

Converting Measures

Learning Objective:

To be able to use all four operations to solve problems involving measure.

NEXT

length

weight

capacity

*How many units
of measure can you think
of that you could use to
measure length, weight and
capacity?*



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length

millimetre
centimetre
metre
kilometre

weight

milligram
gram
kilogram

capacity

millilitre
litre



How many of these did you think of? Can you remember how some of these units of measure are related to each other?

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How many millilitres
are there in a litre?

How many
centimetres are
there in a metre?

How many
millimetres are there
in a centimetre?

How many metres are
there in a kilometre?

How many
grams are there
in a kilogram?

How many
milligrams are
there in a gram?



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$$1000 \text{ ml} = 1 \text{ L}$$

$$100 \text{ cm} = 1 \text{ m}$$

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

$$10 \text{ mm} = 1 \text{ cm}$$



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

$$1000 \text{ m} = 1 \text{ km}$$

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Can you work out the answer to this question?
What operation would you need to use? Have a go!



Summer the snail is taking part in the snail Olympics. She races in six races in one day and each race is a distance of 45 cm. How far does she race in one day?



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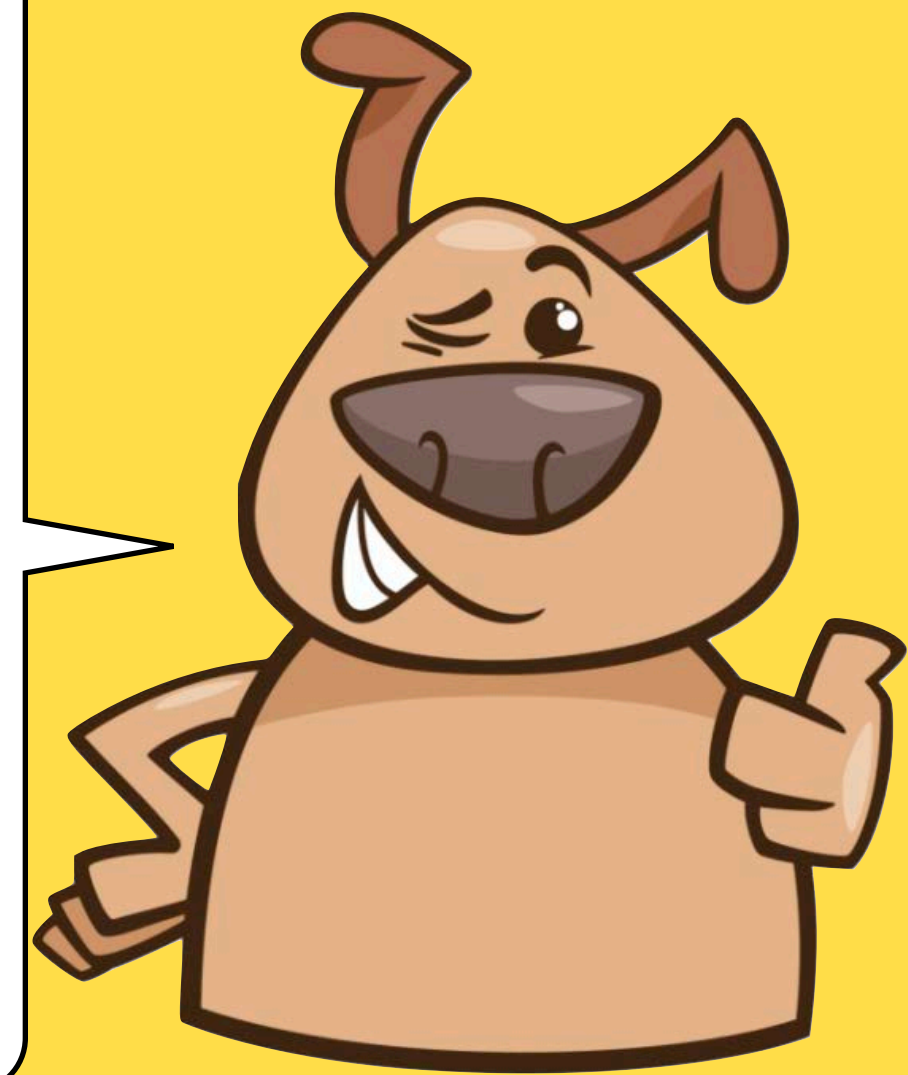
NEXT

If Summer the snail does six races that are each 45cm long, we need to work out what 6 lots of 45 are. Multiplication would be the best way to do this, although you could do repeated addition.

$$\begin{array}{r} 45 \\ \times 6 \\ \hline 270 \\ \hline 3 \end{array}$$

$$\begin{aligned} 40 \times 6 &= 240 \\ 5 \times 6 &= 30 \\ 240 + 30 &= 270 \end{aligned}$$

This means Summer raced a distance of 270cm! Did you get that answer?



There are lots of different methods you could have used to work this out. Did you use either of the above methods?

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Is there another way we could express 270cm? What other unit of measure could we use?

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100 centimetres = 1 metre

$$100 \div 100 = 1$$

We can convert the measurement to metres.
To convert a measurement from centimetres
to metres, we need to divide it by 100.

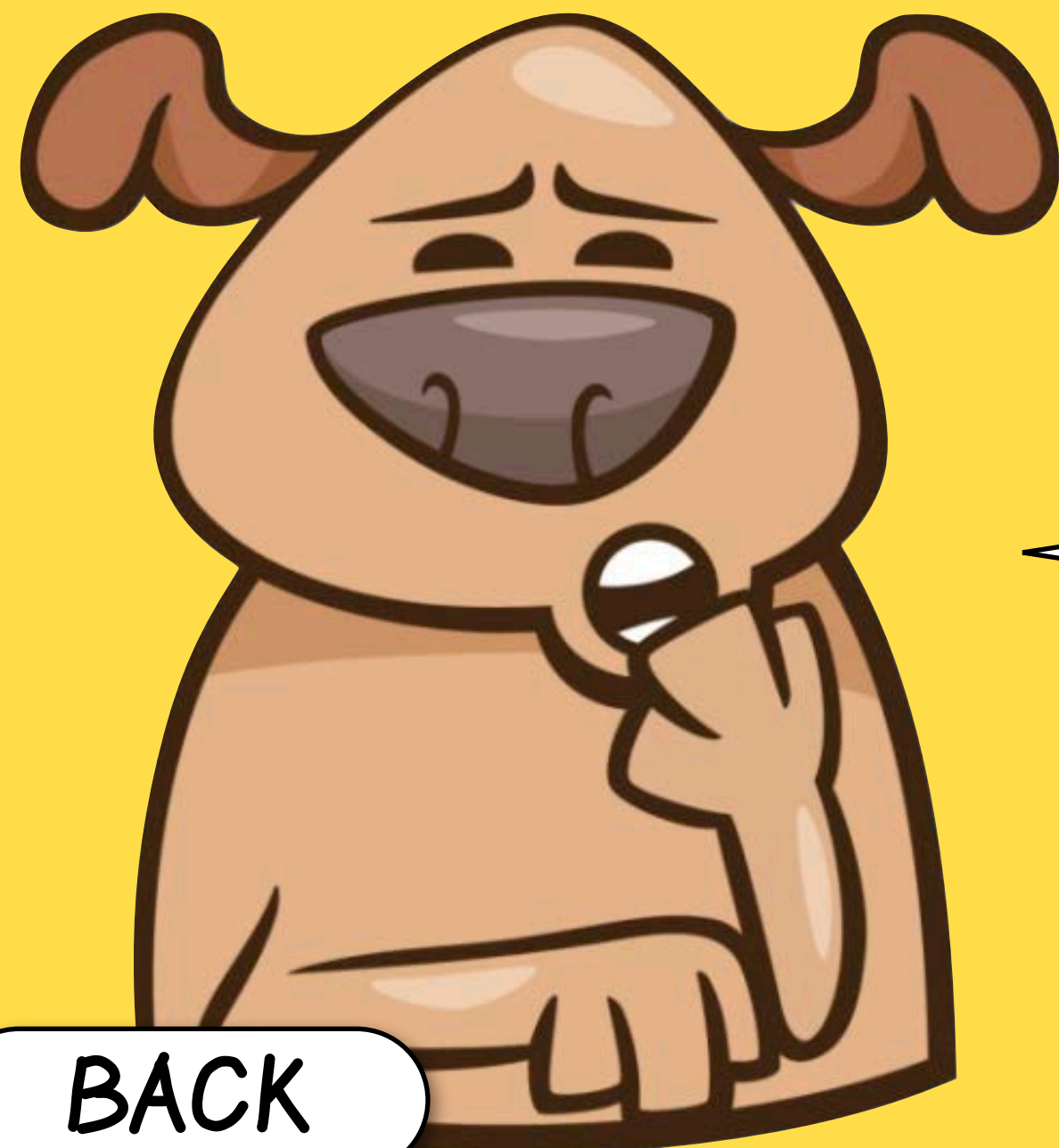
$270 \div 100 = 2.7$ so
270cm is the same as 2.7m! Did
you get that right?



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Ben and his mum are baking biscuits for the school fair. They weighed out 650g of butter, 650g of caster sugar and 900g of plain flour. What is the total weight of these ingredients?



What operation would you need to do to solve this problem? Have a go and think about what unit of measure you could use to express your answer!

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To work out this answer, we first had to add the weights together:

$$650 + 650 + 900 = 2200$$



This shows that the total weight of the ingredients was 2200 g!

We can then convert this to kilograms. There are 1000 grams in a kilogram so we need to divide the number of grams by 1000:

$$2200 \div 1000 = 2.2$$

We can say that the total weight of the ingredients was 2.2 kg!



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Carrie has made a jug of fruit punch to share with three of her friends at a sleepover. The jug holds 1.2 litres. If she shares this equally between herself and her three friends, how much will each person get?



This looks tricky! How could you solve this problem? What operation would you need to do?

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The easiest way to solve this problem is to firstly convert 1.2 litres to millilitres so that it is easier to divide between four people. There are 1000 millilitres in a litre, so we need to multiply 1.2 by 1000:

$$1.2 \times 1000 = 1200$$

We can now divide 1200 by 4 to find out how much drink each person got:

$$1200 \div 4 = 300$$



This means everyone got 300ml of fruit punch! Did you get that right? What method did you use to work out the calculation?

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Kevin is cutting some wood so he can build a bookcase. The length he is cutting is 1.5m long. He cuts off 34cm. How long is the length of wood now?

Hmm...what operation would you need to use to solve this problem? How could you make it easier to solve?



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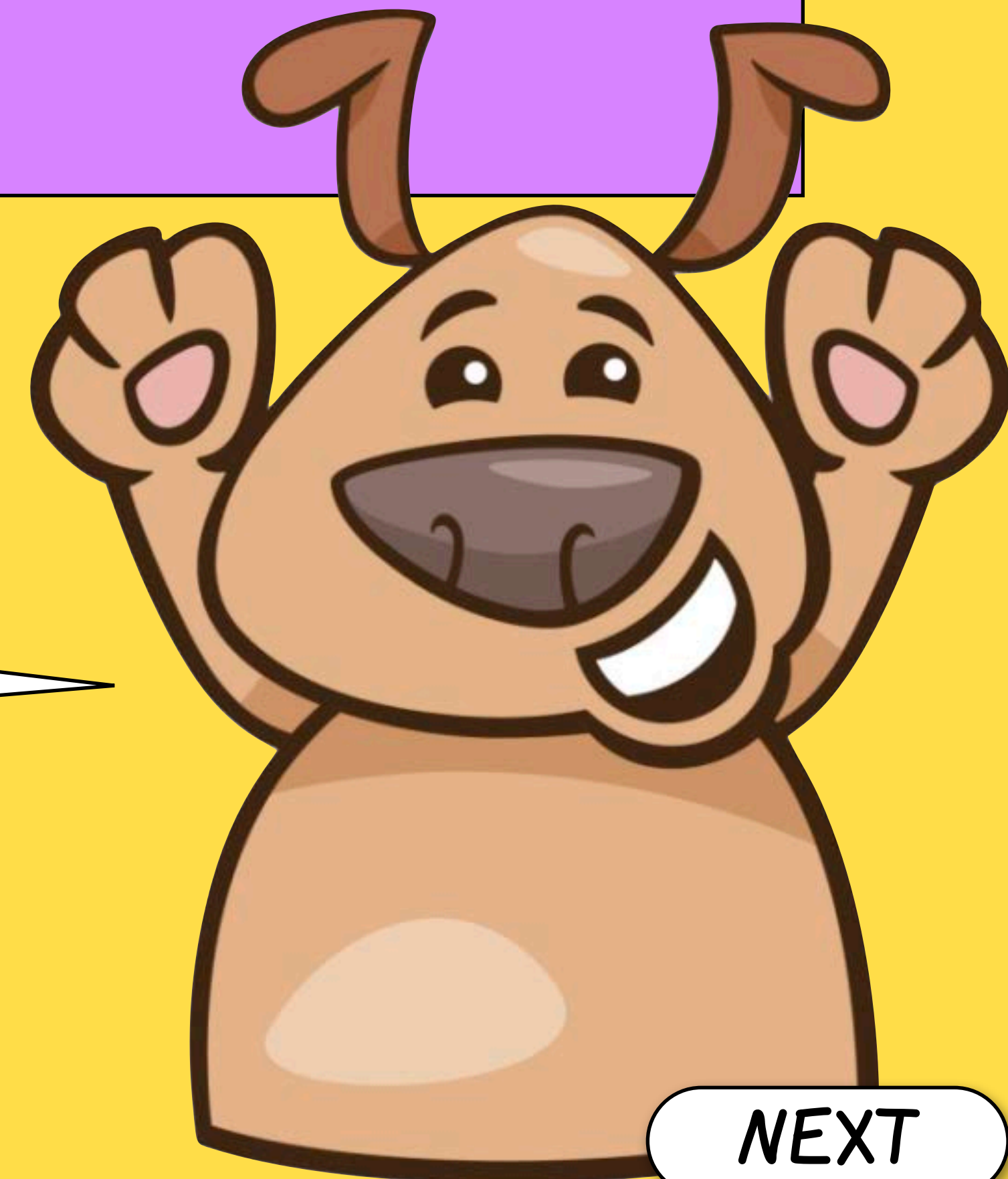
We had two different units of measure here so if we convert the length of the wood from metres to centimetres...

$$1.5 \times 100 = 150$$

...we can then take away the 34cm he cut off:

$$150 - 34 = 116$$

This shows that the length of wood he had left was 116cm or 1.16m!
Did you use metres or centimetres for your answer? Why?



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Good work everyone! Are you ready to try some questions by yourself?

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Plenary:

Have a look at
the pictures of some
of the tallest buildings in
the world on the next slide.
Estimate how tall you
think each one is in
metres!



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NEXT

_____ metres



Burj Khalifa,
Dubai

_____ metres



Taipei 101,
Taiwan

_____ metres



Petronas Towers,
Kuala Lumpur

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828 metres



452 metres



509 metres



How close were your guesses?



Can you convert each of these measurements to km and cm?

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0.828 km

828 m

82,800 cm



0.452 km

452 m

45,200 cm



0.509 km

509 m

50,900 cm



Well done!

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