest 0.5cm)




Remember to hold that string carefully!



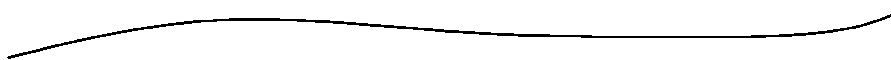
**Measuring to the nearest half centimetre**

Use a ruler and a piece of cotton or string to measure these lines to the **nearest** 0.5 cm (half centimetre).

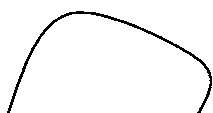
Write the answers in centimetres (e.g. 3cm or 7.5cm)

Eg **a.**  line **a** is 4cm long (to the nearest 0.5cm)

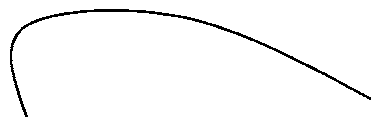
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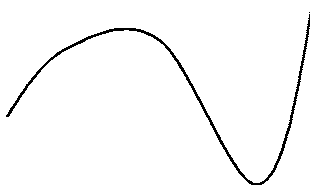
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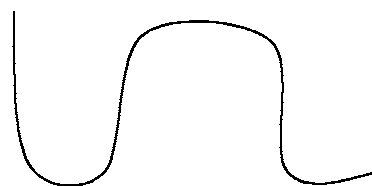
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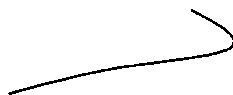
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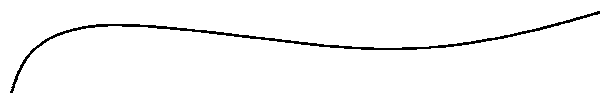
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8.



9.



10.



I think I'll let you do these!





**Estimate and measure**

Take each of these items. Choose a suitable unit to measure them (e.g. cm or metre).  
Estimate their length to the nearest whole unit. Then measure them to the nearest unit.

Object	Estimate	Measurement
Classroom length		
Book length		
Table length		
Garden or playground length		
Classroom width		
Ruler thickness		
Classroom height		
CD diameter		
Drainpipe diameter		
Dictionary thickness		

Compare answers with a friend.  
Did you agree?



**Estimate and measure**

Take each of these items. Choose a suitable unit to measure them (e.g. cm or metre).  
Estimate their length to the nearest whole unit. Then measure them to the nearest unit.

Object	Estimate	Measurement
Envelope length		
Chair height		
Pencil thickness		
Car length		
Computer screen width		
Length of telephone wire		
Display board height		
Filing cabinet width		
Roll of sticky tape diameter		
Floppy disc thickness		

Compare answers with a friend.  
Did you agree?



**Estimate and measure mass**

Measure the mass of each object (you can choose some of your own). First estimate to the nearest kg. Then put them on the scales and write the masses in kg (e.g. 23.5kg) and in kg and g (e.g. 23Kg and 500g).

Object	Estimate	Measurement	Measurement
<b>Eg: Teacher</b>	<b>76kg</b>	<b>81.5kg</b>	<b>81kg 500g</b>
Me			
Bag of fruit or potatoes			
20 dictionaries			

Try to work as accurately as you can.



**Estimate and measure mass**

Measure the mass of each object (you can choose some of your own). First estimate to the nearest kg. Then put them on the scales and write the masses in kg (e.g. 23.5kg) and in kg and g (e.g. 23Kg and 500g).

Object	Estimate	Measurement	Measurement
<b>Eg: Chair</b>	<b>8Kg</b>	<b>6.0Kg</b>	<b>6Kg 0g</b>
Packet of paper			
Pile of exercise books			

Try to work as accurately as you can.



**Estimate and measure capacity**

Measure the capacity of each object (you can choose some of your own). First estimate to the nearest litre. Then measure them and write the capacities in litres (e.g. 2.5 litres) and in litres and millilitres (e.g. 2 litres and 500ml).

Object	Estimate	Measurement	Measurement
<b>Eg: Bucket</b>	<b>12 litres</b>	<b>10.5 litres</b>	<b>10 litres 500 ml</b>
Tea or coffee pot			
Waste bin			
Sink			

Try to work as accurately as you can.



**Estimate and measure capacity**

Measure the capacity of each object (you can choose some of your own). First estimate to the nearest litre. Then measure them and write the capacities in litres (e.g. 2.5 litres) and in litres and millilitres (e.g. 2 litres and 500ml).

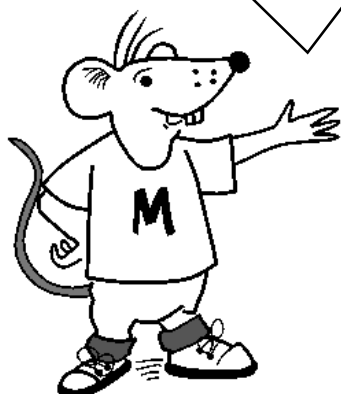
Object	Estimate	Measurement	Measurement
<b>Eg: Flower pot</b>	<b>1 litres</b>	<b>1.5 litres</b>	<b>1 litre 500 ml</b>
Box			
Child's plastic bucket			

Put a plastic bag in the box to stop the water running out - Great idea!

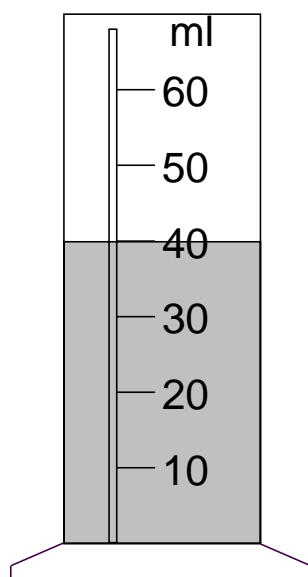


### Reading measuring scales

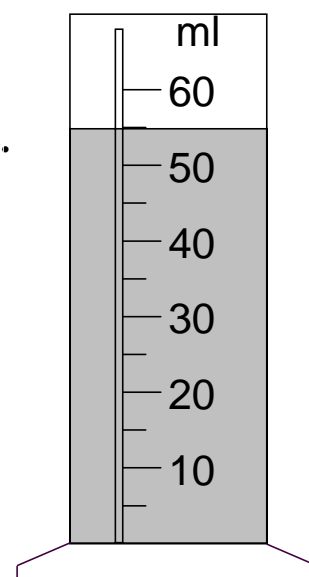
Try to read these scales. Look carefully at the small marks between the numbers.



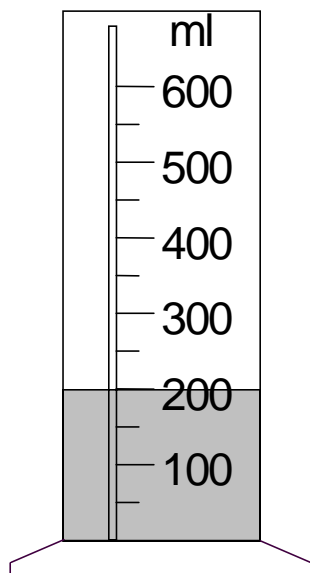
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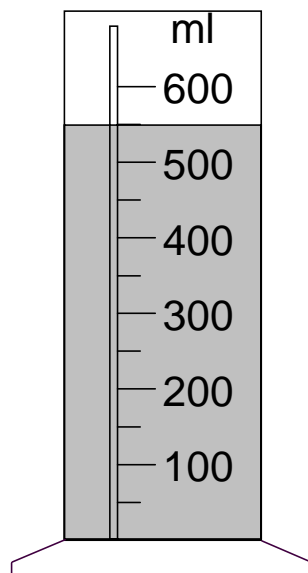
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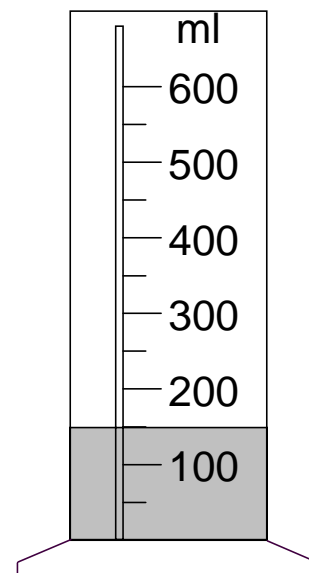
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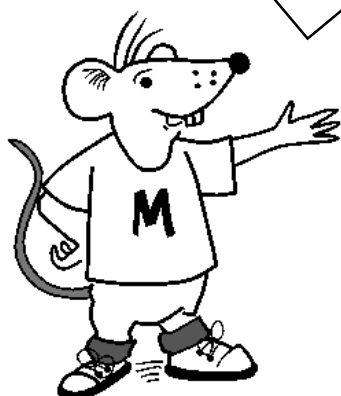


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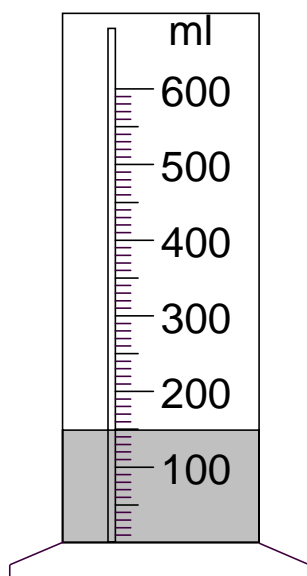


### Reading measuring scales

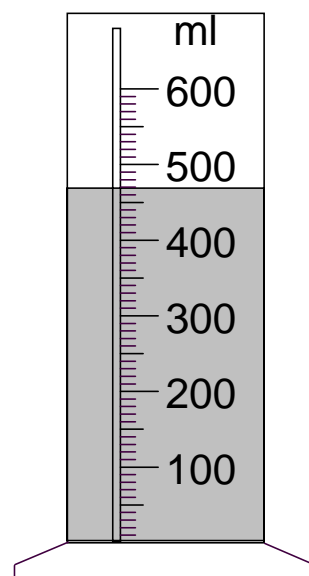
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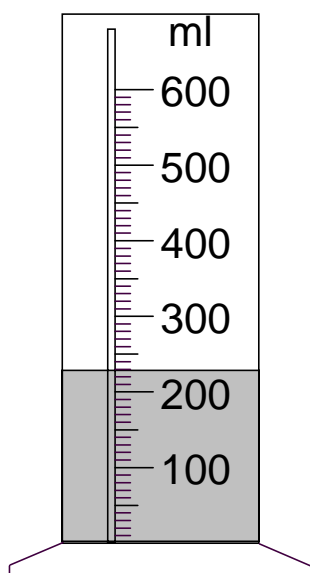
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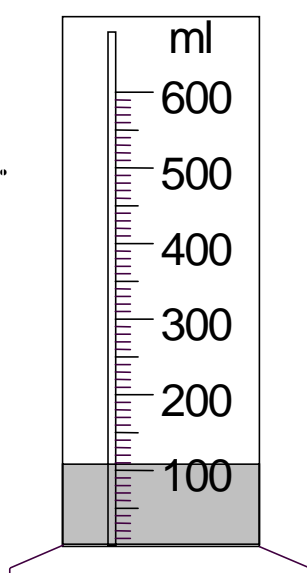
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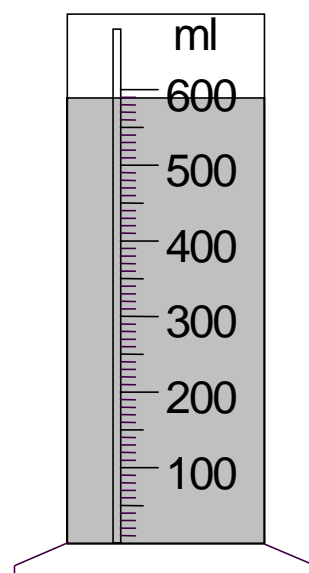
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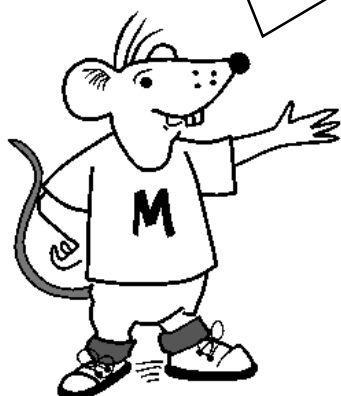
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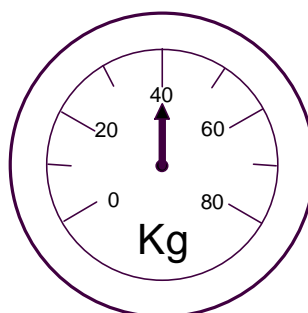


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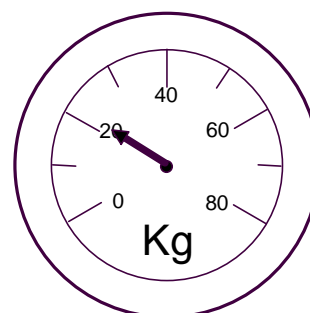
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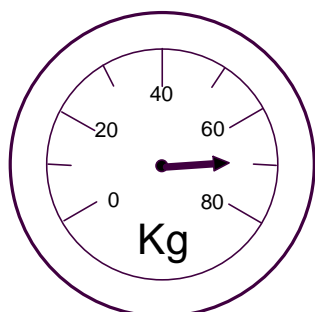
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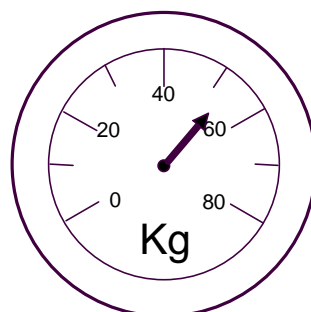
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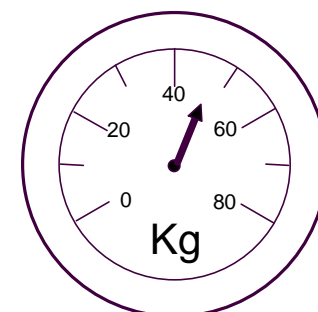
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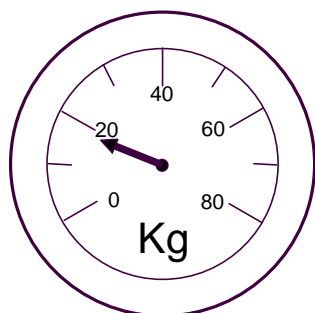
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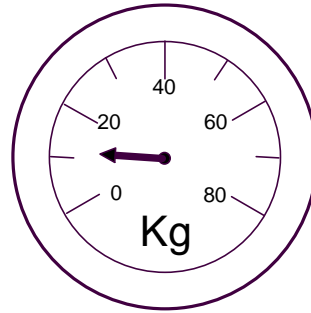
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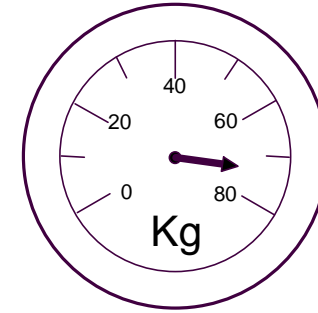
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7.



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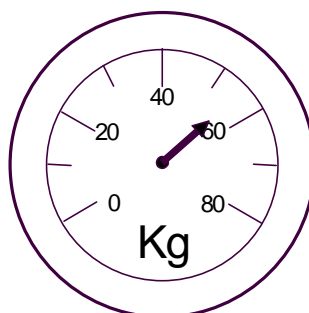


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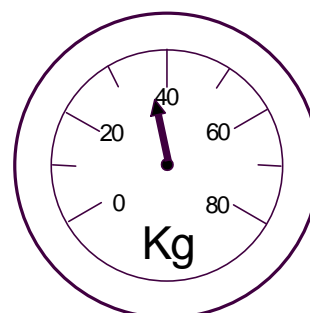
Read these scales. Remember to look carefully at the small marks between the numbers.



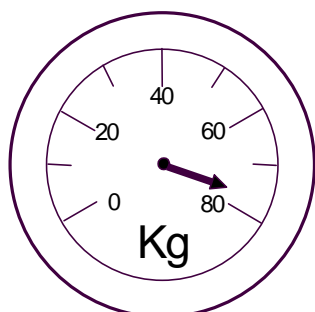
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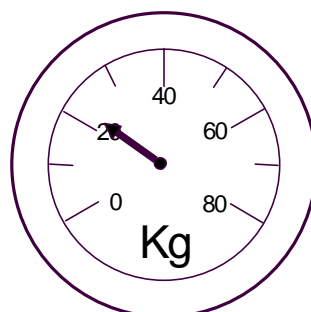
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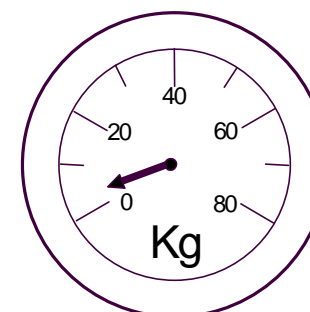
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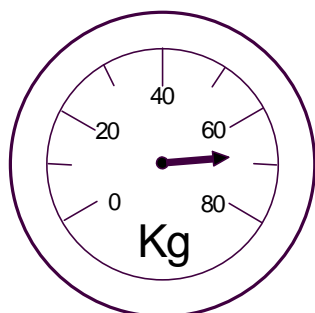
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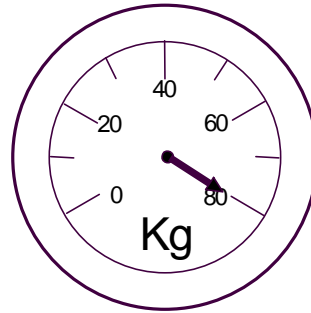
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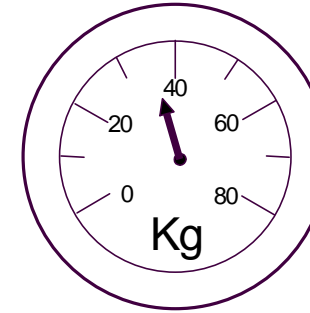
6.



7.



8.



1.



Okay, Guys. Try rounding these numbers to the nearest ten.

**Hint:** The answer to the first one is 20 !

- a. 23      b. 189      c. 462      d. 1 428      e. 749      f. 74      g. 99  
h. 55      i. 84      j. 693      k. 655      l. 949      m. 41      n. 8  
o. 63      p. 3 637      q. 728      r. 85      s. 93      t. 22      u. 202

2.

Well done! Now try rounding these numbers to the nearest hundred.

**Hint:** The answer to the first one is 800 !



- a. 780      b. 6 539      c. 831      d. 6 888      e. 90  
f. 99      g. 538      h. 804      i. 9 066      j. 550  
k. 43      l. 9 421      m. 870      n. 473      o. 999  
p. 7 999      q. 638      r. 20      s. 637      t. 734

**Answers****Page 3**

1. 12.5cm    2. 3cm    3. 3cm    4. 4.5cm    5. 8cm  
 6. 5cm    7. 16cm    8. 3.5cm    9. 9cm    10. 21cm

**Page 4** (Allow at least 1mm error either side)

1. 12.5cm    2. 6.5cm    3. 5cm    4. 7.5cm    5. 9cm  
 6. 7cm    7. 18cm    8. 8.5cm    9. 14cm    10. 36.5cm

**Page 5**

1. 10cm    2. 5.5cm    3. 4 cm    4. 2.5 cm    5. 5.5 cm  
 6. 9 cm    7. 10 cm    8. 5.5 cm    9. 14cm    10. 4cm

**Page 6**

1. 7cm    2. 5.5cm    3. 2.5 cm    4. 4 cm    5. 8.5 cm  
 6. 7.5 cm    7. 14.5 cm    8. 6 cm    9. 10cm    10. 0.5cm

**Page 7** (Allow at least 0.5 cm error - discuss margins of error)

1. 12.5cm    2. 3cm    3. 6.5 cm    4. 5.5 cm    5. 9 cm  
 6. 7.5 cm    7. 4.5 cm    8. 9 cm    9. 6cm    10. 5cm

**Page 8** (Allow at least 0.5 cm error - discuss margins of error)

1. 12cm    2. 4.5cm    3. 6 cm    4. 7.5 cm    5. 10cm  
 6. 14cm    7. 3.5 cm    8. 9 cm    9. 8.5cm    10. 15.5cm

**Page 15**

1. 40ml    2. 55ml    3. 200ml    4. 550ml    5. 150ml

**Page 16**

1. 150ml    2. 470ml    3. 230ml    4. 110ml    5. 590ml

**Page 17**

1. 40kg    2. 21/22kg    3. 68/69kg    4. 52/53kg    5. 46/47/48kg  
 6. 16/17/18kg    7. 10/11/12kg    8. 72/73/74kg

**Page 18**

1. 55/56kg    2. 36/37/38kg    3. 76/77/78kg    4. 21/22/23kg    5. 3/4/5kg  
 6. 67/68/69kg    7. 80kg    8. 35/36kg

**Page 19**

1. a. 20    b. 190    c. 460    d. 1 430    e. 750    f. 70    g. 100  
 h. 60    i. 80    j. 690    k. 660    l. 950    m. 40    n. 10  
 o. 60    p. 3 640    q. 730    r. 90    s. 90    t. 20    u. 200
2. a. 800    b. 6 500    c. 800    d. 6 900    e. 100    f. 100    g. 500  
 h. 800    i. 9 100    j. 600    k. 0    l. 9 400    m. 900    n. 500  
 o. 1 000    p. 8 000    q. 600    r. 0    s. 600    t. 700