Measurement: Beside the Seaside

Aim:	**Success Criteria:**	**Resources:**
Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. I can read, write and convert between standard units of length.	I can multiply by ten, a hundred and a thousand to convert from larger units of length to smaller units. I can divide by ten, a hundred and a thousand to convert from smaller units of length to larger units. I can convert between metric units of length to solve word problems.	**Lesson Pack** Individual whiteboards and pens – class set
	Key/New Words: Convert, kilometre, metre, centimetre, millimetre.	**Preparation:** Differentiated **Converting Metric Units of Length Activity Sheet** – one per child **Extra Challenge Sheet** - as required

Prior Learning: It will be helpful if children know the basic conversions of metric measurements of length.

Learning Sequence

	**What Will I Use?** Children decide the best item to use to measure a variety of objects found at the seaside. They then choose the best unit of measurement to measure the objects.	
	**Using Multiplication and Division to Convert between Units of Length:** Use the **Lesson Presentation** to demonstrate how to use multiplication and division to convert between units of length: one step and more than one step away, for example, metres to centimetres and millimetres to metres. They practise their skills of conversion.	
	**The Seaside Visit: Who is Correct?** The **Lesson Presentation** gives statements regarding the length of objects and places in the context of a visit to the seaside. Children identify which statements are correct, converting between standards units of length.	
	**Which Team Wins?** Children solve a word problem which involves converting, adding and comparing units of length.	
	**Converting Metric Units of Length:** Children complete the differentiated **Converting Metric Units of Length Activity Sheet**, using multiplication and division to convert from larger units of length to smaller units and solving problems which involve conversion.  Children use the chart on their worksheet which shows how to calculate from a larger length unit to a smaller unit, by multiplication and from a smaller length unit to a larger unit, using division. They convert measurements less than ten units, up to two decimal places. They identify an 'odd one out' out of a set of length measurements and explain why this measurement is different. Children solve simple word problems, involving conversion.  Children complete a conversion chart which shows how to calculate from a larger length unit to a small unit, by multiplication and from a smaller length unit to a larger unit, using division. They convert from a larger unit to several units smaller (for example, metres to millimetres). They convert measurements less than ten units, up to three decimal places. They identify an 'odd one out' out of a set of length measurements and explain why this measurement is  Children complete a conversion chart which shows how to calculate from a larger length unit to a small unit, by multiplication and from a smaller length unit to a larger unit, using division. They convert from a larger unit to several units smaller (for example, kilometres to centimetres). They convert measurements more than ten units, up to three decimal places. They write measurements using as many different units as they can. They identify an 'odd one out' out	

		different. Children solve word problems involving conversion.	of a set of length measurements and explain why this measurement is different. Children solve a more complex reasoning style word problem, comparing length measurements written in 3 different units of length. An **Extra Challenge Activity Sheet** is also included.	
	**Back at School:** Children solve a word problem, involving conversion between standard units of length, using addition and subtraction to solve the problem.			

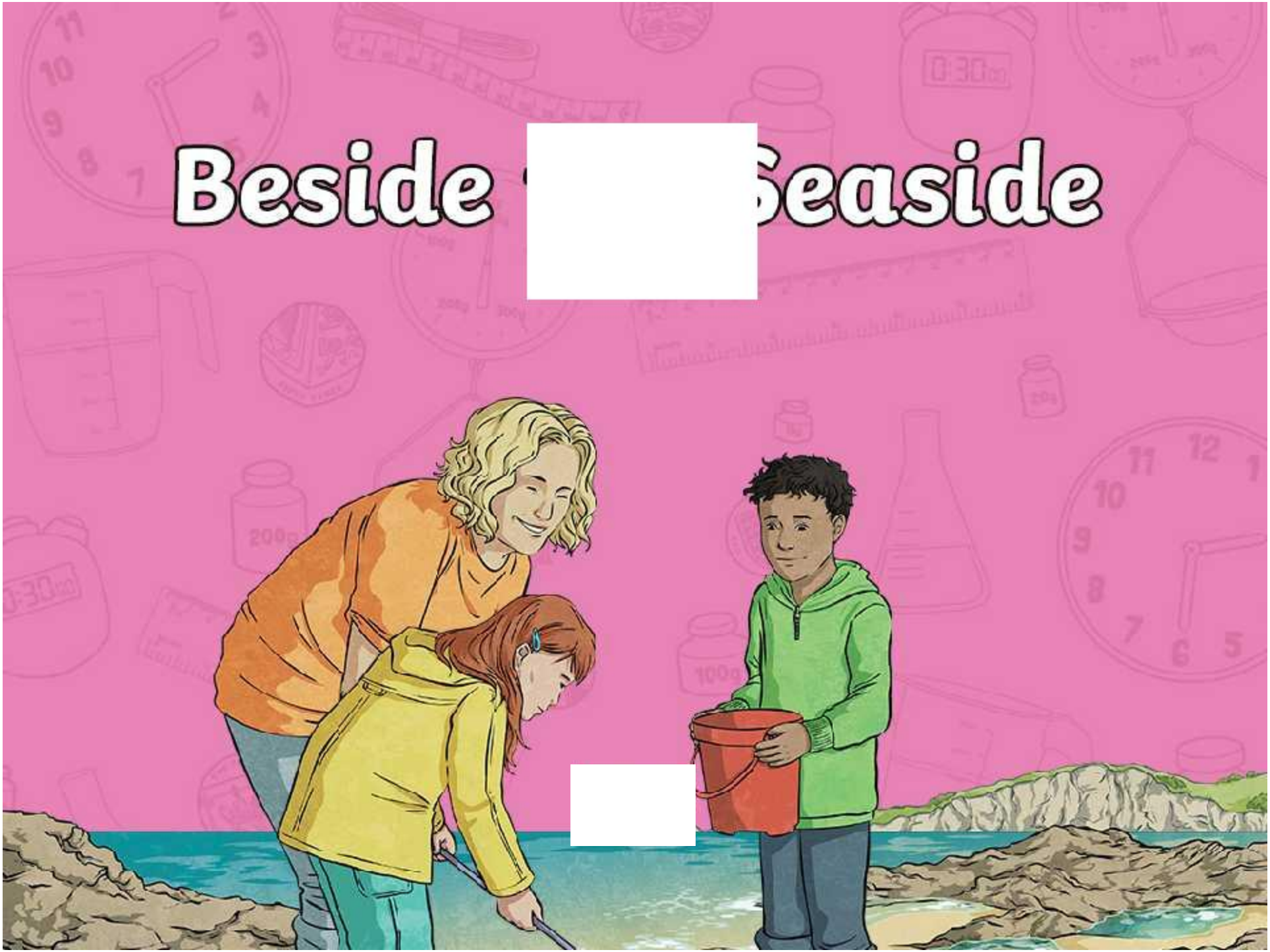
Exploreit

Throwit: In an outside place, children throw a bean bag and measure how far they have thrown it. They record the measurement in as many different units as they feel confident to do.

Compareit: Children collect similarly proportioned objects from around the classroom before measuring and comparing the lengths of the objects using <, > or =.

Maths

Measurement


Beside
Seaside

Aim

- I can read, write and convert between standard units of length.

Success Criteria

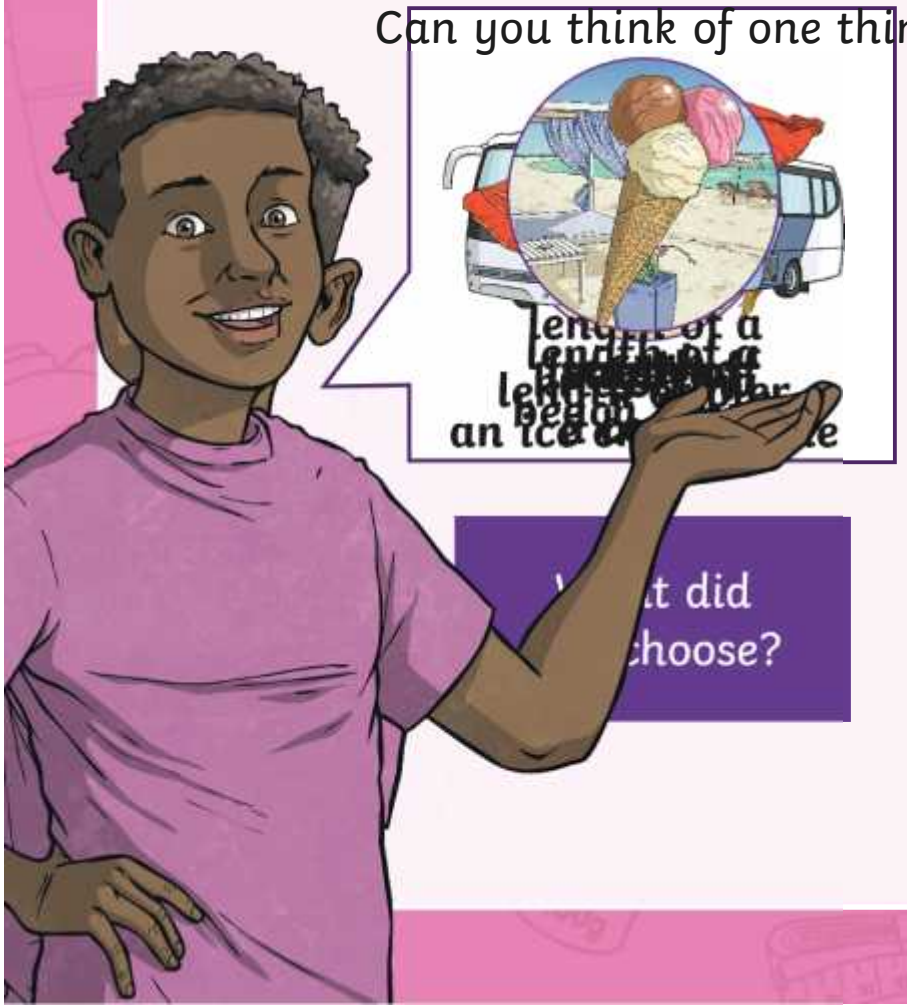
- I can multiply by ten, a hundred and a thousand to convert from larger units of length to smaller units.
- I can divide by ten, a hundred and a thousand to convert from smaller units of length to larger units.
- I can convert between metric units of length to solve word problems.

What Will I Use?

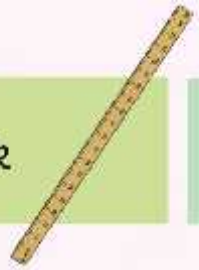
Discuss with your partner what other seaside items you could measure with the different items.

Discuss with your partner which item you would use to measure each object. There may be more than one suitable item.

Can you think of one thing to measure with each item?



metre stick



trundle wheel

ruler

pedometer

small tape measure

large tape measure

What Will I Use?

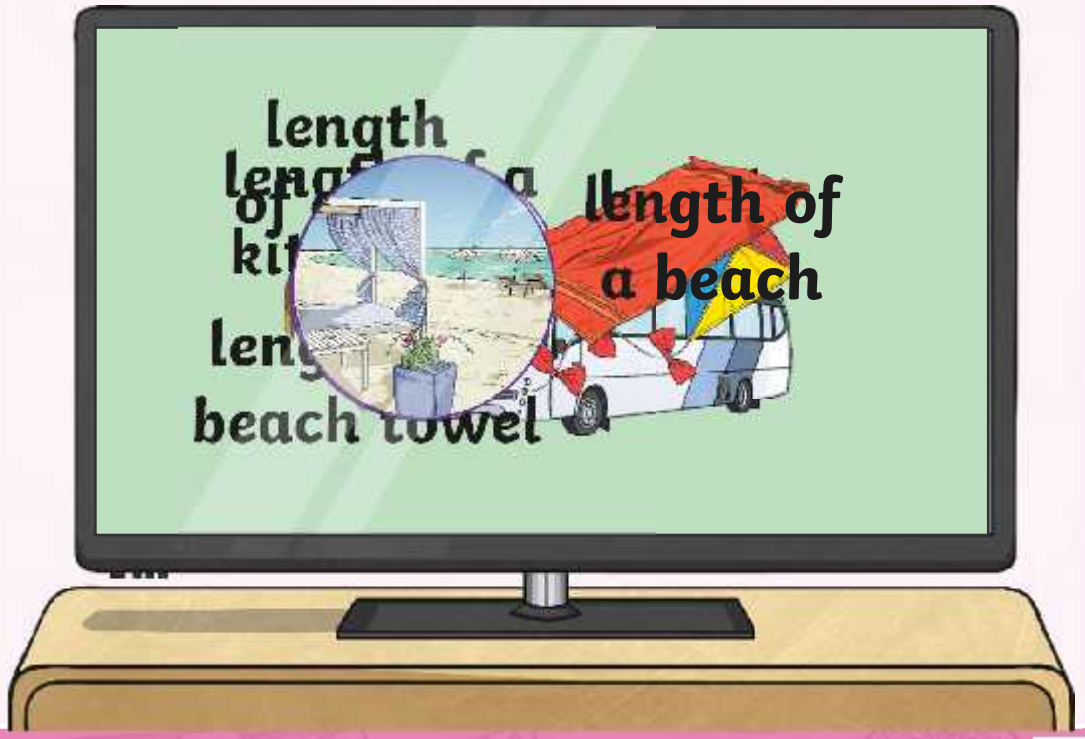
Now you have chosen the measuring item, which unit do you think would be the most suitable for measuring each thing?

centimetre

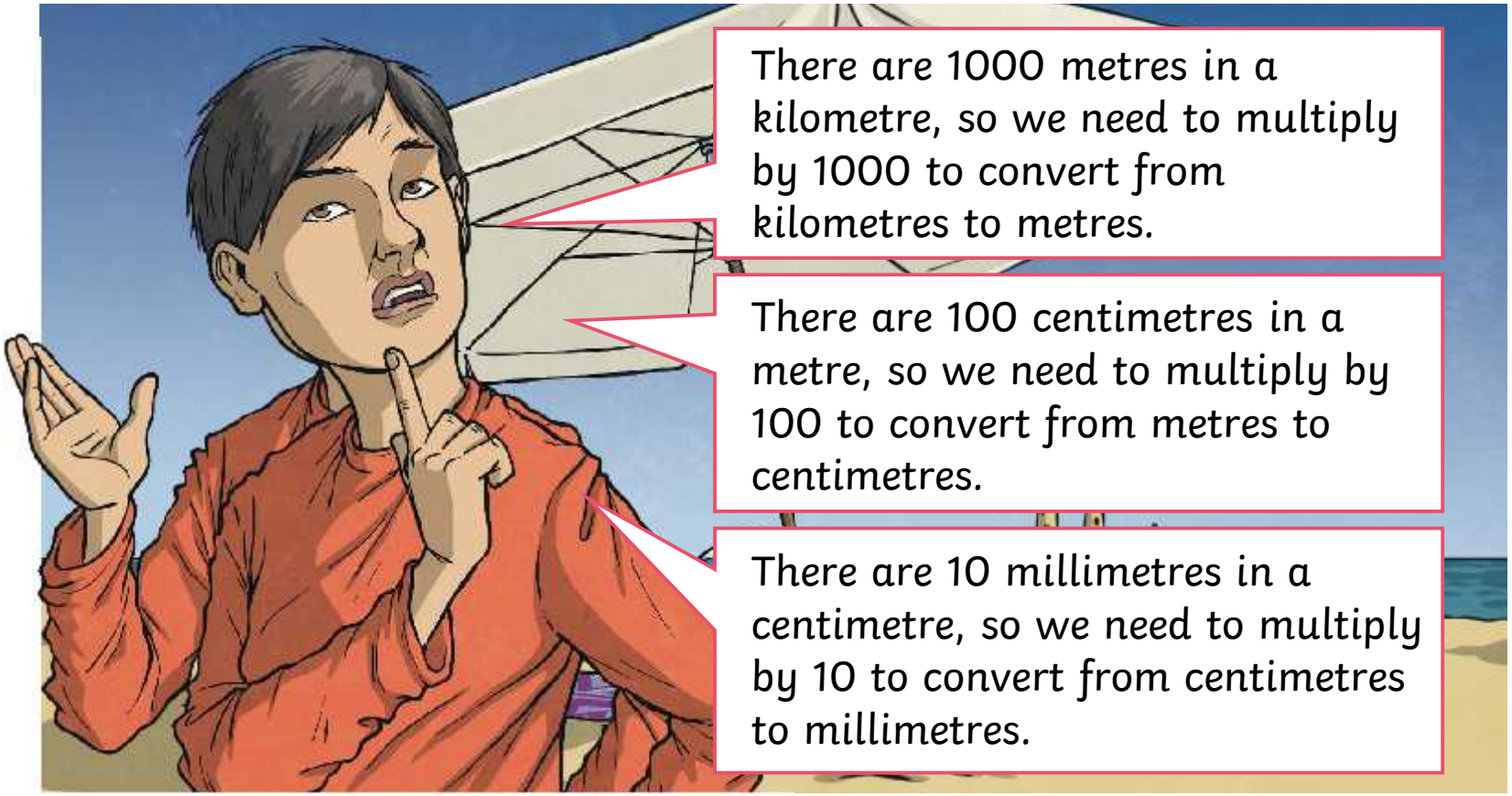
millimetre

metre

kilometre

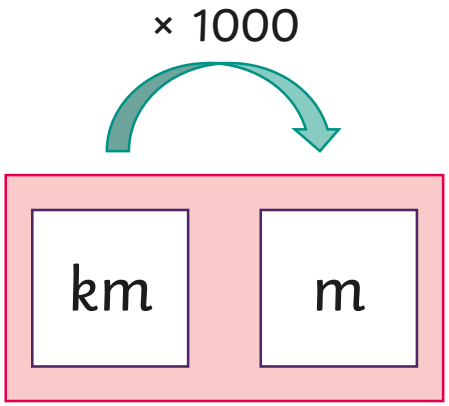


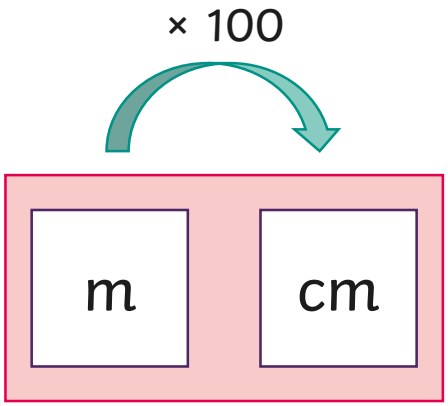
Using Multiplication to Convert between Units of Length

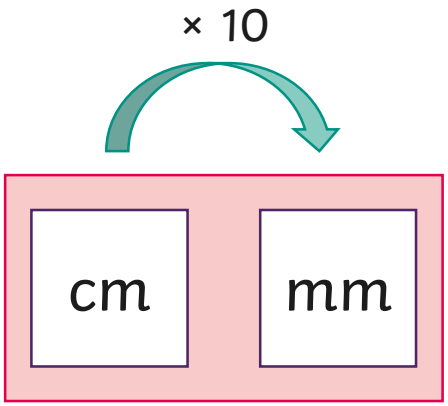


Using Multiplication to Convert between Units of Length

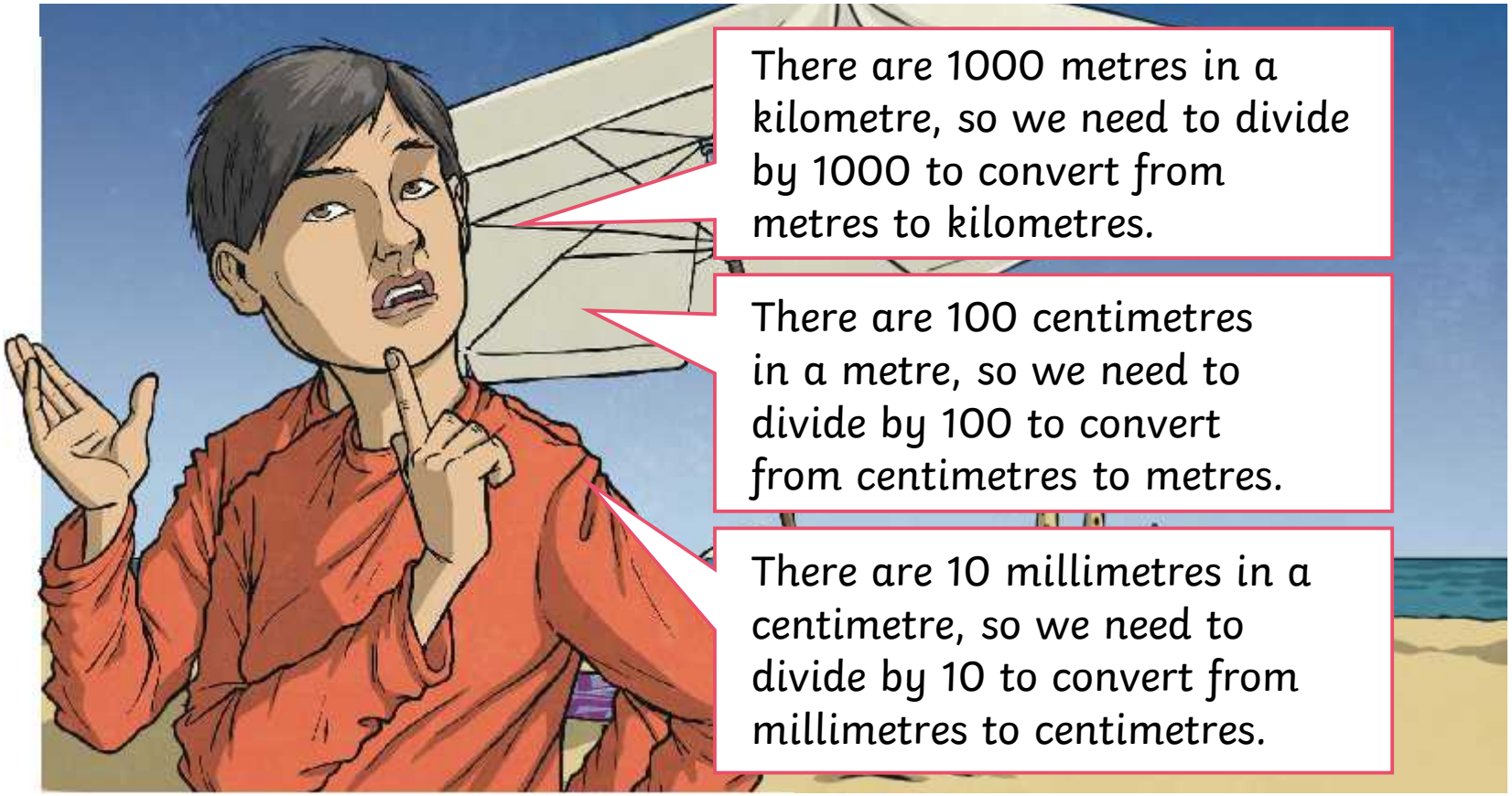
These charts help us to visualise how to convert a larger unit of length to a smaller unit.





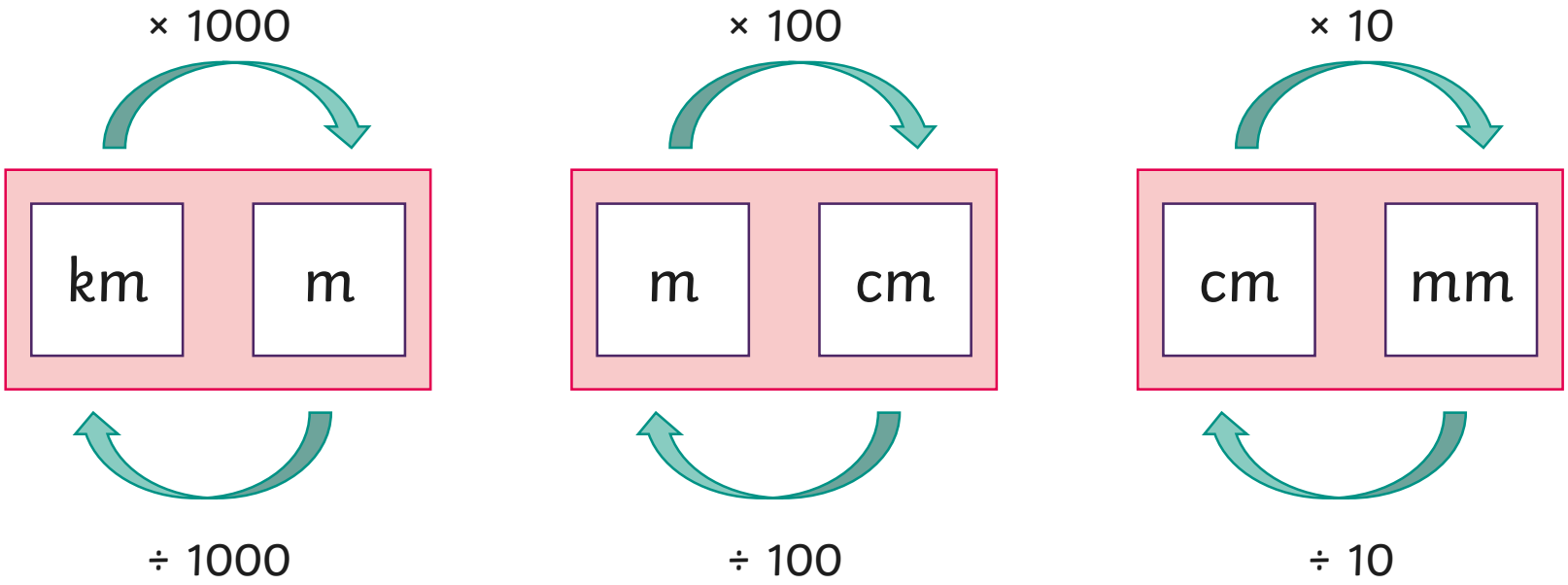


Using Division to Convert between Units of Length



Using Multiplication and Division to Convert between Units of Length

If we put the charts together it will help us to convert between larger and smaller units.



Using Multiplication and Division to Convert between Units of Length

Practise your conversion skills to convert these measurements.
Use the conversion charts to help. The first conversion has been done for you.

4.735km = **4735m**

8.63m = **cm**

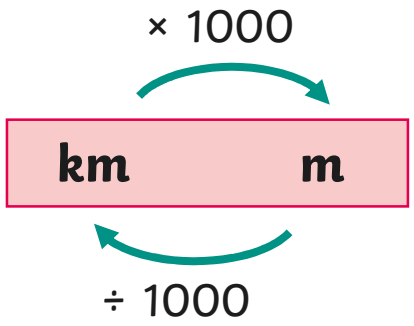
5.8cm = **mm**

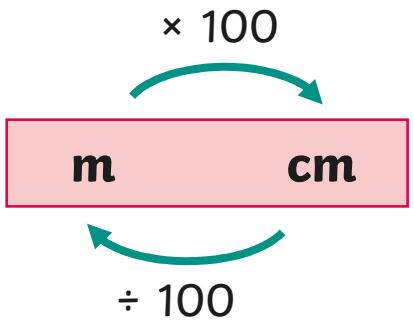
multiply by 1000

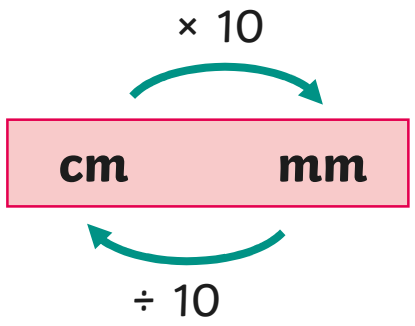
2500m = **km**

385cm = **m**

97mm = **cm**



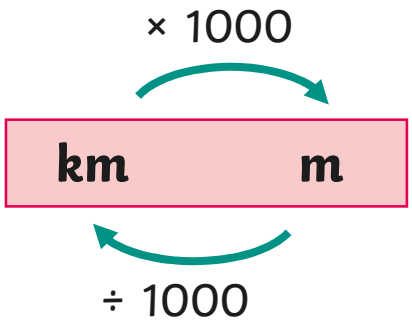


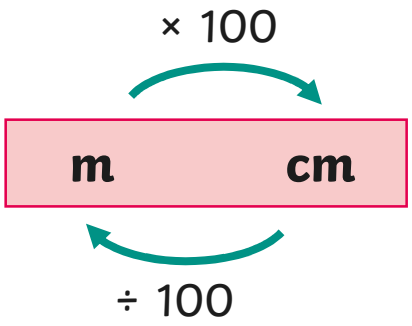


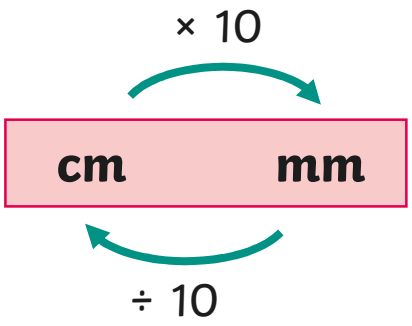
Using Multiplication and Division to Convert between Units of Length

Practise your conversion skills to convert these measurements.
Use the conversion charts to help. The first conversion has been done for you.

4.735km =	**4735m**	8.63m =	**863cm**	5.8cm =	**58mm**
2500m =	**2.5km**	385cm =	**3.85m**	97mm =	**9.7cm**

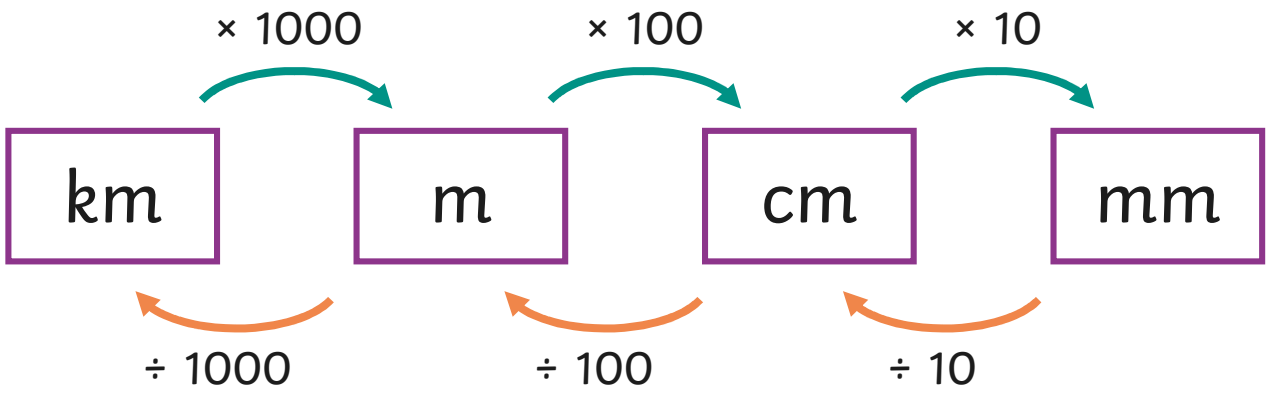






Using Multiplication and Division to Convert between Units of Length

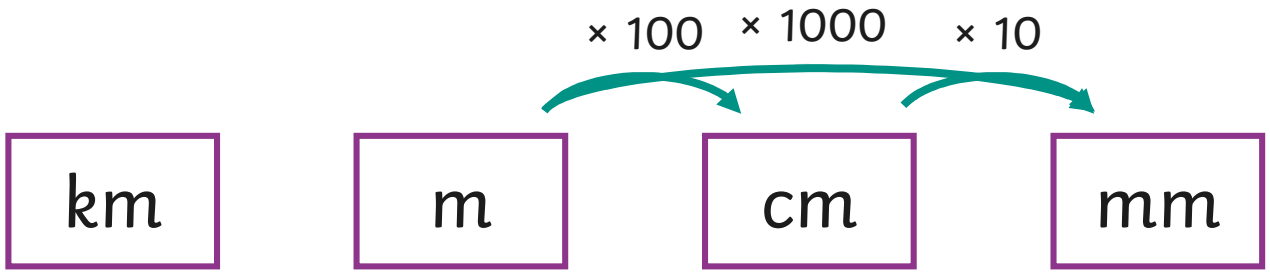
We could combine the charts to create this single chart:



This will help to convert units which are not next to one another.

Using Multiplication and Division to Convert between Units of Length

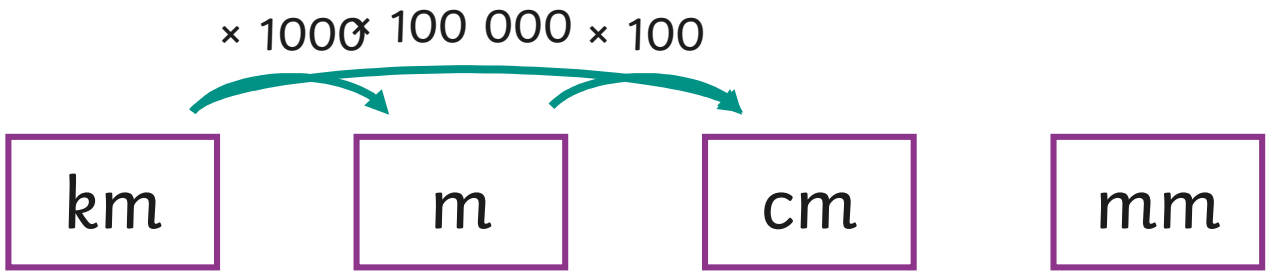
What calculation would you do to convert from metres to millimetres?



To convert from metres to millimetres you multiply by 1000.

Using Multiplication and Division to Convert between Units of Length

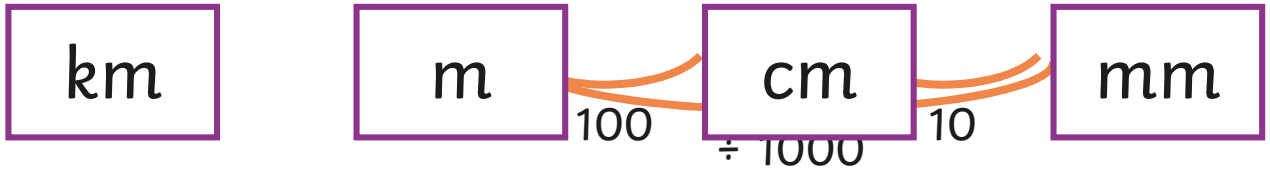
What calculation would you do to convert from kilometres to centimetres?



To convert from kilometres to centimetres you multiply by 100 000.

Using Multiplication and Division to Convert between Units of Length

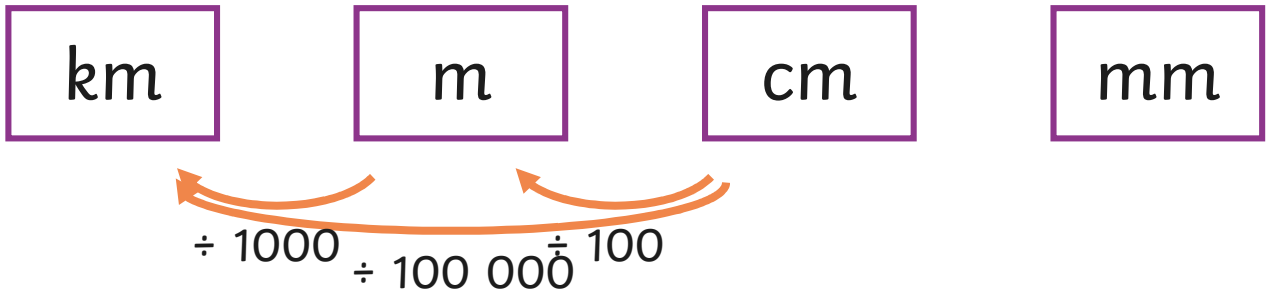
What calculation would you do to convert from millimetres to metres?



To convert from millimetres to metres you divide by 1000.

Using Multiplication and Division to Convert between Units of Length

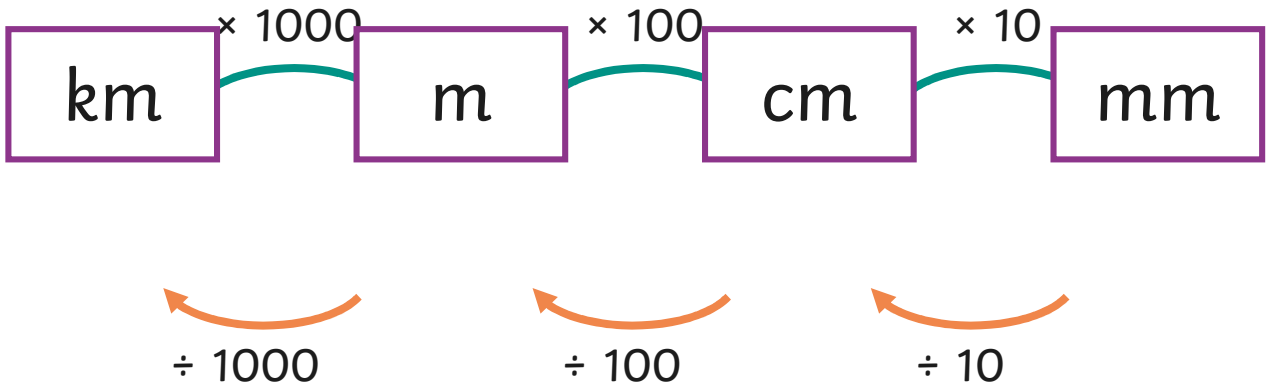
What calculation would you do to convert from centimetres to kilometres?



To convert from centimetres to kilometres you divide by 100 000.

Using Multiplication and Division to Convert between Units of Length

Practise your conversion skills to convert these measurements.
Use the conversion charts to help. The first conversion has been done for you.



4m = **4000mm**

875mm = **m**

5km = **cm**

89 000cm = **m**

multiply by 1000

Using Multiplication and Division to Convert between Units of Length

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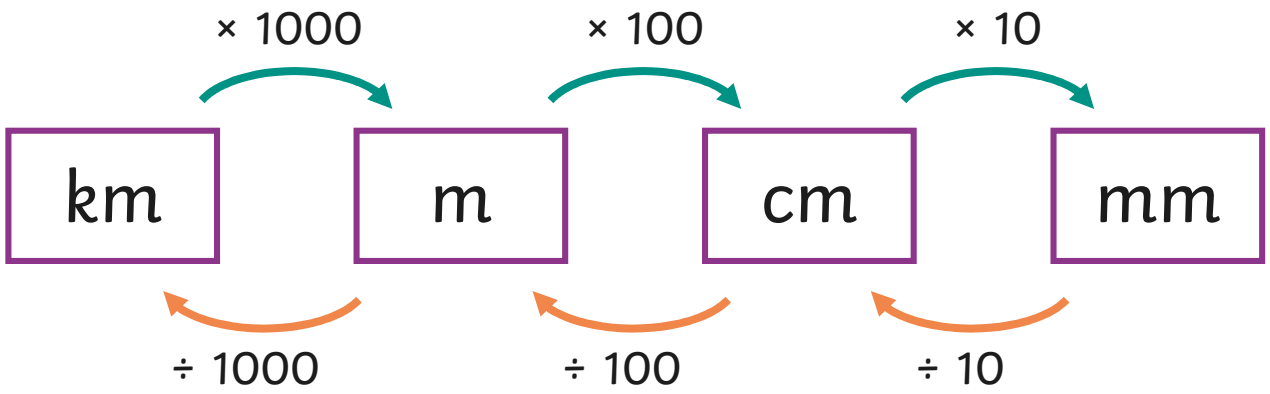


4m = **4000mm**

875mm = **0.875m**

5km = **500 000cm**

89 000cm = **0.89km**

825mm = **0.825m**

The Seaside Visit: Who Is Correct?

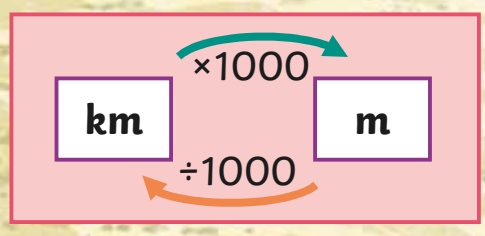
Whole Class

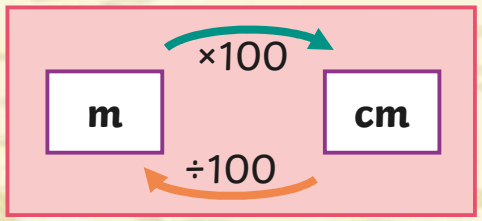
After SATs, Year 6 are going on a visit to the seaside.

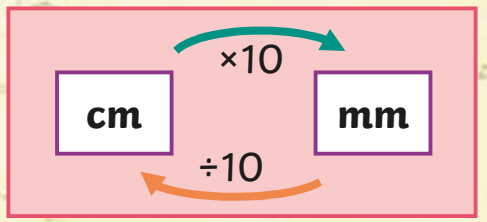
The Seaside Visit: Who Is Correct?

Before they set off, the teacher asked the children these questions.

Question	Drew	Jasmin	Who Is Correct?
How far do you have to travel to school?	I live 1.85km from school. I have a longer journey to school than Jasmin.	I live 1585m from school. My journey is the longest.	**Drew**
What is the length of the coach you are travelling on?	The coach I am travelling on is 15.75m long. It is the longer of the 2 coaches.	Our coach is 1580cm long. It is the longest coach.	**Jasmin**

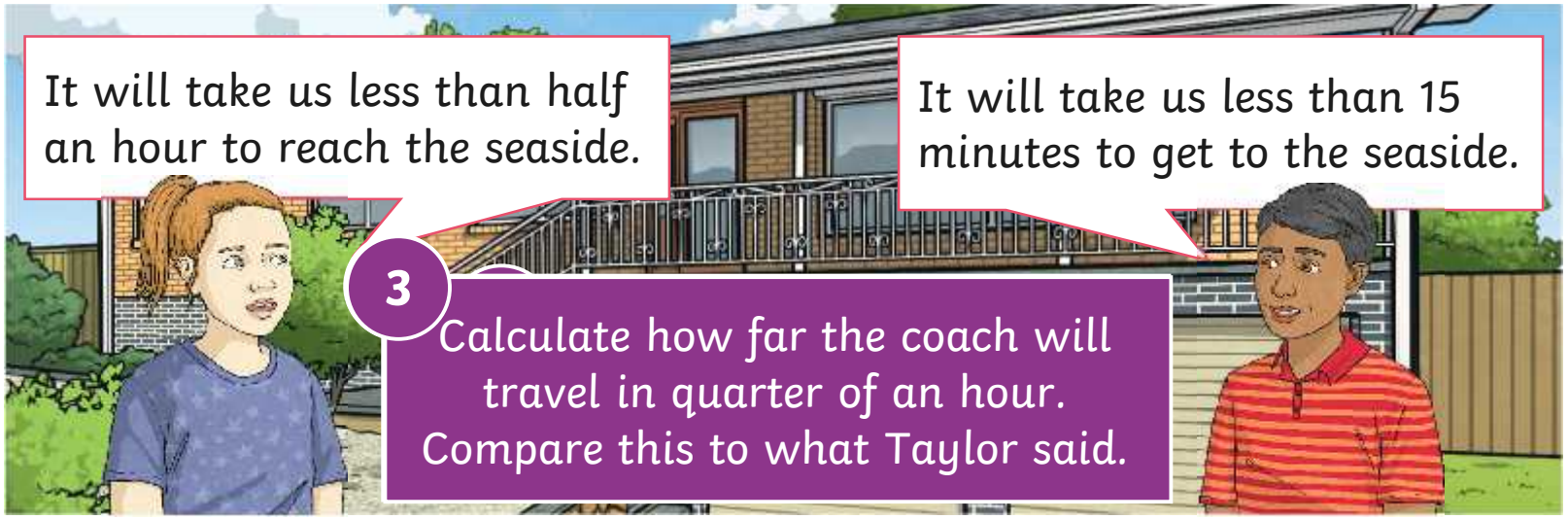




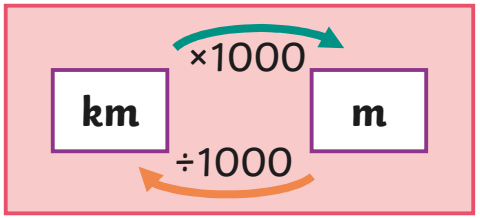


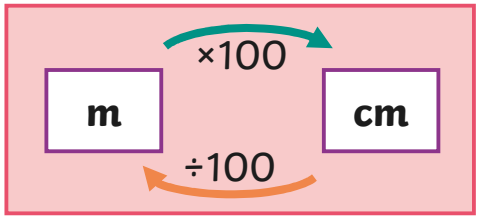
The Seaside Visit: Who Is Correct?

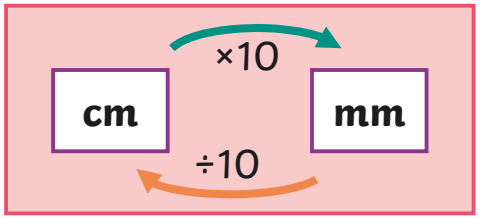
The children are approximately 16 000m away from the seaside. The coach is travelling at 60km per hour. This is what different children say. Who is correct? Explain how you know.



3 Calculate how far the coach will travel in quarter of an hour. Compare this to what Taylor said.







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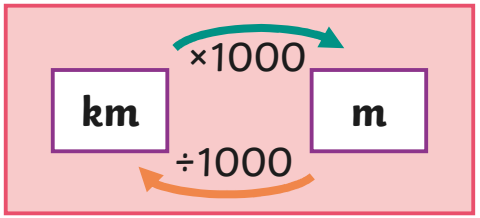

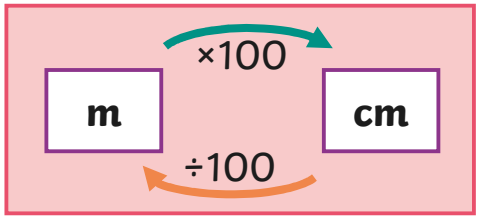

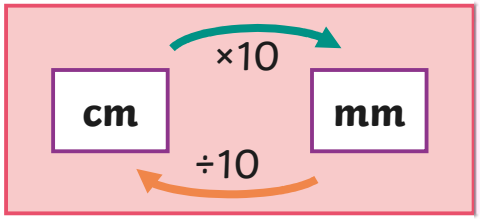

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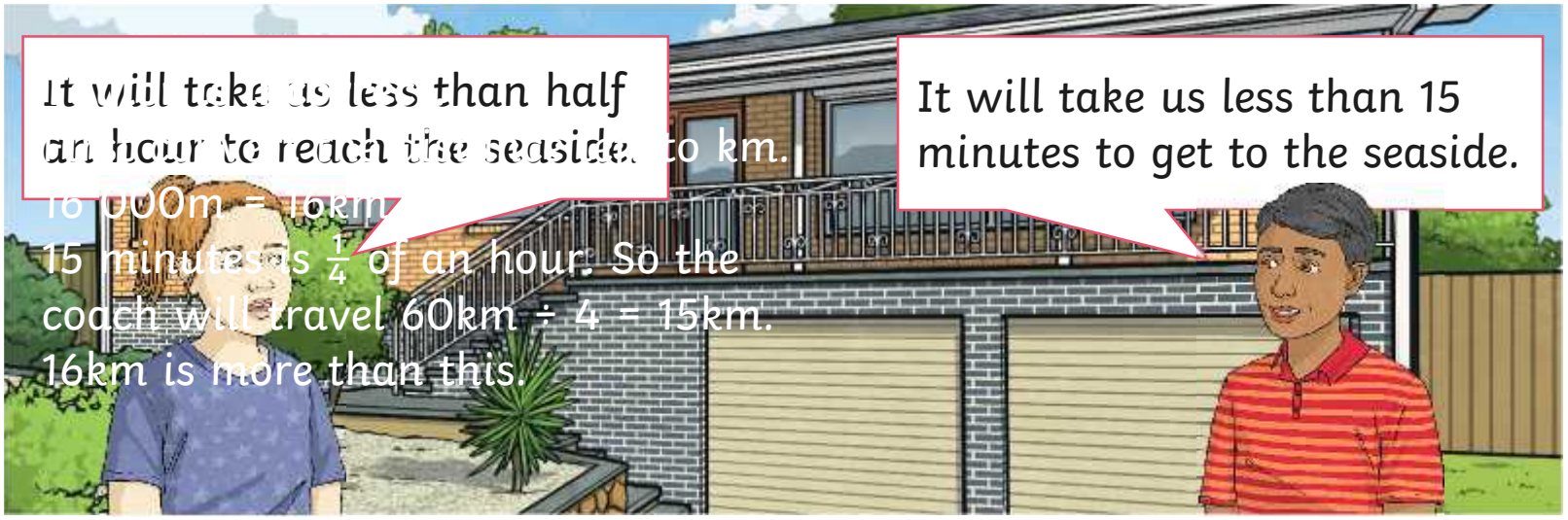
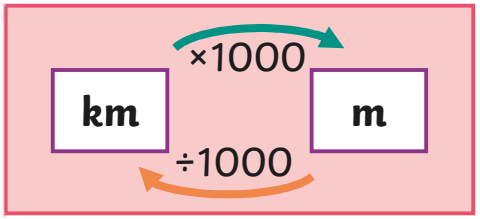
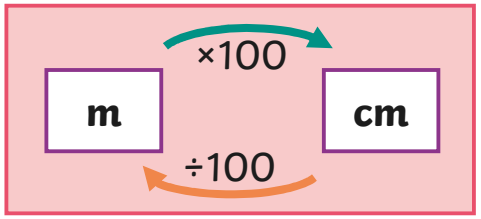
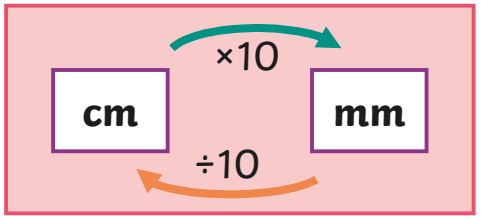


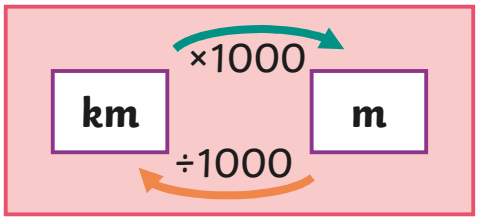


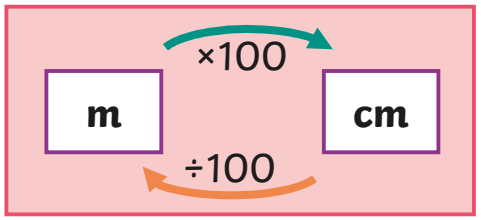


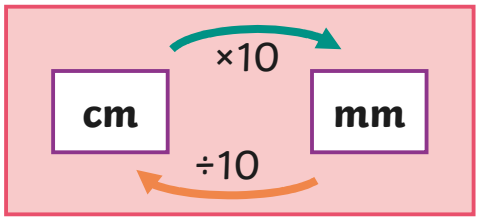


Which Team Wins?

Three groups of children are taking part in a competition on the beach. Each team is finding pebbles and placing them in a line. The winners are the team who have the longest line.



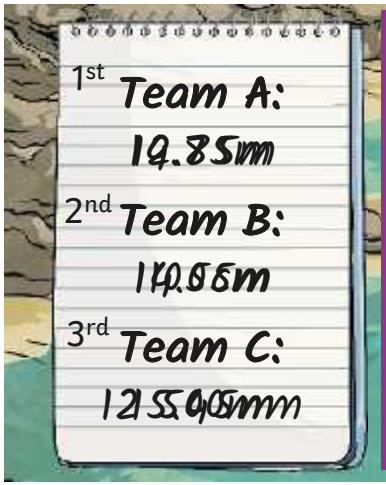




Which Team Wins?

Three groups of children are taking part in a competition on the beach. Each team is finding pebbles and placing them in a line. The winners are the team who have the longest line.

With 10 minutes to go, here are the lengths of the pebbles:

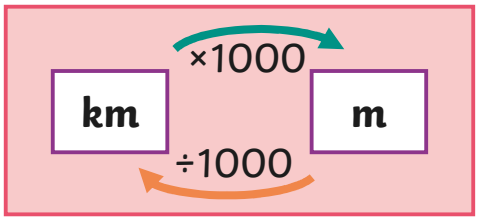


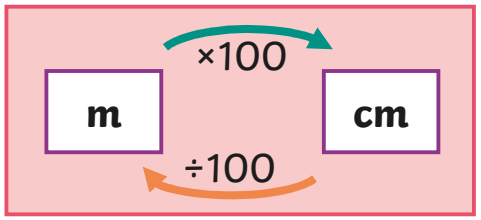
As the measurements are written using different units, convert them so they are all the same unit.

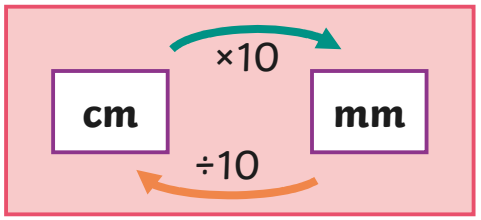
In the last 10 minutes, the teams extend their lines by the following amounts:

Team A: 210cm
Team B: 3000mm
Team C: 2.95m

Order the teams from longest to shortest at the end of the competition.

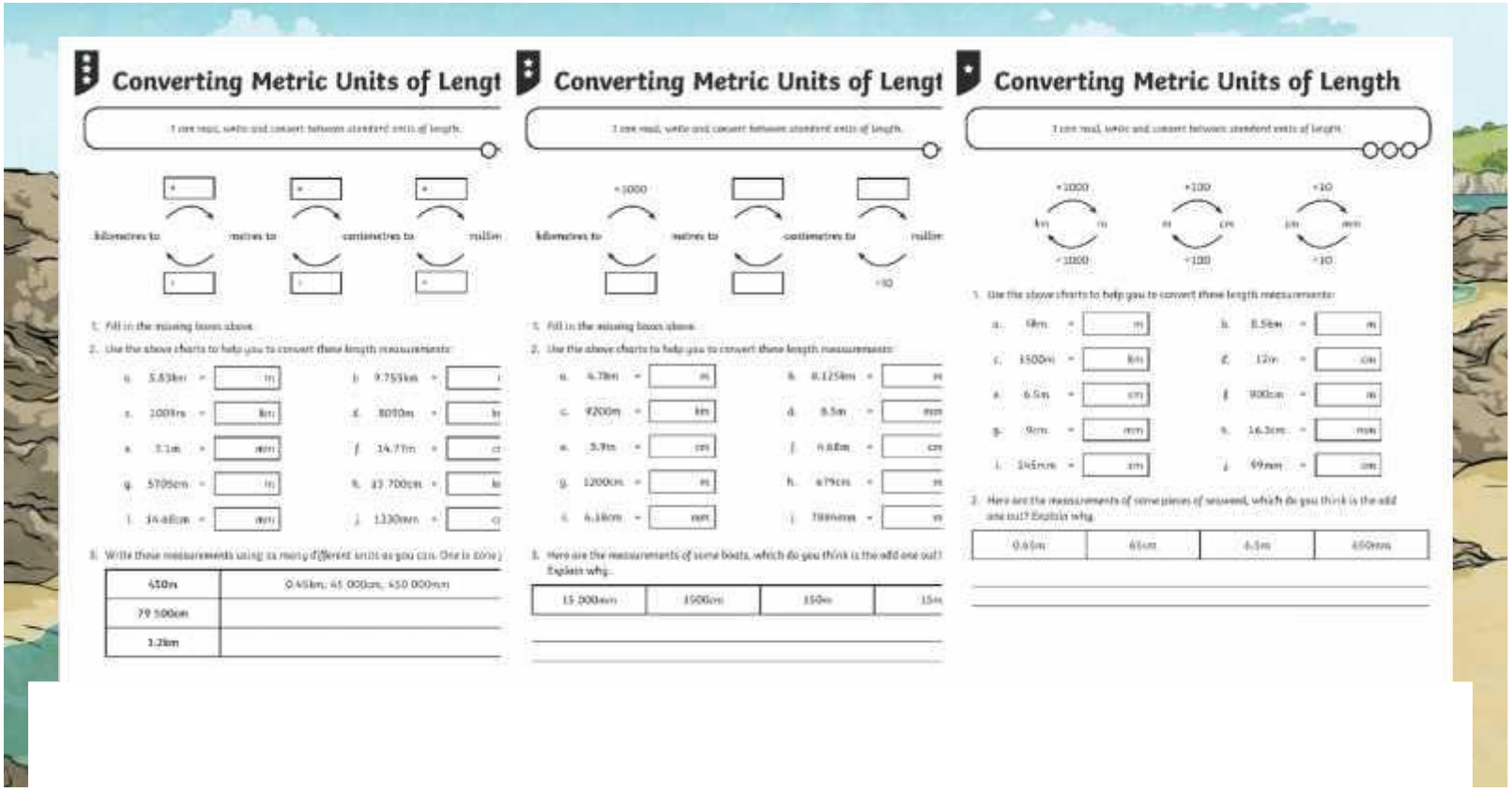






Converting Metric Units of Length

Use your fantastic skills to complete these activity sheets.



Back at School

While they were at the seaside, the children found a crab. They made a measurement of its width from one claw to another. It measured 125mm. The children thought it was huge! However, they began to research different crabs around the world. Here is some of the information they found. The measurements are written using a range of units.

Coconut Crab	900mm
Blue Crab	23cm
Japanese Spider Crab	3.8m
Pea Crab	125mm

The coconut crab is more than 3 times larger than the blue crab.

Now continue to solve the problem.
3 blue crabs:
23cm × 3 = 69cm.

The coconut crab is more than 3 times larger than the blue crab.

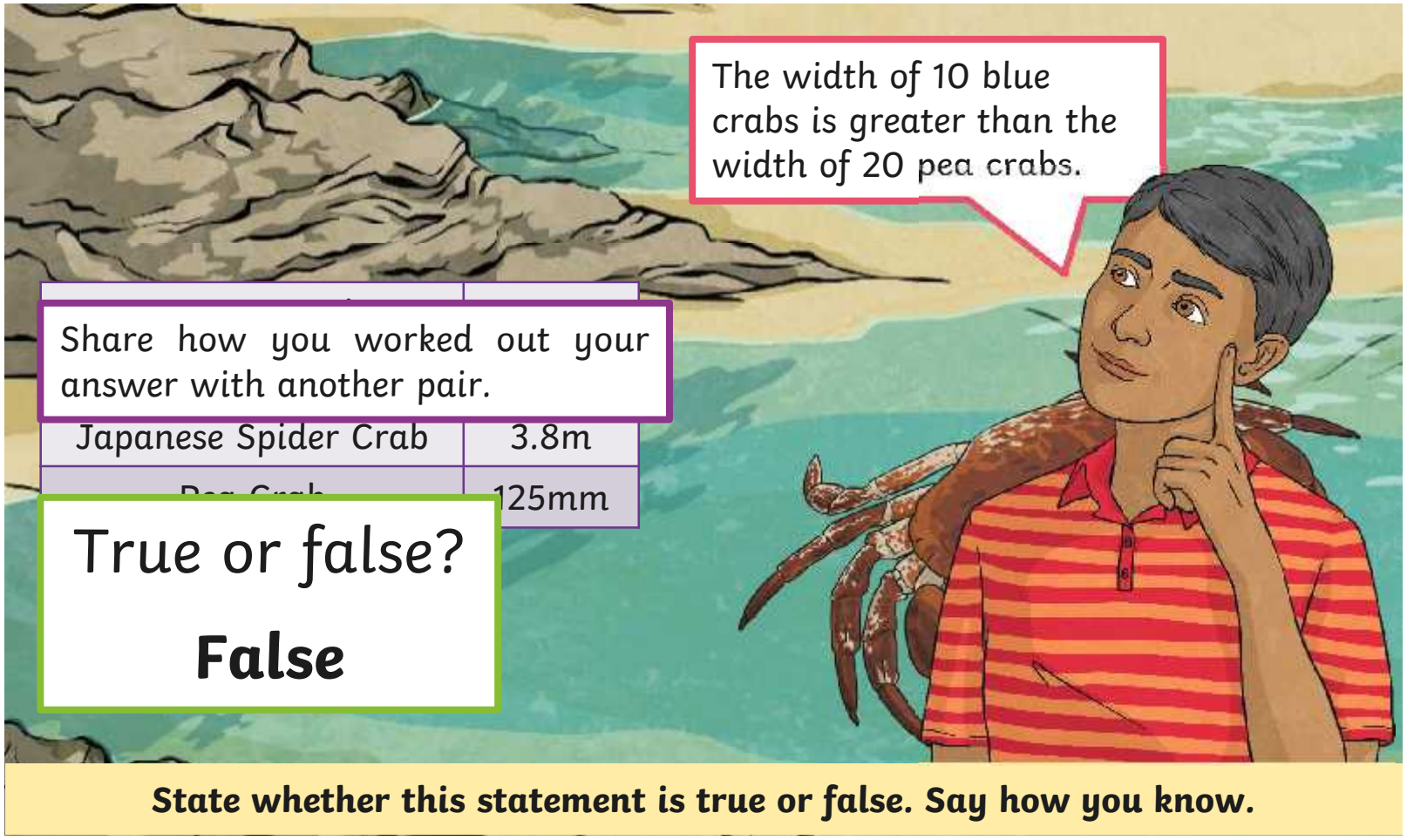
True or false?

True

so that
ne unit.

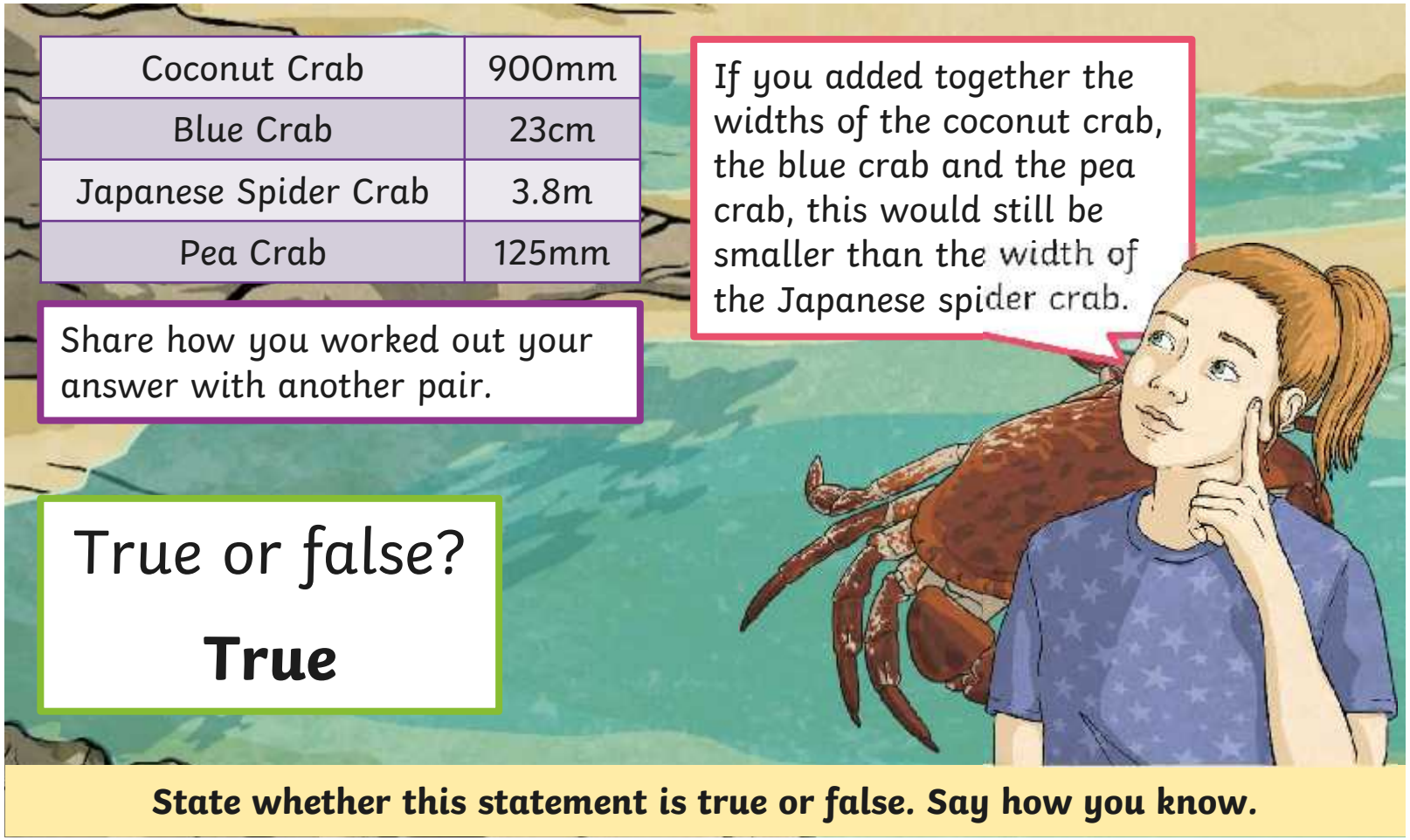
State whether this statement is true or false. Say how you know.

Back at School



State whether this statement is true or false. Say how you know.

Back at School



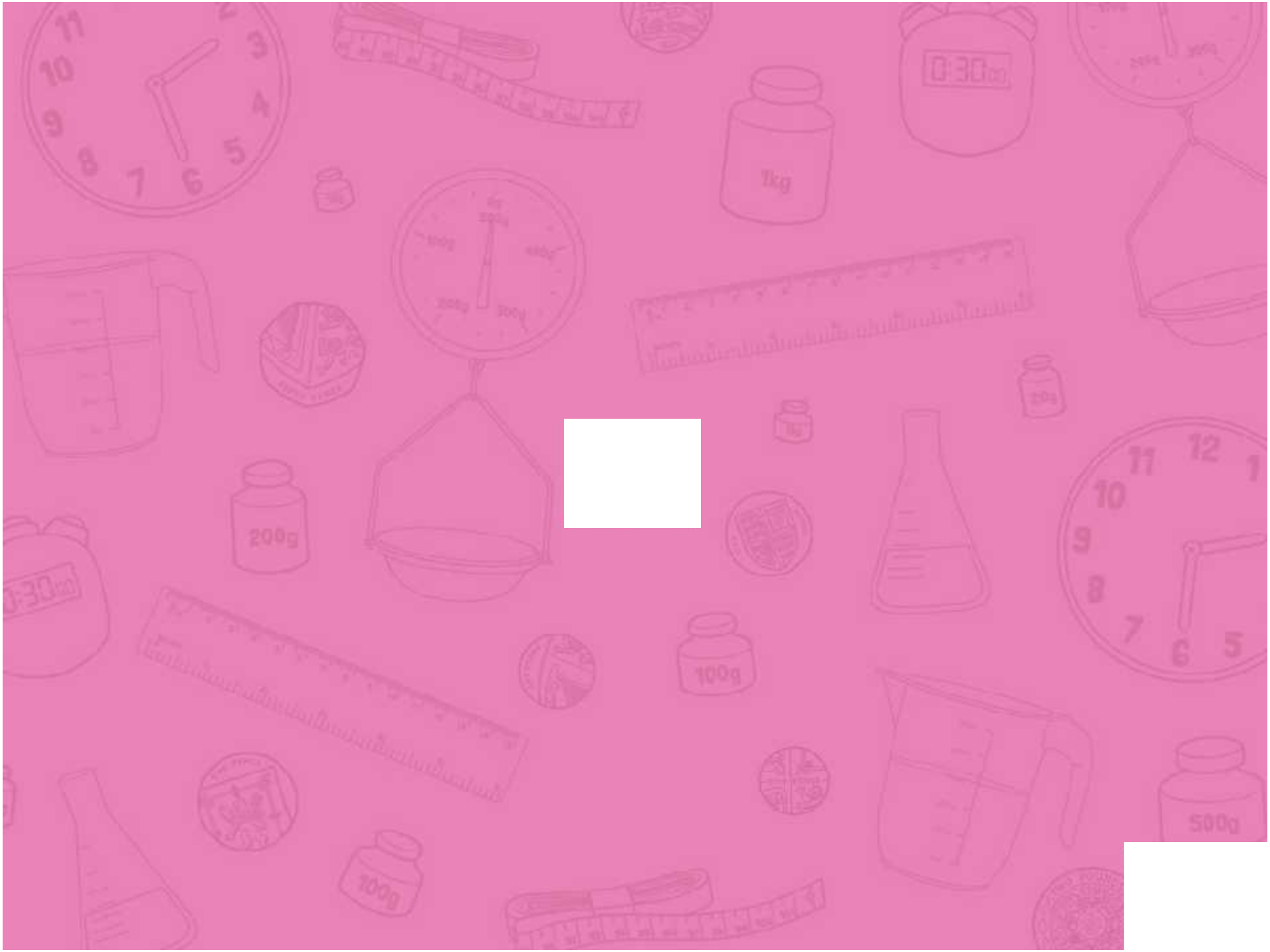
State whether this statement is true or false. Say how you know.

Aim

- I can read, write and convert between standard units of length.

Success Criteria

- I can multiply by ten, a hundred and a thousand to convert from larger units of length to smaller units.
- I can divide by ten, a hundred and a thousand to convert from smaller units of length to larger units.
- I can convert between metric units of length to solve word problems.



Aim: I can read, write and convert between standard units of length.				**Date:**					
				Delivered By:			**Support:**		
Success Criteria	**Me**	**Friend**	**Teacher**	**T**	**PPA**	**S**	**I**	**AL**	**GP**
I can multiply by ten, a hundred and a thousand to convert from larger units of length to smaller units.				**Notes/Evidence**					
I can divide by ten, a hundred and a thousand to convert from smaller units of length to larger units.									
I can convert between metric units of length to solve word problems.									

Next Steps

- _____
- _____

T	Teacher	**I**	Independent
PPA	Planning, Preparation and Assessment	**AL**	Adult Led
S	Supply	**GP**	Guided Practice

Aim: I can read, write and convert between standard units of length.				**Date:**					
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Success Criteria	**Me**	**Friend**	**Teacher**	**T**	**PPA**	**S**	**I**	**AL**	**GP**
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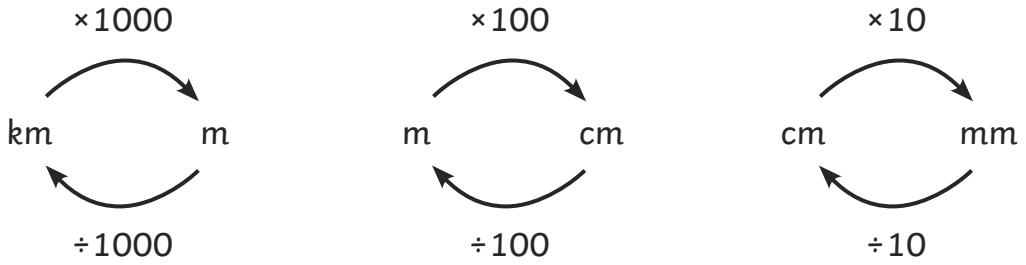
Next Steps

- _____
- _____

T	Teacher	**I**	Independent
PPA	Planning, Preparation and Assessment	**AL**	Adult Led
S	Supply	**GP**	Guided Practice

Converting Metric Units of Length

I can read, write and convert between standard units of length.



1. Use the above charts to help you to convert these length measurements:

a.	4km	=	m	b.	8.5km	=	m
c.	1500m	=	km	d.	12m	=	cm
e.	6.5m	=	cm	f.	900cm	=	m
g.	9cm	=	mm	h.	16.3cm	=	mm
i.	145mm	=	cm	j.	99mm	=	cm

2. Here are the measurements of some pieces of seaweed, which do you think is the odd one out? Explain why.

0.65m	65cm	6.5m	650mm

3. Clara went for a walk along the beach. She walked 950m, then had a rest. She walked another 1.2km. How far did she walk in total? Write your answer in kilometres, using decimals. Show how you worked out the answer.

4. Two friends are flying their kites on the beach. The length of the string of Jatinder's kite measures 1.25m. Sydney's string measures 1500mm. Sydney says his kite string is more than 50cm longer than Jatinder's kite string. Is he right? Show how you worked out the answer.

Converting Metric Units of Length **Answers**

1.

a. 4km = **4000m**	b. 8.5km = **8500m**
c. 1500m = **1.5km**	d. 12m = **1200cm**
e. 6.5m = **650cm**	f. 900cm = **9m**
g. 9cm = **90mm**	h. 16.3cm = **163mm**
i. 145mm = **14.5cm**	j. 99mm = **9.9cm**

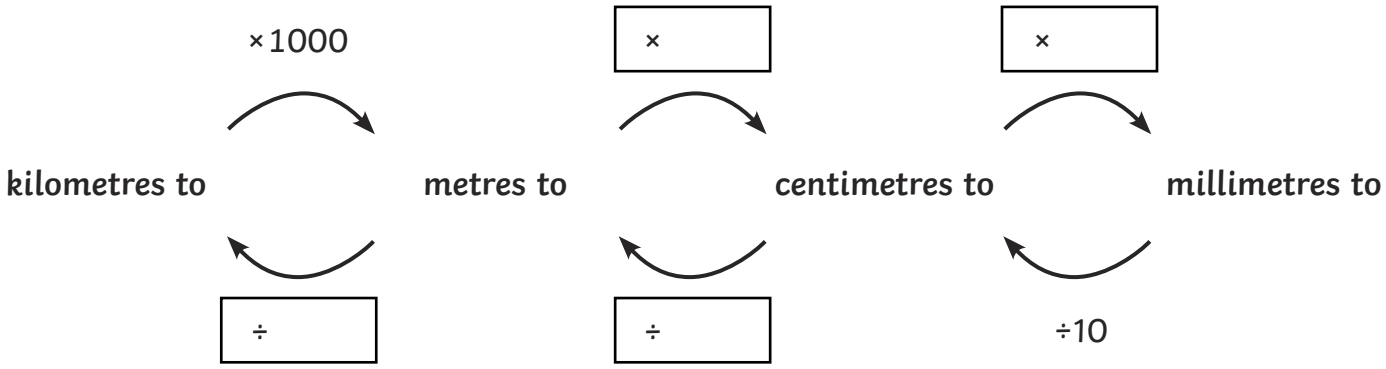
2. Here are the measurements of some pieces of seaweed, which do you think is the odd one out? Explain why.
   The odd one out is 6.5m, all the other measurements are equal.

3. Clara went for a walk along the beach. She walked 950m, then had a rest. She walked another 1.2km. How far did she walk in total? Write your answer in kilometres, using decimals. Show how you worked out the answer.
   2.15km

4. Two friends are flying their kites on the beach. The length of the string of Jatinder's kite measures 1.25m. Sydney's string measures 1500mm. Sydney says his kite string is more than 50cm longer than Jatinder's kite string. Is he right? Show how you worked out the answer.
   No he is not right. His string is 25cm (250mm) longer.
   1.25m = 125cm = 1250mm 1500mm – 1250mm = 250mm = 25cm.

Converting Metric Units of Length

I can read, write and convert between standard units of length.



1. Fill in the missing boxes above.
2. Use the above charts to help you to convert these length measurements:

a.	4.7km	=	m	b.	8.125km	=	m
c.	9200m	=	km	d.	8.5m	=	mm
e.	5.9m	=	cm	f.	4.68m	=	cm
g.	1200cm	=	m	h.	679cm	=	m
i.	6.18cm	=	mm	j.	7884mm	=	m

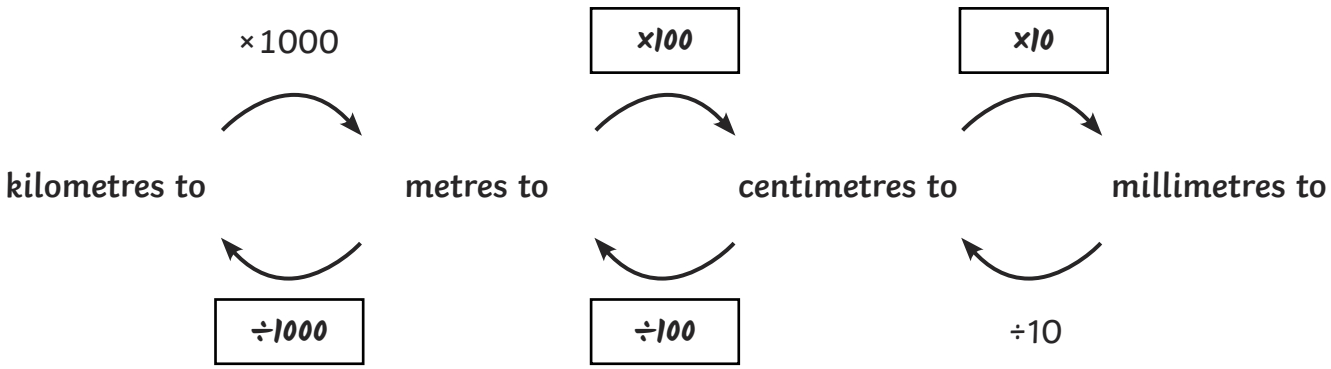
3. Here are the measurements of some boats, which do you think is the odd one out? Explain why.

15 000mm	1500cm	150m	15m

4. On the beach, two teams were making trails of shells. At 11 o'clock, Team A's trail is 15.75m and by 12 o'clock they had made it 13 000mm longer. Team B's trail measured 1345cm at 11 o'clock and by 12 o'clock it was 0.015km longer. Which team had the longer trail? Show how you worked out the answer.

Converting Metric Units of Length **Answers**

1.



2.

a. 4.7km = **4700m**	b. 8.125km = **8125m**
c. 9200m = **9.2km**	d. 8.5m = **8500mm**
e. 5.9m = **590cm**	f. 4.68m = **468cm**
g. 1200cm = **12m**	h. 679cm = **6.79m**
i. 6.18cm = **61.8mm**	j. 7884mm = **7.884m**

3. Here are the measurements of some boats, which do you think is the odd one out? Explain why.

   The odd one out is 150m, all the other measurements are equal.

4. On the beach, two teams were making trails of shells. At 11 o'clock, Team A's trail is 15.75m and by 12 o'clock they had made it 13 000mm longer. Team B's trail measured 1345cm at 11 o'clock and by 12 o'clock it was 0.015km longer. Which team had the longer trail? Show how you worked out the answer.

   Team A: 15.75m + 13 000mm.

   Change to same unit (here centimetres) 1575cm + 1300cm = 2875cm

   Team B: 1345cm + 0.015km

   Change to same unit (here metres) 13.45m + 15m = 28.45m

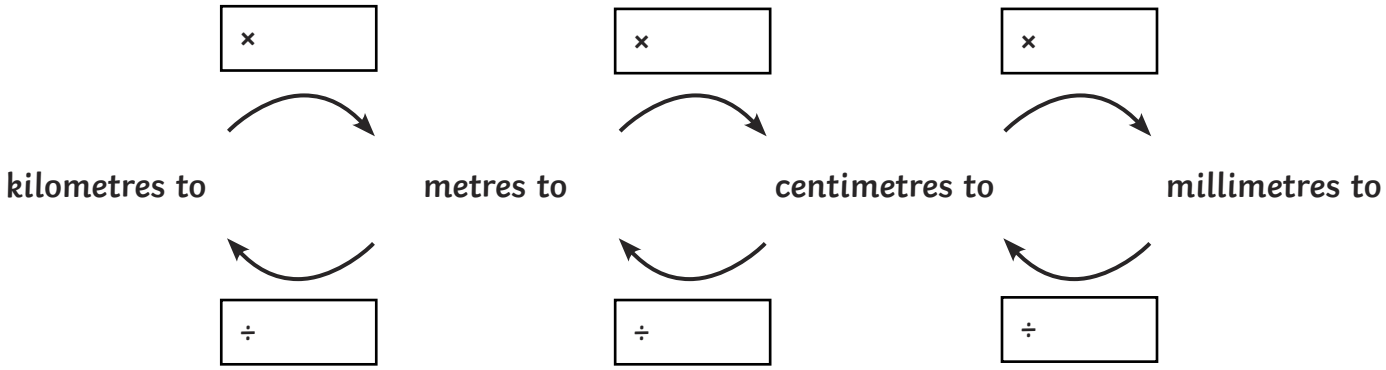
   Now change both to the same unit: Team A = 28.75m; Team B = 28.45m

   Team A had the longer trail.

(Answers may have different conversions)

Converting Metric Units of Length

I can read, write and convert between standard units of length.



1. Fill in the missing boxes above.
2. Use the above charts to help you to convert these length measurements:

a.	5.83km	=	m	b.	9.755km	=	m
c.	1009m	=	km	d.	8090m	=	km
e.	3.1m	=	mm	f.	14.77m	=	cm
g.	5705cm	=	m	h.	13 700cm	=	km
i.	14.68cm	=	mm	j.	1330mm	=	cm

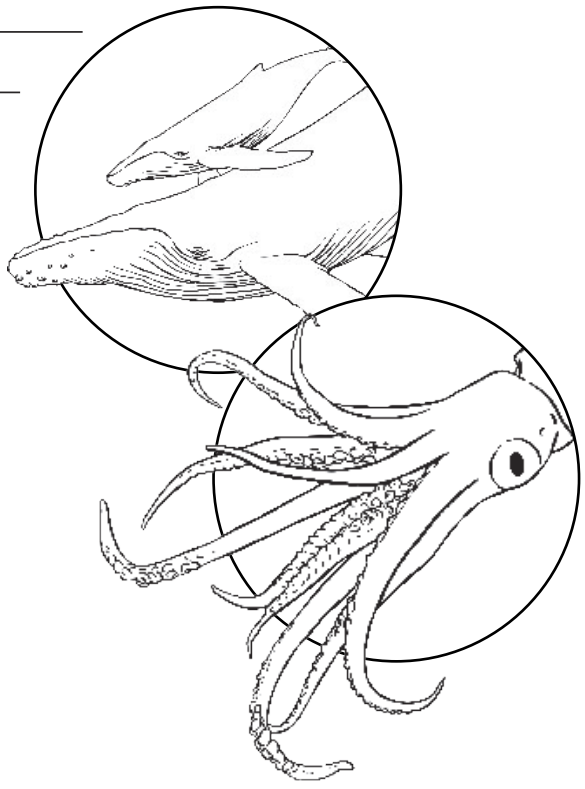
3. Write these measurements using as many different units as you can. One is done for you:

450m	0.45km, 45 000cm, 450 000mm
79 500cm	
1.2km	

4. Children measure how far it is to walk from where the coach is parked, over the beach to the sea, using different units of measurement. Which do you think is correct? Explain why.

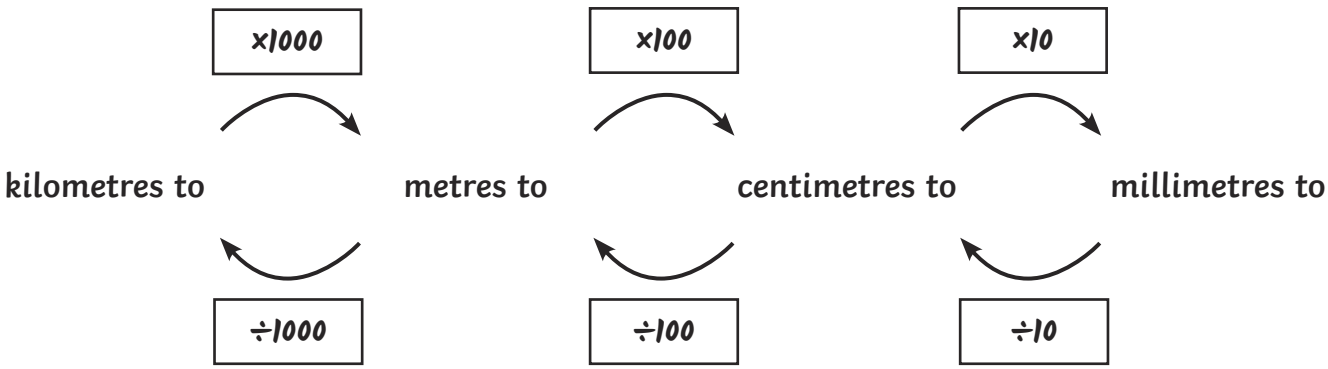
7.05m	705cm	7050mm	0.75km

5. Back at school, the children researched into different large marine animals. Daisy found out that a humpback whale calf can measure 600cm in length and grow to be a gigantic 16m long. Abdul found out that, at its time of hatching, a giant squid is only 140mm long and can grow to be over 10 000cm in length. Daisy said that the humpback whale calf is more than 38 times longer than the baby giant squid. Abdul said that an adult giant squid is over 650 times longer than a baby giant squid. Who is correct? Show your working out.



Converting Metric Units of Length **Answers**

1.



2.

a. 5.83km = **5830m**	b. 9.755km = **9755m**
c. 1009m = **1.009km**	d. 8090m = **8.09km**
e. 3.1m = **3100mm**	f. 14.77m = **1477cm**
g. 5705cm = **57.05m**	h. 13 700cm = **0.137km**
i. 14.68cm = **146.8mm**	j. 1330mm = **133cm**

3. Write these measurements using as many different units as you can. One is done for you:

450m	0.45km, 45 000cm, 450 000mm
79 500cm	**0.795km, 795m, 795 000mm**
1.2km	**1200m, 120 000cm, 1 200 000mm**

4. Children measure how far it is to walk from where the coach is parked, over the beach to the sea, using different units of measurement. Which do you think is correct? Explain why.
   The correct measurement for the walk to the beach will probably be 0.75km, all the other measurements are equal to 7.5 metres which wouldn't really count as a walk.

5. Back at school, the children researched into different large marine animals. Daisy found out that a humpback whale calf can measure 600cm in length and grow to be a gigantic 16m long. Abdul found out that, at its time of hatching, a giant squid is only 140mm long and can grow to be over 10 000cm in length. Daisy said that the humpback whale calf is more than 38 times longer than the baby giant squid. Abdul said that an adult giant squid is over 650 times longer than a baby giant squid. Who is correct? Show your working out.
   Daisy is correct. 14cm x 38 = 532cm
   This is less than the length of a humpback whale calf.
   Abdul is correct. 14cm x 650 = 9100cm
   An adult giant squid is longer than 9100cm.

Extra Challenge

I can read, write and convert between standard units of length.

You probably already know these conversion facts:

1km = 1000m	1m = 100cm	1cm = 10mm

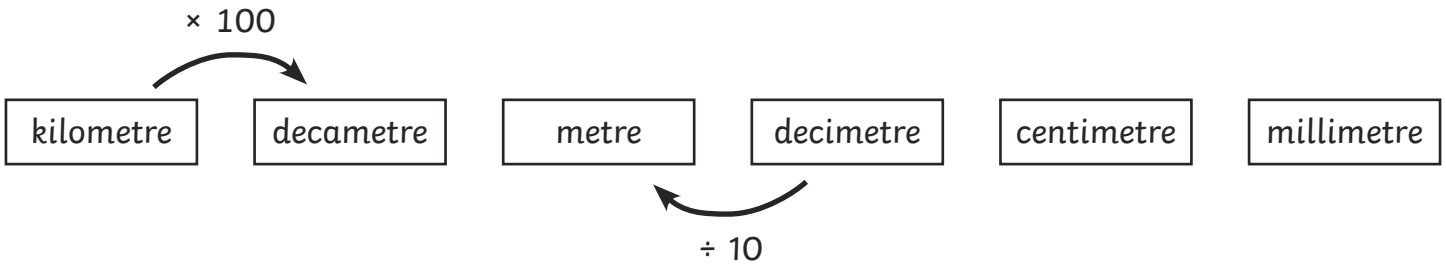
Here are some other conversion facts which aren't used as often:

1 decimetre (dm) = 10cm	1 decametre (dam) = 10m

So from largest to smallest, this is how the units are ordered:

kilometre, decametre, metre, decimetre, centimetre, millimetre

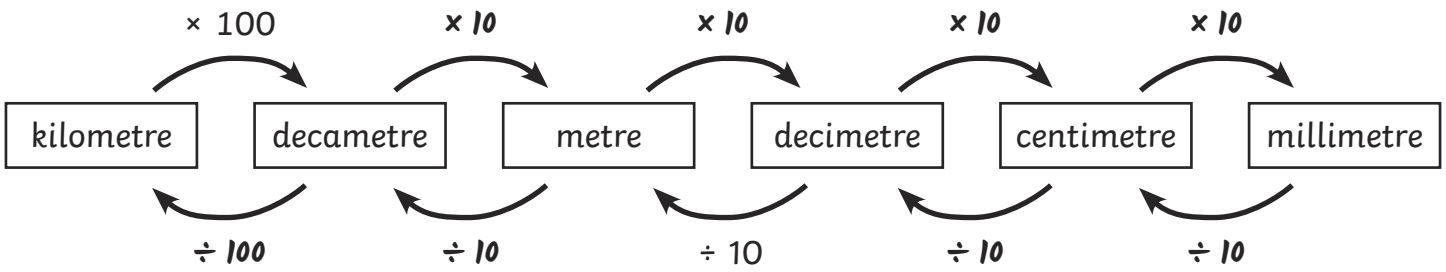
Create a conversion chart to help you answer the questions below. This one has been started.



Use the information above to convert these units of measurement:

a) 10km = ____ dam	b) 5dam = ____ m	c) 2.5dam = ____ dm
d) 3.7dm = ____ mm	e) 12.2dm = ____ dam	f) 550mm = ____ dm
g) 5560dam = ____ km	h) 1800cm = ____ dam	i) 13.55cm = ____ dm

Extra Challenge **Answers**



a) 10km = **1000dam**	b) 5dam = **50m**	c) 2.5dam = **250dm**
d) 3.7dm = **370mm**	e) 12.2dm = **0.122dam**	f) 550mm = **5.5dm**
g) 5560dam = **55.6km**	h) 1800cm = **1.8dam**	i) 13.55cm = **1.355dm**

Measurement | Beside the Seaside

I can read, write and convert between standard units of length.		
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