

LO: To convert metric measurements involving weight (g and kg)

How many grams in a kilogram? (remember to think about what 'kilo' means)

$$1000\text{g} = 1\text{kg}$$

Like last week, we are using our knowledge of multiplying and dividing by 1000 to convert these measurements.

Why is this useful?

You might be asked a question where the units are different.

You might be making a cake/recipe and have to scale it up to feed more people.

The bar model shows that 1 kg is equal to 1,000 g.

Use the bar models to complete the conversions.

1 kg
1,000 g

a)

1 kg	1 kg	1 kg

$$3 \text{ kg} = \boxed{} \text{ g}$$

b)

1 kg	1 kg	1 kg	1 kg	1 kg

$$5 \text{ kg} = \boxed{} \text{ g}$$

c)

1,000 g	1,000 g	1,000 g	1,000 g

$$\boxed{} \text{ kg} = 4,000 \text{ g}$$

Answer:

The bar model shows that 1 kg is equal to 1,000 g.

Use the bar models to complete the conversions.

1 kg
1,000 g

a)

1 kg	1 kg	1 kg
1,000 g	1,000 g	1,000 g

3 kg = 3,000 g

b)

1 kg	1 kg	1 kg	1 kg	1 kg
1,000 g	1,000 g	1,000 g	1,000 g	1,000 g

5 kg = 5,000 g

When converting, you can use the bar model to help or look back at Fridays notes for moving digits to X and \div by 1000.

Now have a go at these:

Have practice of these fluency questions - some are kg to g and some km to m:

Complete the conversions.

- a) 18 kg = g
- b) 18 km = m
- c) 21,000 g = kg
- d) 32,500 m = km
- e) 11.5 km = m
- f) g = 41.2 kg
- g) g = 0.1 kg
- h) 100 km = m

Answer:

Complete the conversions.

- a) 18 kg = 18,000 g
- b) 18 km = 18,000 m
- c) 21,000 g = 21 kg
- d) 32,500 m = 32.5 km
- e) 11.5 km = 11,500 m
- f) 41,200 g = 41.2 kg
- g) 100 g = 0.1 kg
- h) 100 km = 100,000 m

Now have a go at this word problem:

Remember to

- Read the question carefully
- Underline any important information
- Choose which calculation you might use to solve it - you might use the bar model to help or draw a picture
- Solve the calculation
- Answer the question (remember to include units)
- Check your answer - does it make sense? Use the inverse or rounding to check your calculation.

A bag of apples weighs 600 g.

How much do 8 bags of apples weigh?

Give your answer in kilograms.

 kg

This problem has more than one step to solve it.

What is the first calculation you need to do?

When do you need to complete a conversion?

Answer:

Firstly:

8 bags at 600g. I need to complete a multiplication.

$$6 \times 8 = 48$$

$600 \times 8 = 4800$ (or 48×100 because 600 is 100 times bigger than 6)

As I need to give my answer in kg and currently I have 4800g I need to complete the calculation

$$4800 \div 1000$$

Remember I can use a place value mat to help. As I am dividing by 1000, the digits need to move 3 places to the right.

Th Thousands	H Hundreds	T Tens	O Ones	• Decimal point	t tenths
4	8	0	0		
			4	.	8

So my answer is 4.8Kg

Now have a go at Maths Activity 1. Solving word problems involving converting measurements

LO: To understand the meaning of 'milli' and use this to convert length and mass units

What words can you think of containing the prefix 'milli'?

Some might include, millimetre or milligram.

What do you think 'milli' means?

Children focus on the use of milli- in units of length and mass.

They understand that milli- means $\frac{1}{1,000}$

What other prefix means a similar thing to 'milli'?

Kilo

So,

1000 millimetres = 1 metre

1000 millilitres = 1 litre

Use your knowledge of converting between kg/g and km/m to complete this fluency question:

The bar model shows that 1 m is equal to 1,000 mm.

Use the bar models to complete the conversions.

1 m
1,000 mm

a)

1 m	1 m	1 m	1 m	1 m	1 m

 6 m = mm

b)

1 m	1 m	1 m

 3 m = mm

c)

1,000 mm	1,000 mm	1,000 mm	1,000 mm	1,000 mm

 m = 5,000 mm

Answer:

The bar model shows that 1 m is equal to 1,000 mm.

Use the bar models to complete the conversions.

1 m
1,000 mm

a)

1 m	1 m	1 m	1 m	1 m	1 m
1,000 mm	1,000 mm	1,000 mm	1,000 mm	1,000 mm	1,000 mm

$$6 \text{ m} = \boxed{6,000} \text{ mm}$$

b)

1 m	1 m	1 m
1,000 mm	1,000 mm	1,000 mm

$$3 \text{ m} = \boxed{3,000} \text{ mm}$$

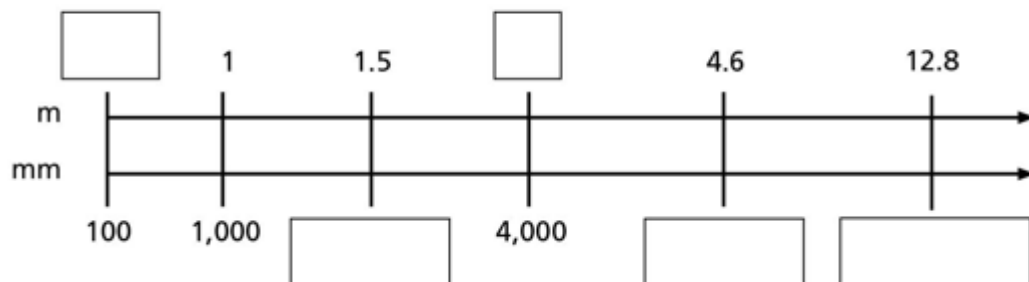
c)

1 m	1 m	1 m	1 m	1 m
1,000 mm	1,000 mm	1,000 mm	1,000 mm	1,000 mm

$$\boxed{5} \text{ m} = 5,000 \text{ mm}$$

You could also use a number line to help:

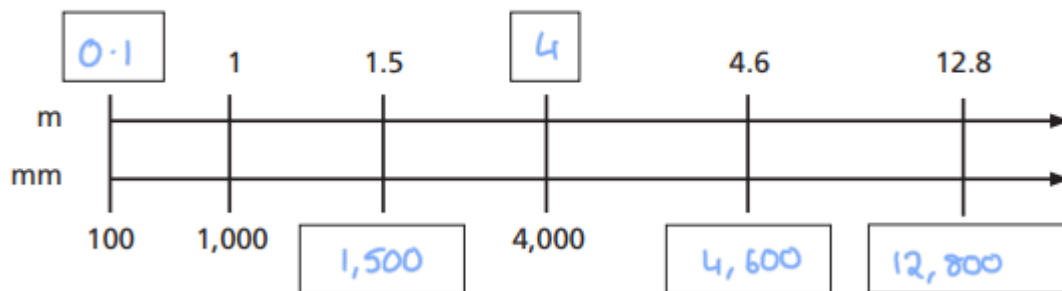
2 Fill in the missing values to convert between metres and millimetres.



Answer:

2

Fill in the missing values to convert between metres and millimetres.



Think about which way is easier for you to understand the conversion. Have a go at this question:

Alex and Jack are converting 3.5 m into millimetres.



I'm going to use bar models.

Alex

I'm going to use a double number line.



Jack

a) Complete both methods to show that they get the same answer.

Alex's method

Jack's method

b) Complete the conversion.

3.5 m = mm

c) Whose method do you prefer? _____

Explain your answer.

Answer:

- 3 Alex and Jack are converting 3.5 m into millimetres.



Alex

I'm going to use bar models.

I'm going to use a double number line.



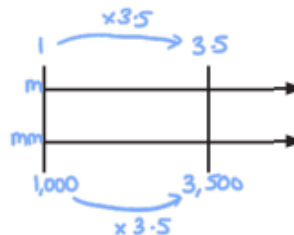
Jack

- a) Complete both methods to show that they get the same answer.

Annie's method

1 m	1 m	1 m	0.5 m
1,000 mm	1,000 mm	1,000 mm	500 mm

Jack's method



- b) Complete the conversion.

$$3.5 \text{ m} = \boxed{3,500} \text{ mm}$$

- c) Whose method do you prefer? various

Explain your answer.

Using either of these methods, complete Activity 2 to convert the measurements.

LO: To understand the meaning of 'milli' and use this to convert length and mass units

How many millilitres in 1 litre?

Think about yesterday's lesson. The same conversion happens to convert between mm and m or ml and l. From what you practised yesterday, complete the following grid using these conversions:

a) $15 \text{ m} = \boxed{} \text{ mm}$

e) $11.05 \text{ m} = \boxed{} \text{ mm}$

b) $15 \text{ l} = \boxed{} \text{ ml}$

f) $\boxed{} \text{ ml} = 71.25 \text{ l}$

c) $63,000 \text{ ml} = \boxed{} \text{ l}$

g) $\boxed{} \text{ mm} = 0.1 \text{ m}$

d) $47,500 \text{ mm} = \boxed{} \text{ m}$

h) $100 \text{ l} = \boxed{} \text{ ml}$

Answer:

Complete the conversions.

a) $15 \text{ m} = \boxed{15,000} \text{ mm}$

e) $11.05 \text{ m} = \boxed{11,050} \text{ mm}$

b) $15 \text{ l} = \boxed{15,000} \text{ ml}$

f) $\boxed{71,250} \text{ ml} = 71.25 \text{ l}$

c) $63,000 \text{ ml} = \boxed{63} \text{ l}$

g) $\boxed{100} \text{ mm} = 0.1 \text{ m}$

d) $47,500 \text{ mm} = \boxed{47.5} \text{ m}$

h) $100 \text{ l} = \boxed{100,000} \text{ ml}$

We can also use our knowledge of fractions in our conversions:

What is $\frac{1}{2}$ of 1000? 500

What is $\frac{1}{4}$ of 1000? 250

What is $\frac{3}{4}$ of 1000? 750

What is $\frac{1}{10}$ of 1000? 100

Using these facts complete these conversions:

$$3 \text{ l} + \frac{1}{4} \text{ l} = \boxed{} \text{ ml} \quad 2 \text{ l} + \boxed{} \text{ ml} = 2,500 \text{ ml}$$

Answer:

3250ml

2l + $\frac{1}{2}$ ml

Now have a go at designing a smoothie using this knowledge -
Activity 3. The instructions are on the sheet.

LO: To solve problems involving conversion of measurements and capacity.

Remember, when we are solving word problems we need to make sure we:

- Read the question carefully
- Underline any important information
- Choose which calculation you might use to solve it - you might use the bar model to help or draw a picture
- Solve the calculation
- Answer the question (remember to include units)
- Check your answer - does it make sense? Use the inverse or rounding to check your calculation.

Using the information learnt over the last couple of days, have a go at solving the word problems attached to Lesson 4 activity. Some of them are trickier than others, so make sure you have a go at all of them.

LO: To convert between different units of length

How many millimetres in a metre?

How many metres in a km?

The answer to both of these is 1000.

How many cm in a m?

How many mm in a cm?

Watch this video to help you answer:

These are the useful conversions:

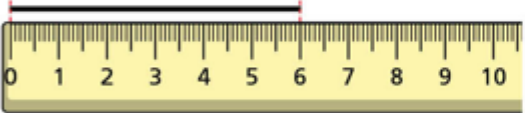



The metric system is used to measure the length, weight or volume of an object. Length is measured in **millimetres (mm)**, **centimetres (cm)**, **metres (m)** or **kilometres (km)**.

- 1 cm = 10 mm
- 1 m = 100 cm
- 1 km = 1000 m
- 1 cm is about the width of a staple
- 1 m is about the width of a single bed

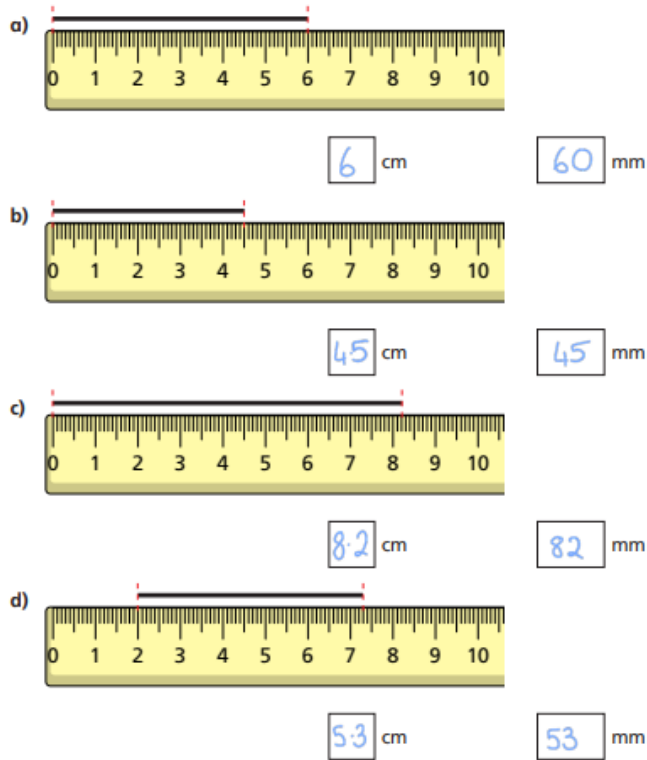
Read these measurements on a ruler and then convert them between cm/mm. You will need to $\times 10$ or $\div 10$ for these conversions.

How long is each line?

Give your answer in both centimetres and millimetres.

a)		<input type="text"/> cm	<input type="text"/> mm
b)		<input type="text"/> cm	<input type="text"/> mm
c)		<input type="text"/> cm	<input type="text"/> mm
d)		<input type="text"/> cm	<input type="text"/> mm

Answer



In today's lesson, we are not just multiplying and dividing by 1000. You will need to decide whether you need to multiply or divide by 10, 100 or 1000 to make your conversions.

Add the calculation you need to do to complete these conversions. The first one has been done for you:

	Calculation
100 cm \rightarrow 1m	$\div 100$
1cm \rightarrow 10mm	
1000m \rightarrow 1km	
2m \rightarrow 200cm	
5cm \rightarrow 50mm	

Answer:

	Calculation
100 cm \rightarrow 1m	$\div 100$
1cm \rightarrow 10mm	$\times 10$
1000m \rightarrow 1km	$\div 1000$
2m \rightarrow 200cm	$\times 100$
5cm \rightarrow 50mm	$\times 10$

Now choose which calculation you need to do to complete these conversions:

Complete the conversions.

a) 15 cm = mm

e) cm = 0.2 m

b) 12 m = cm

f) 4.65 m = cm

c) 16.5 m = cm

g) 52,000 mm = cm

d) mm = 165 cm

h) 52,000 mm = m

Answer:

Complete the conversions.

a) 15 cm = mm

e) cm = 0.2 m

b) 12 m = cm

f) 4.65 m = cm

c) 16.5 m = cm

g) 52,000 mm = cm

d) mm = 165 cm

h) 52,000 mm = m

Now have a go at Maths Activity Lesson 5.

It is a Tarsia puzzle. You need to print it out, cut up all the triangles and then try and place it back together so matching sides are equal. Try without looking back at the complete sheet (which is the answer). To make it harder a grown up could print and cut it up before you have a go at completing it.