Units of measurement

- Converting between metric units of length, area, volume and mass
- Justifying an appropriate degree of accuracy for a measurement
- Making rough conversions between metric and imperial measures

Keywords

You should know

explanation 1a   explanation 1b   explanation 1c

1 Copy and complete each statement.

a 8 km = ☐ m

b 1500 m = ☐ km

c 8.5 m = ☐ cm

d 70 cm = ☐ mm

e 0.65 m = ☐ mm

f 560 cm = ☐ km

g 2 hectares = ☐ m^2

h 5400 cm^2 = ☐ m^2

i 875 g = ☐ kg

j 1.305 kg = ☐ g

k 3.5 litres = ☐ cm^3

l 950 litres = ☐ m^3

2 Copy and complete the table. Choose from the items shown.
One has been done for you. Some items might not be used.

	Approximate measure	Type of measure	Item
	2 m	length	door
a	1 tonne		
b	750 ml		
c	7500 m^2		
d	100 g		
e	10 m		
f	480 mm^2		
g	200 litres		
h	1 kg		
i	50 cm^2		
j	15 cm		

3 On average, a person lives for about 40 000 000 minutes.

  a Giving your answers to one decimal place, work out how long this is in

   i hours

   ii days

   iii years

> In part **a iii**, assume that every year has 365 days.

  b How many leap years are there in an average lifetime?
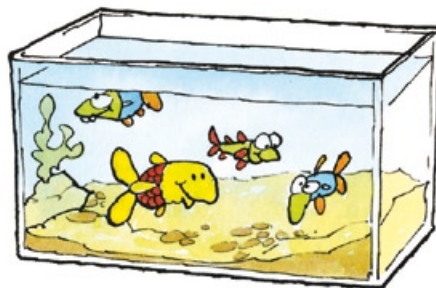 Give your answer to the nearest whole number.

> Hint: about one in every four years is a leap year. 'One in four' is the same as one quarter.

  c Taking leap years into account, convert your answer to part **a iii** into minutes.

   Is your answer longer or shorter than 40 000 000 minutes?

   Explain whether you think the difference is significant.

4 A fish tank is in the shape of a cuboid.
It can hold a maximum of 27 litres.
The base of the tank is made of plastic.
It is 25 cm wide and 50 cm long.

  a What is the height of the fish tank?

  b What is the area of glass needed to make the four sides of the tank?

5 Anthony is writing to his pen pal who lives in Paris.

  a Anthony says that the distance from Manchester to Paris is 600 km.
  What do you think this measurement is correct to?

   i To the nearest 10 metres   **ii** To the nearest 100 metres

   iii To the nearest kilometre   **iv** To the nearest 10 kilometres

  b Anthony says that the flight from Manchester to Paris takes 1.5 hours.
  What do you think this measurement is correct to?

   i To the nearest second   **ii** To the nearest 10 seconds

   iii To the nearest minute   **iv** To the nearest 10 minutes
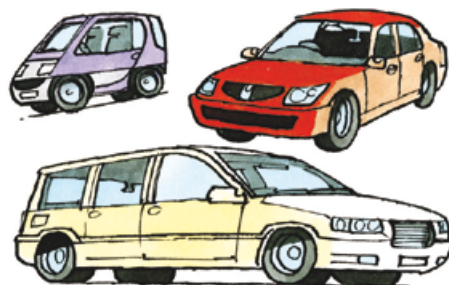
   v To the nearest hour
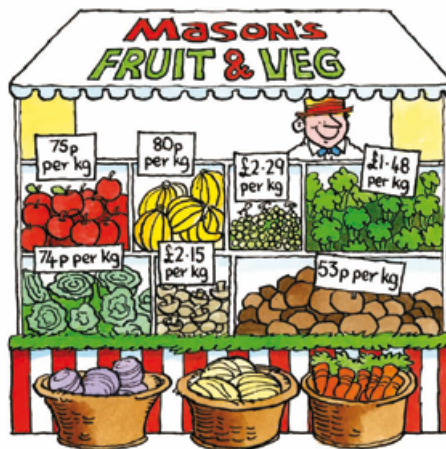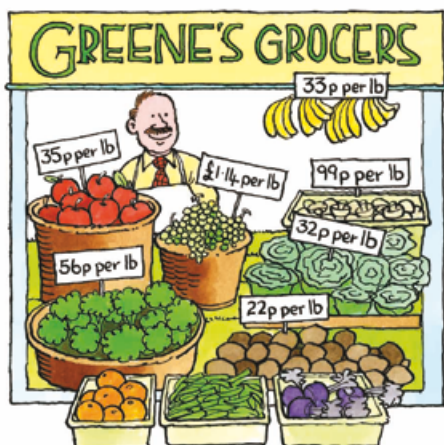
explanation 2a   explanation 2b   explanation 2c

6 Approximately how many gallons will
these fuel tanks hold?
Give your answers to the nearest gallon.

   a 55 litres

   b 75 litres

   c 80 litres

7 a Convert these amounts to pounds. Write your answers to the nearest 0.1 lb.

   i 1 kg   **ii** 1.5 kg   **iii** 500 g

   b Convert these amounts to kilograms. Write your answers to the nearest 0.1 kg.

   i 2 lb   **ii** $5\frac{1}{2}$ lb

GREENE'S GROCERS

33p per lb
35p per lb
£1·14 per lb
99p per lb
32p per lb
56p per lb
22p per lb

MASON'S FRUIT & VEG

75p per kg
80p per kg
£2·29 per kg
£1·48 per kg
74p per kg
£2·15 per kg
53p per kg

   c Sharon is going shopping. This is her shopping list.

   Work out how much each item would cost to the
   nearest penny at

   i Greene's Grocers   **ii** Mason's Fruit & Veg

   d Sharon wants to do all her shopping at one shop.

   Which shop should she choose if she wants to pay as little as possible?

1 kg bananas
2 lb mushrooms
500 g grapes
1.5 kg apples
$5\frac{1}{2}$ lb potatoes

8 In an athletics competition, Rosa runs in both the mile and the 1500 metres
races. Which race is longer and by how far?
Give your answer to the nearest 10 metres.