Metric measures

1 Sort the metric units into the correct categories.

ml	mm	g	kg	tonne	l	km

Mass	Length	Capacity

2 Match the measure to its definition.

length	how much an object weighs
volume	the amount of space enclosed by a container
mass	how much of a solid, liquid or gas an object can hold
capacity	the measurement of something from end to end

3 Circle the most appropriate unit for each item.

a) the mass of an elephant

g kg l tonnes

b) the length of a classroom

cl cm m km

c) the capacity of a water bottle

cm^3 m^3 ml l

d) the length of a fly

mm cm m mg

4 Circle the best estimate for each item.

a) the capacity of a glass

2 ml 20 ml 200 ml 2,000 ml

b) the length of a rounders bat

50 mm 50 cm 50 m 50 km

c) the mass of a car

1.5 g 1.5 kg 1.5 tonnes 15 kg

d) the length of a football pitch

100 cm 100 m 100 km 100 mm

5 Estimate the length of your classroom. Give units with your answer.

Compare answers with a partner.

6

It's impossible to measure the school field using centimetres!

Do you agree with Mo? _____

Explain your thinking.

_____

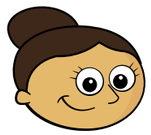
_____

_____

7 Estimate how much water it would take to fill a bath.

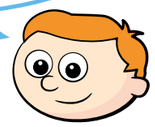
Explain your estimate to a partner.

8 Dora and Ron are estimating the capacity of a jug.



The capacity of a jug is approximately 1 litre.

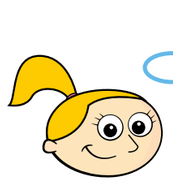
The capacity of a jug is approximately 600 ml.



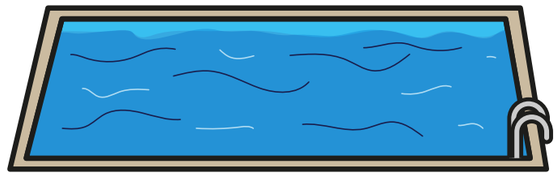
They could both be correct.

Talk about why with a partner.

9 Eva is thinking about how to estimate the capacity of a swimming pool.



I know that a metal can holds roughly 200 ml of liquid. So to find out the capacity of a swimming pool, I could just imagine how many cans could fit into it!



Create your own way of estimating the capacity of a swimming pool.

_____

_____

_____

_____

10

I wonder how heavy our school is.

Write a plan to estimate the mass of your school.

_____

_____

_____

Convert metric measures

1 How many centimetre cubes can you fit along a metre stick?

What does this tell you?

2 Complete the sentences.

a) There are ☐ grams in 1 kilogram.

There are ☐ kilograms in one tonne.

b) There are ☐ millilitres in 1 litre.

c) There are ☐ millimetres in 1 centimetre

There are ☐ centimetres in 1 metre.

There are ☐ metres in 1 kilometre.

3 Complete the bar models.

a)

1 km	1 km	1 km	1 km
1,000 m	1,000 m		

There are ☐ m in 4 km.

b)

1 kg	1 kg	1 kg	1 kg	1 kg	1 kg	$\frac{1}{2}$ kg
1,000 g	1,000 g	1,000 g				

There are ☐ g in $6\frac{1}{2}$ kg.

4 Complete the conversions.

a) 2 kg = ☐ g

5 kg = ☐ g

10 kg = ☐ g

12kg = ☐ g

b) 1 l = ☐ ml

5 l = ☐ ml

11 l = ☐ ml

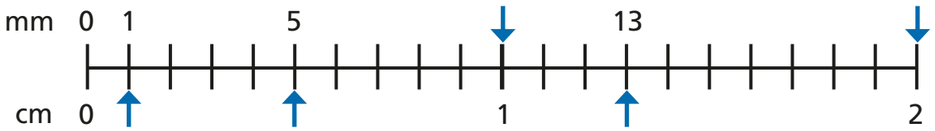
5 A bag of dog food weighs 2.5 kg.

Write this weight in grams.

☐

6 What measurements are the arrows pointing to?

Label them on the number line.



7 Complete the conversions.

a) 10 mm = ☐ cm ☐ mm = 1.1 cm

11 mm = ☐ cm ☐ mm = 10.1 cm

☐ mm = 11 cm

b) 2.1 km = ☐ m 2.01 km = ☐ m

2.001 km = ☐ m 2.011 km = ☐ m

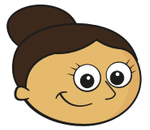
8 Write > , < or = to complete the statements.

a) 100 m ◯ 1 km **b)** 5.1 l ◯ 5,100 ml

10 m ◯ 10 cm 607 l ◯ 0.607 ml

10.1 mm ◯ 101 cm 0.05 l ◯ 5 ml

9 Dora and Amir are trying to convert 1.05 metres into millimetres.



Dora: You can multiply 1.05 by 100 to convert it into centimetres, then multiply the product by 10 to convert it into millimetres.

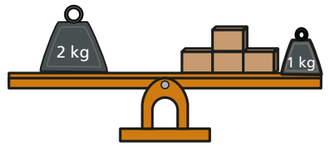
Amir: You can just multiply 1.05 by 1,000!

Who do you agree with? _____

Explain your thinking.

10 What is the mass of one of the boxes?

Give your answer in grams.



☐

11 There are 1,000 kg in one tonne.

a) How many grams are there in one tonne?

☐

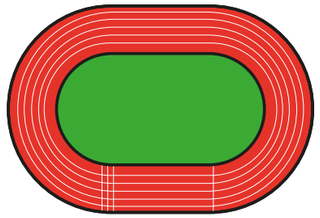
b) A car weighs 1.3 tonnes.

Write the weight of the car in grams.

☐

Calculate with metric measures

1 An Olympic racetrack is 400 metres all the way around.



a) Jack runs 2 laps.

How far does Jack run?

m

b) Rosie runs 3 laps.

How far does Rosie run?

Write your answer in metres and kilometres.

m km

c) Amir runs 4 km.

How many laps does Amir run?

d) Eva runs 10 km.

How many laps does Eva run?

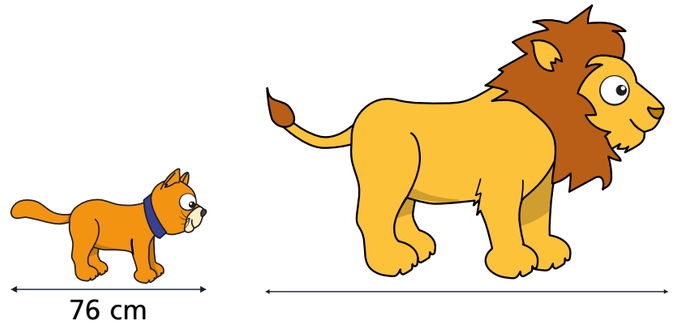
2 Mo has 2 litres of orange juice.

He drinks 200 ml.

He then shares the rest equally between 6 glasses.

How much orange juice is poured into each glass?

3 A cat measures 76 cm from its nose to its tail.



The length of a lion is 3 times as long as a cat.

How long is a lion?

Give your answer in **metres**.

4 The length of a swimming pool is 25 m.

Rosie swims 600 m.

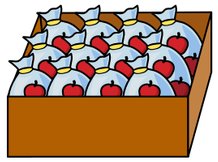
Tommy swims 1 km.

How many more lengths did Tommy swim than Rosie?

Compare methods with a partner.

5 A bag of apples weighs 350 g.

A box can hold 12 bags of apples.



What would be the mass of 20 boxes of apples?

Give your answer in **kilograms**.

6 Dani is collecting rainwater in a 1-litre jug.

On Monday, she collects 220 ml of water.

On Tuesday, she collects a quarter of a litre of water.

At the end of Wednesday, Dani sees she only needs another 0.1 litres until her jug is full.

How much water did Dani collect on Wednesday?

7 Jack wants to find out the mass of his suitcase.

Jack weighs 34.5 kg.

He steps onto the scales and it shows 47 kg and 200 g.

How heavy is his suitcase?

8 A bag contains 200 sweets.

Each sweet weighs 1.5 g.

The bag itself weighs 16 g.

Huan has some bags of sweets. The total mass is 1.264 kg.

How many bags of sweets does Huan have?

9 Here is a recipe for 8 cupcakes.

a) Complete the recipe for 24 cupcakes.

Cupcakes (makes 24)

☐ butter

☐ sugar

☐ eggs

☐ vanilla extract

☐ flour

☐ milk

Cupcakes (makes 8)

100 g butter
100 g sugar
2 eggs
1 tsp vanilla extract
120 g flour
4 tbsp milk

b) Mo has half a kilogram of butter and plenty of the other ingredients.

What is the greatest number of cupcakes he can make using this recipe?

Miles and kilometres

1 Tick the statements that are true.

Use the bar model to help you.

1 mile	1 mile	1 mile	1 mile	1 mile

1 km	1 km	1 km	1 km	1 km	1 km	1 km	1 km

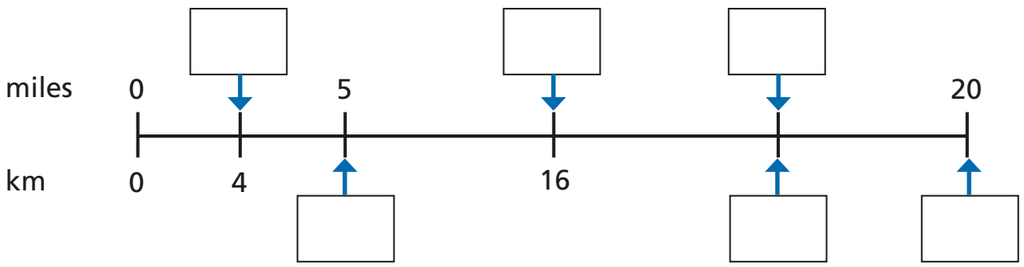
a) 5 miles is approximately equal to 8 kilometres. ☐

b) 1 mile is longer than 1 kilometre. ☐

c) 2 kilometres is longer than 1 mile. ☐

d) 2 kilometres is longer than 2 miles. ☐

2 Fill in the missing numbers on the number line.



3 Complete the conversions.

a) 5 miles ≈ ☐ kilometres

10 miles ≈ ☐ kilometres

15 miles ≈ ☐ kilometres

b) ☐ miles ≈ 16 kilometres

☐ mile ≈ 1.6 kilometres

☐ miles ≈ 0.8 kilometres

4 Complete the conversions.

a) ☐ miles ≈ 160 km

b) 45 miles ≈ ☐ km

c) ☐ ≈ 640 km

d) 95 miles ≈ ☐ km

e) 7.5 miles ≈ ☐ km

f) 2 miles ≈ ☐ km

5

If 5 miles is approximately 8 kilometres, then 10 miles is approximately 13 kilometres.

Here is Whitney's working out.

+ 5 ↷ 5 miles ≈ 8 km
10 miles ≈ 13 km ↶ + 5

Explain Whitney's mistake.

6 A marathon is approximately 26.2 miles.

How far is this in kilometres?

7 The maximum speed limit on residential roads in the UK is 30 miles per hour.

In France, the maximum speed limit on residential roads is 50 kilometres per hour.

a) Which country has the higher speed limit for these roads?

_____

b) What is the difference between the speed limits in miles per hour?

8 Esther cycles 70 miles over 4 days.

On day 1 she cycles 14 miles.

On day 2 she cycles 32 km.

On day 4 she cycles twice as far as she does on day 3

How far does she cycle on day 4?

Give units with your answer.

9 Use a map of your local area.

Find something that is approximately:

a) 1 mile away from your school

_____

b) 1 km away from your school

_____

c) 5 miles away from your school

_____

d) 5 km away from your school

_____

Compare answers with a partner.

Imperial measures

1 Sort the measures into the table.

The first one has been done for you.

gram	pound	ounce	foot
kilogram	centimetre	inch	stone
gallon	millilitres	litres	kilometres

	Metric	Imperial
Mass	gram	
Capacity		
Length		

2 Fill in the missing numbers.

a) 1 foot is equal to ☐ inches.

1 inch is approximately ☐ centimetres.

b) 1 pound is equal to ☐ ounces.

1 stone is equal to ☐ pounds.

c) 1 gallon is equal to ☐ pints.

3 Complete the conversions.

a) 1 foot = ☐ inches

2 feet = ☐ inches

10 feet = ☐ inches

20 feet = ☐ inches

15 feet = ☐ inches

b) 1 gallon = ☐ pints

☐ gallons = 40 pints

☐ gallons = 48 pints

☐ gallons = 960 pints

4 The world's tallest man was 8 feet and 11 inches tall.

a) What was his height in inches?

☐ inches

b) Approximately how tall was he in centimetres?

cm

5 1 pound = 16 ounces

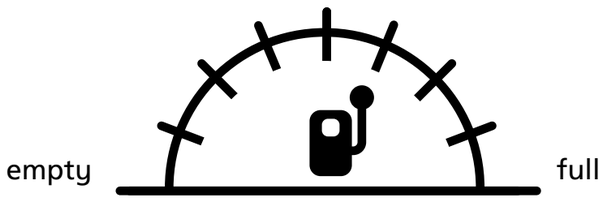
1 stone = 14 pounds

Given these facts, how many ounces are in 1 stone?

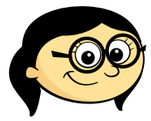
6 Mr White's car has a fuel tank that can hold 16 gallons of petrol.

a) His tank is a quarter full.

Draw an arrow to show how much petrol is in his tank.



b)



Mr White needs another 96 pints of petrol to fill his tank.

Is Annie correct? _____

Show your working out to support your answer.

7 Design a poster that could help someone remember the different imperial units and their conversions.