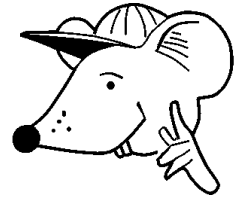


# MATHEMATICS



**N.S. Yr. 6 P.95**

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

## Equipment

Paper, pencil, ruler.

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

Conversion scales from imperial units to metric units.

# MathSphere

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### Concepts

By now, children should be able to decide which units are appropriate for a whole range of measurements from the very small (e.g. mass of a piece of paper) to the very large (e.g. distance from London to Manchester). If they are not confident with this, they should work from the earlier modules, i.e. 4094 and 5095.

They should have some familiarity with imperial units still in common use such as gallons and miles and be able to read a conversion chart.

They should be able to round measurements to one tenth of a unit (e.g. 4 693 grams is 4.7 kg to the nearest **tenth of a kilogram**) or to the nearest unit (e.g. 4 693 grams is 5 kilograms to the nearest **kilogram**).

These paper exercises should be supplemented with plenty of practical work concerned with measuring and reading scales.

Some of the best opportunities for this practice arise in the kitchen and the school food technology room.

Measuring small items

We can measure small items by putting several together and measuring all of them and then dividing by the number there are.

Me again, folks. Try finding the mass of 100 drawing pins or other small objects and then dividing by 100 to find the mass of one pin.



Mass of 100 objects = \_\_\_\_\_ g

Mass of 1 object = \_\_\_\_\_  $\div$  100 = \_\_\_\_\_ g

Use this idea to find other small measurements and fill in the table:

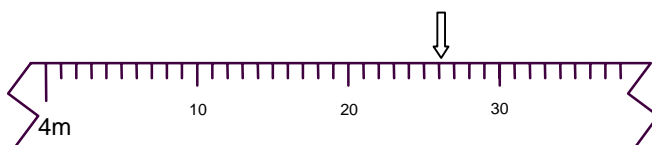
Object	Number measured	Measurement of group	Measurement of one object
E.g. Mass of drawing pin	100	g	g
Thickness of piece of paper			
Thickness of piece of card			
Mass of a stamp			
?			

What do you think you need to do next?

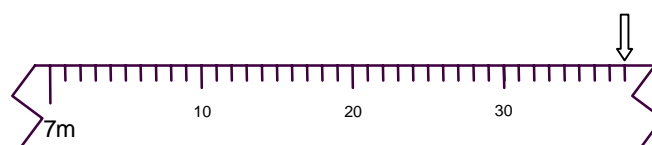
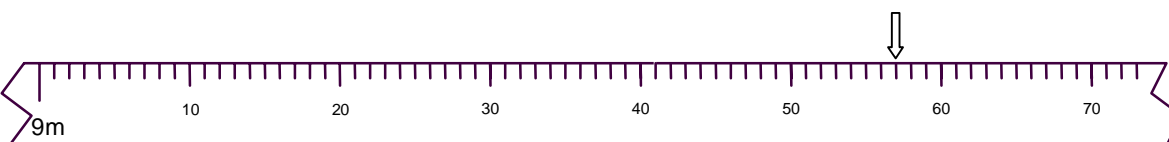
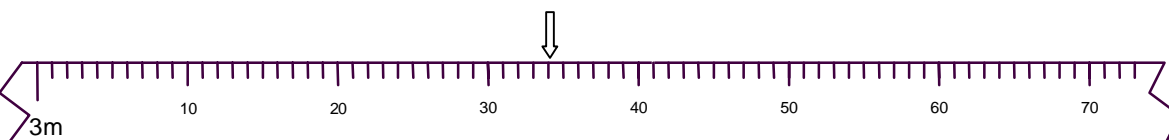
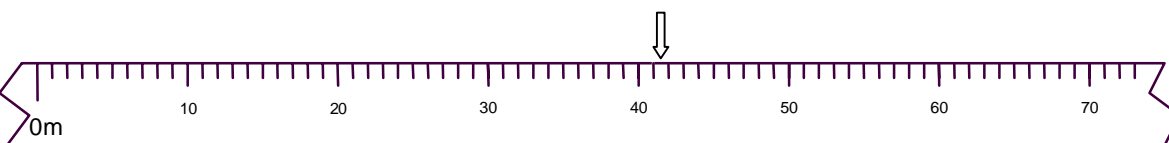
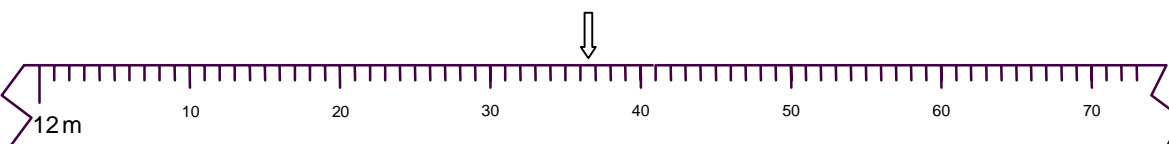
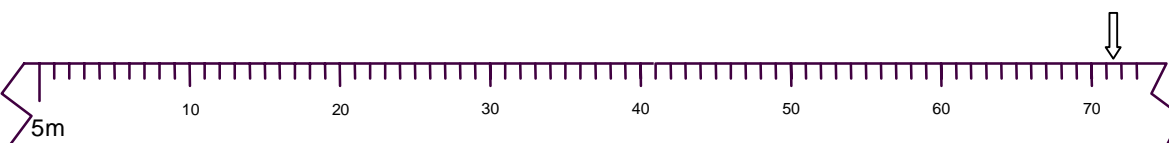
[illegible]

**Giving measurements of length in millimetres and metres**

1. For each diagram, give the reading shown on the measuring tapes by the arrow in **millimetres** and then in **metres**.

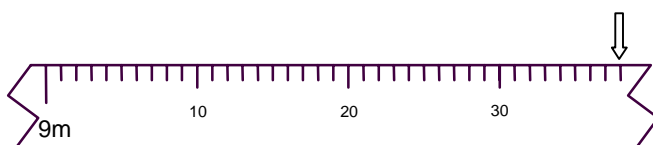
**a.**

Sh! Don't tell anyone I told you, but the answer to the first one is **4 260 mm** and **4.260 m**!

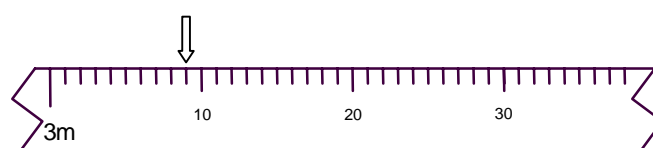
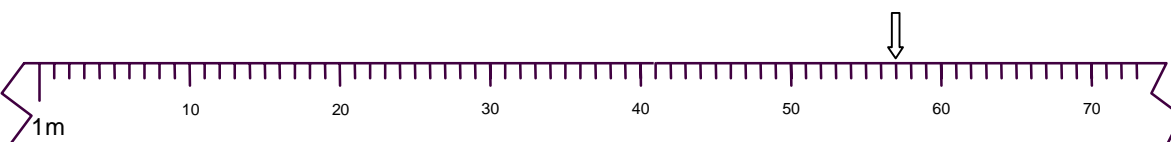
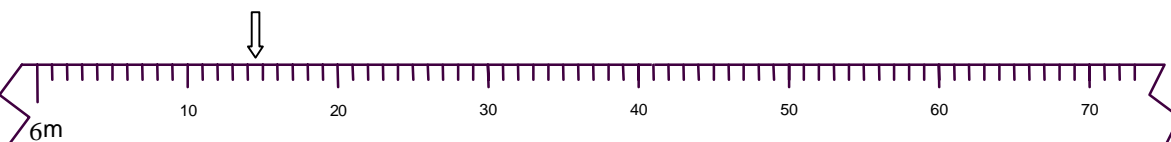
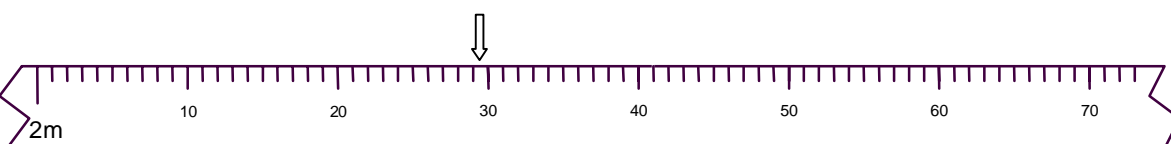
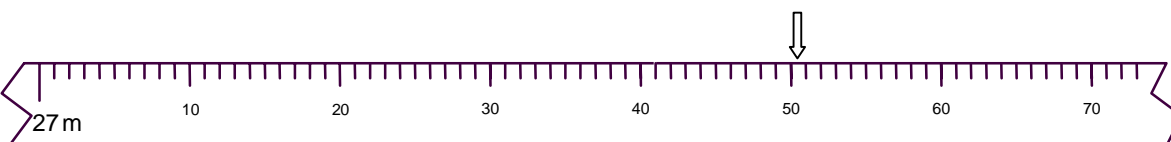
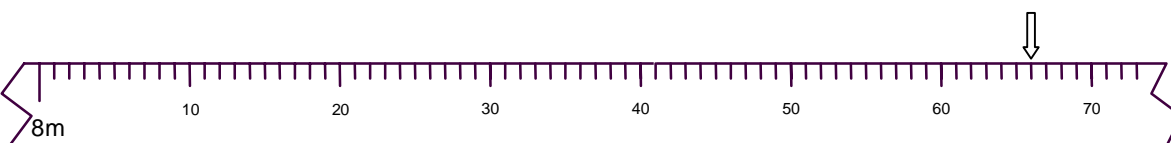
**b.****c.****d.****e.****f.****g.**

**Giving measurements of length in millimetres and metres**

1. For each diagram, give the reading shown on the measuring tapes by the arrow in **millimetres** and then in **metres**.

**a.**

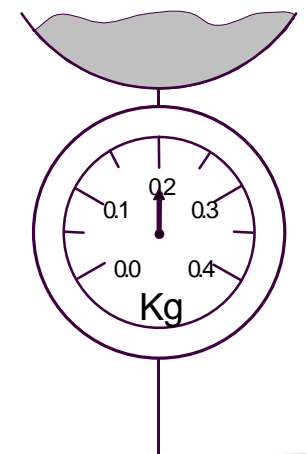
Don't forget to give your answers in **millimetres** and in **metres**!

**b.****c.****d.****e.****f.****g.**

Giving measurements of mass in grams

1. Can you say how much stuff is on the weighing balance? Give your answer first in **kilograms** and then in **grams**.

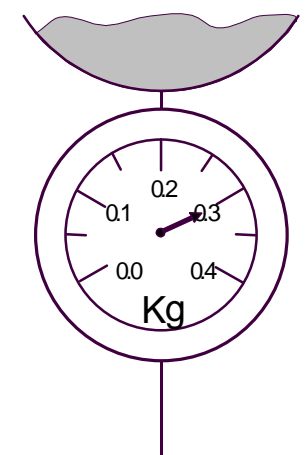
a.



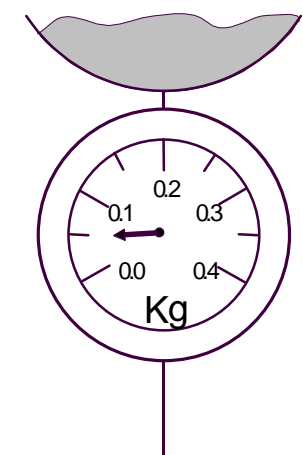
Hurry up, please. I need those scales to make a cake. You know how much we Maths Rats love cake!



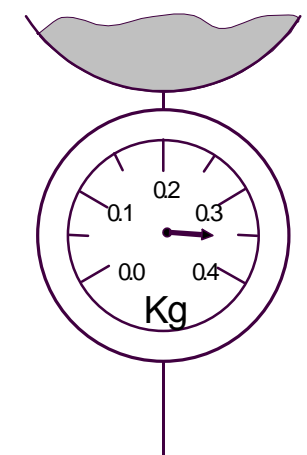
b.



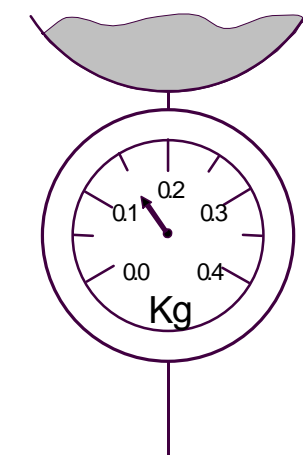
c.



d.



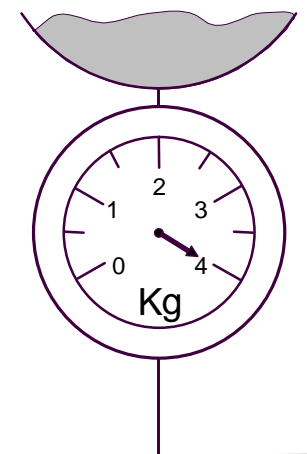
e.



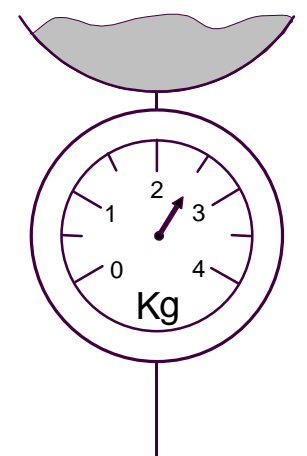
Giving measurements of mass in grams

1. Can you say how much stuff is on the weighing balance? Give your answer first in **kilograms** and then in **grams**.

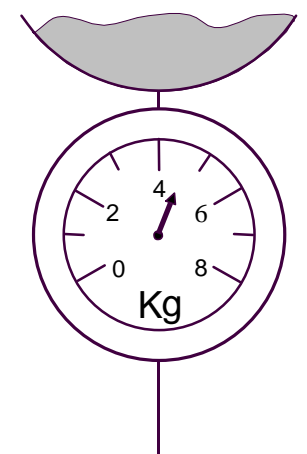
a.



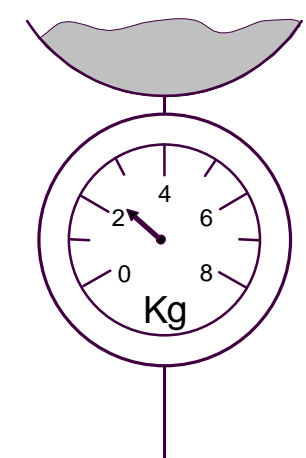
b.



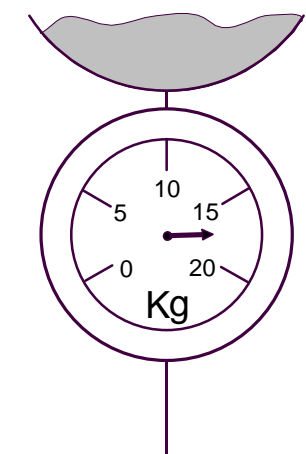
d.



c.



e.



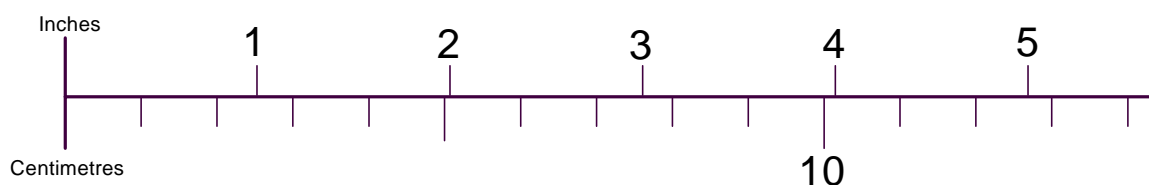
Look at the scales carefully. Don't get caught out!





Reading metric/imperial scales

1. Use the following scales to answer the questions.



- How many centimetres are there in 4 inches ?  
Give your answer as accurately as you can.
- How many centimetres are there in 5 inches ?
- How many inches are there in 7.5 centimetres ?
- How many inches are there in 5 centimetres ?

Why don't we just use one set of units,  
like they do in most other countries?

Yes, yes. I agree!!!

Me too!!!

And me!!!

Don't forget me. I agree!!!

Yes, yes. Why, why!!!

Who says we can't!!!

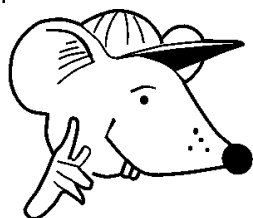
I think so too!!!

Oh dear, my head  
hurts!!!

**Changing units of measurement**

Fill in the missing gaps in the table. The first one has been done for you.

Measurement in Large Units	Measurement in small units
E.g. 5 738 grams	5.738 kilograms
6 047 grams	
	7.934 litres
8 900 millimetres	
12 527 millilitres	
	34.833 litres
6 000 grams	
	4.944 metres
	7 metres
	16.733 kilograms



Don't forget that  
'Kilo' means 1000 !

Does that mean there are 1000  
whales in a killer whale?

**Rounding to nearest unit and tenth of a unit**

**1. Round these to the nearest kilogram and the nearest tenth of a kilogram.**

E.g. **8 364 g** is **8 kg** to the nearest kilogram and **8.4 kg** to the nearest tenth of a kilogram.

- |             |             |             |
|-------------|-------------|-------------|
| a. 34 838 g | b. 3 888 g  | c. 10 733 g |
| d. 16 396 g | e. 8 345 g  | f. 89 322 g |
| g. 73 844 g | h. 9 373 g  | i. 6 999 g  |
| j. 4 869 g  | k. 38 455 g | l. 17 382 g |

**2. Round these to the nearest litre and the nearest tenth of a litre.**

E.g. **6 593 ml** is **7 litres** to the nearest litre and **6.6 litres** to the nearest tenth of a litre.

- |              |             |              |
|--------------|-------------|--------------|
| a. 7 845 ml  | b. 6 433 ml | c. 9 845 ml  |
| d. 64 366 ml | e. 2 837 ml | f. 28 393 ml |
| g. 4 833 ml  | h. 948 ml   | i. 7 373 ml  |
| j. 848 ml    | k. 399 ml   | l. 920 ml    |

**3. Round these to the nearest metre and the nearest tenth of a metre.**

E.g. **8 364 mm** is **8 metres** to the nearest metre and **8.4 metres** to the nearest tenth of a metre.

- |              |              |              |
|--------------|--------------|--------------|
| a. 24 136 mm | b. 4 985 mm  | c. 23 684 mm |
| d. 21 490 mm | e. 3 725 mm  | f. 39 418 mm |
| g. 75 184 mm | h. 1 683 mm  | i. 3 886 mm  |
| j. 6 632 mm  | k. 37 149 mm | l. 22 034 mm |

**Rounding to nearest unit and tenth of a unit**

**1. Round these to the nearest kilogram and the nearest tenth of a kilogram.**

E.g. **8 364 g** is **8 kg** to the nearest kilogram and **8.4 kg** to the nearest tenth of a kilogram.

- |             |             |             |
|-------------|-------------|-------------|
| a. 58 944 g | b. 9 674 g  | c. 74 633 g |
| d. 78 455 g | e. 23 756 g | f. 15 477 g |
| g. 27 844 g | h. 5 346 g  | i. 8 765 g  |
| j. 8 435 g  | k. 7 234 g  | l. 74 466 g |

**2. Round these to the nearest litre and the nearest tenth of a litre.**

E.g. **6 593 ml** is **7 litres** to the nearest litre and **6.6 litres** to the nearest tenth of a litre.

- |             |             |             |
|-------------|-------------|-------------|
| a. 8 543 ml | b. 8 582 ml | c. 1 111 ml |
| d. 4 444 ml | e. 5 555 ml | f. 50 ml    |
| g. 783 ml   | h. 4 322 ml | i. 9 670 ml |
| j. 9 734 ml | k. 9 688 ml | l. 4 633 ml |

**3. Round these to the nearest metre and the nearest tenth of a metre.**

E.g. **8 364 mm** is **8 metres** to the nearest metre and **8.4 metres** to the nearest tenth of a metre.

- |              |              |               |
|--------------|--------------|---------------|
| a. 76 466 mm | b. 67 499 mm | c. 52 349 mm  |
| d. 76 584 mm | e. 8 564 mm  | f. 8 500 mm   |
| g. 6 500 mm  | h. 67 500 mm | i. 7 499 mm   |
| j. 999 mm    | k. 1 000 mm  | l. 100 000 mm |

Answers**Page 5**

- a.** 4 260 mm 4.260 m    **b.** 7 380 mm 7.380 m    **c.** 9 570 mm 9.570 mm  
**d.** 3 340 mm 3.340 m    **e.** 415 mm 0.415 m    **f.** 12 365 mm 12.365 m  
**g.** 5 715 mm 5.715 m

**Page 6**

- a.** 9 380 mm 9.380 m    **b.** 3 090 mm 3.090 m    **c.** 1 570 mm 1.570 mm  
**d.** 6 145 mm 6.145 m    **e.** 2 295 mm 2.295 m    **f.** 27 505 mm 27.505 m  
**g.** 8 660 mm 8.660 m

**Page 7**

- a.** 0.2 kg 200 g    **b.** 0.3 kg 300 g    **c.** 0.05 kg 50 g  
**d.** 0.35 kg 350 g    **e.** 0.15 kg 150 g

**Page 8**

- a.** 4 kg 4 000 g    **b.** 2.5 kg 2 500 g    **c.** 2.5 kg 2 500 g (just less, actually!)  
**d.** 4.5 kg 4 500 g    **e.** 17.5 kg 17 500 g

**Page 9**

- 1. a.** 10.2 cm    **b.** 12.7 cm    **c.** 2.9"    **d.** 1.99 inches

**Page 10**

- |                  |                 |
|------------------|-----------------|
| 5 738 g          | 5.738 kg        |
| 6 047 g          | <b>6.047 kg</b> |
| <b>7 934 ml</b>  | 7.934 l         |
| 8 900 ml         | <b>8.900 l</b>  |
| 12 527 ml        | <b>12.527 l</b> |
| <b>34 833 ml</b> | 34.833 l        |
| 6 000 g          | <b>6.000 kg</b> |
| <b>4 944 mm</b>  | 4.944 m         |
| <b>7 000 mm</b>  | 7 m             |
| <b>16 733 g</b>  | 16.733 kg       |

**Page 11**

- 1.**  
**a.** 35 kg 34.8 kg    **b.** 4 kg 3.9 kg    **c.** 11 kg 10.7 kg  
**d.** 16 kg 16.4 kg    **e.** 8 kg 8.3 kg    **f.** 89 kg 89.3 kg  
**g.** 74 kg 73.8 kg    **h.** 9 kg 9.4 kg    **i.** 7 kg 7.0 kg  
**j.** 5 kg 4.9 kg    **k.** 38 kg 38.5 kg    **l.** 17 kg 17.4 kg

## Answers

### Page 11 Cont.

2.

- a. 81 7.81 b. 61 6.41 c. 101 9.81  
d. 641 64.41 e. 31 2.81 f. 281 28.41  
g. 51 4.81 h. 11 0.91 i. 71 7.41  
j. 11 0.81 k. 01 0.41 l. 11 0.91

3.

- a. 24 m 24.1 m b. 5 m 5.0 m c. 24 m 23.7 m  
d. 21 m 21.5 m e. 4 m 4.7 m f. 39 m 39.4 m  
g. 75 m 75.2 m h. 2 m 1.7 m i. 4 m 3.9 m  
j. 7 m 6.6 m k. 37 m 37.1 m l. 22 m 22.0 m

### Page 12

1.

- a. 59 kg 58.9 kg b. 10 kg 9.7 kg c. 75 kg 74.6 kg  
d. 78 kg 78.5 kg e. 24 kg 23.8 kg f. 15 kg 15.5 kg  
g. 28 kg 27.8 kg h. 5 kg 5.3 kg i. 9 kg 8.8 kg  
j. 8 kg 8.4 kg k. 7 kg 7.2 kg l. 74 kg 74.5 kg

2.

- a. 91 8.51 b. 91 8.61 c. 11 1.11  
d. 41 4.41 e. 61 5.61 f. 01 0.11  
g. 11 0.81 h. 41 4.31 i. 101 9.71  
j. 101 9.71 k. 101 09.71 l. 51 4.61

3.

- a. 76 m 76.5 m b. 67 m 67.5 m c. 52 m 52.3 m  
d. 77 m 76.6 m e. 9 m 8.6 m f. 9 m 8.5 m  
g. 7 m 6.5 m h. 68 m 67.5 m i. 7 m 7.5 m  
j. 1 m 1.0 m k. 1 m 1.0 m l. 100 m 100.0 m