1) Use the bar models to help you to solve the following questions.

a) A plane is loaded with three crates. Each crate has a mass of 3300kg. It is then filled with fuel. The mass of the fuel is twice the mass of a crate. What is the total mass of the cargo and fuel in tonnes?

Total mass = _____			
Crate	Crate	Crate	Fuel

b) A climber has climbed $\frac{7}{8}$ of the way up a mountain and stops to rest 450m away from the summit. How high is the mountain in kilometres?

Total Height of Mountain = _____							
							450m

2) Solve the following questions, using a bar model to help when needed.

a) I walk for 1650m, cycle for 5.4km and run for 2.12km. How far did I travel altogether? Give your answer in km.

b) A fish tank contains 10500ml of water. A bucket holds 1.75l of water. How many buckets of water will I need in order to fill my fish tank?

3) Some children are measuring the lengths of different items in their classroom:

Bookshelf = 0.8m
Exercise book = 30.5cm
Pencil = 140mm
Reading book = 12.5cm
Chair = $1\frac{1}{4}$m

What do the items measure altogether in metres?

1) Three children record their answer to this problem.

The milk bottle holds 1900ml. I poured the same amount of milk into three cups and had 1675ml left in the bottle. How much milk is in each cup?

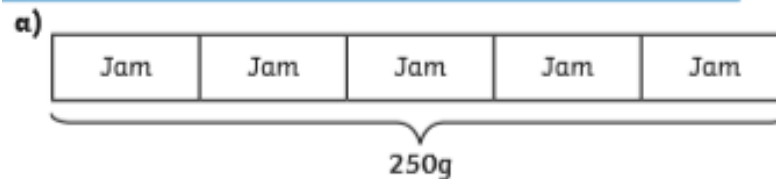| Jessica:	Jacob:	George:
7.5l	**0.075l**	**0.75l**

Which child has given the correct answer? Explain how you know.

2) Which bar model best represents this problem? Solve the problem and explain your answer.

Five equally sized jars of jam and a 250g jar of pickles have a mass of 0.9kg altogether. Give the mass of one jar of jam.

a)

Jam	Jam	Jam	Jam	Jam

250g

b)

Pickles - 250g	Jam

0.9kg

c)

Jam	Jam	Jam	Jam	Jam	Pickles - 250g

0.9kg

1) Use the statements to match each volume of orange squash given below to each of the bottles.

Volumes:

0.11l	0.25l
0.9l	775ml
150ml	

A

Contains more than bottle B but less than Bottle C.

B

Contains between 0.1 and 0.2l.

C

Contains 0.025l more than $\frac{3}{4}$ l.

D

Contains a lower volume of orange squash than Bottle B.
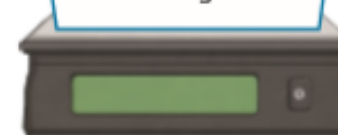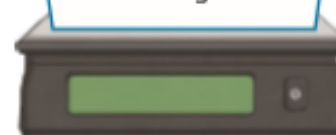
E

Contains more than bottle C.

2) a) A teacher is buying pencils for the school.

Each pencil has a mass of 2.35g. There are 38 pencils in each box. The teacher decides to buy 30 boxes of pencils for the school.

Give the total mass of the pencils she has bought, in kilograms.

5-6 kilograms

1-2 kilograms

b) In the factory that makes the pencils, each order for boxes of pencils is placed on a set of scales before it is sent out.

What is the most number of boxes and least number of boxes that could be on each set of scales?

ANSWERS

1) a)

Total mass = 16.5 tonnes			
Crate 3300kg	Crate 3300kg	Crate 3300kg	Fuel 6600kg

b)

Total Height of Mountain = 3.6km							
450m	450m	450m	450m	450m	450m	450m	450m

2) a) 9.17km

b) 6 buckets

3) 2.62m
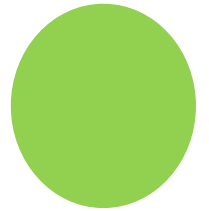
1) The correct answer belongs to Jacob.

   $0.075l = 75ml$

   $75ml \times 3 = 225ml$

   $225ml + 1675ml = 1900ml$

2) Bar model C best represents the problem as we know the total mass the jars is 0.9kg or 900g. The model shows that there is one pickle jar which has a mass of 250g and five jars of jam. We can work out that the jam jars have a total mass of 900g − 250g which is 650g. To find the mass of each jar, $650g \div 5 = 130g$
   One jar has a mass of 130g.

1) $0.11l$ = Bottle D

   $0.9l$ = Bottle E

   $150ml$ = Bottle B

   $0.25l$ = Bottle A

   $775ml$ = Bottle C

2) a) Mass of one box: $2.35g \times 38 = 89.3g$
      Mass of 30 boxes: 2.679kg

   b) 5-6 kilograms: Least is 56 boxes and most is 67
      1-2 kilograms: Least is 12 boxes and most is 22