Length –Convert, Extend to Kilometres.

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Differentiate and Assess

Not every student will be ready to investigate this concept at this Level and so we will need to differentiate to ensure every student is learning at their leading edge. Select the Differentiate button on this screen.

Integrate

Every mathematical concept is integrally related to other mathematical concepts. Teaching and learning related concepts simultaneously develops deep relational understanding. Select the Integrate button on this screen.

Intervene

Some students may not yet be ready to investigate this concept at any Level, and so we will need to provide some intervention. Select the Intervention button on this screen.

LENGTH – CONVERT, EXTEND TO KILOMETRES.

EXPLICIT TEACHING PLAN OVERVIEW PAGE

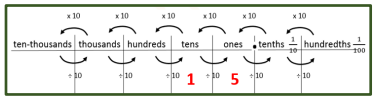
THIS PAGE IS A SUMMARY OF THE EXPLICIT TEACHING PLAN, INCLUDING STRATEGIC QUESTIONS, AND DESRIBING THE SEQUENCE WHICH WILL OCCUR OVER MULTIPLE LESSONS.

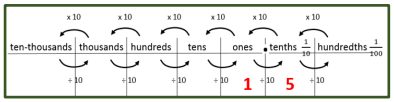
RESOURCES: OBJECTS AND SHAPES, PENCIL, PAPER, METRE RULERS, CENTIMETRE RULERS, MILLIMETRE RULERS

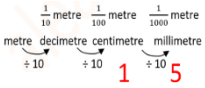
WHAT COULD WE DO?

Children:

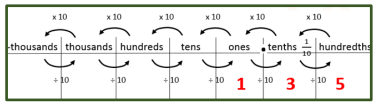
- measure lengths in millimetres, then convert to centimetres by dividing by 10, using multiplicative place value; measure lengths in centimetres, then convert to millimetres by multiplying by 10, using multiplicative place value, for example, 15 mm = 1.5 cm and 1.5 cm = 15 mm

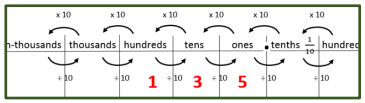


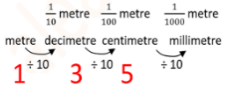




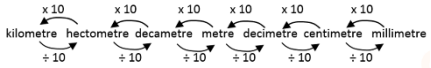
- measure lengths in centimetres, then convert to metres by dividing by 100, using multiplicative place value; measure lengths in metres, then convert to centimetres by multiplying by 100, using multiplicative place value, for example, 135 cm = 1.35 m and 1.35 m = 135 cm





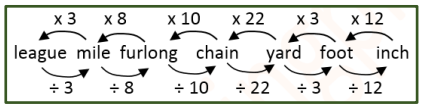


- convert between kilometres and metres using direct measurement, for example,



8 metres, 29 centimetres	16 kilometres, 350 metres
800 centimetres + 29 centimetres	16 000 metres + 350 metres
829 centimetres	16 350 metres

- investigate imperial length units of measurement, for example,



WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

Children

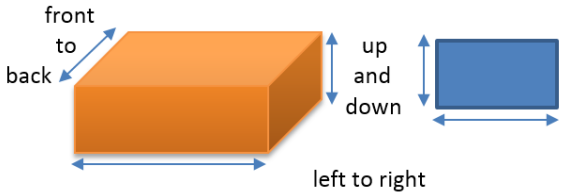
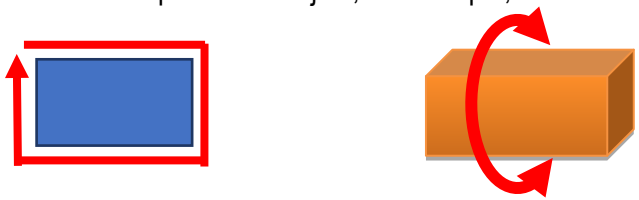
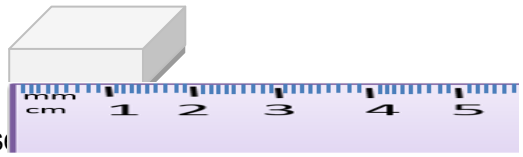
- ask one another questions about measuring lengths and perimeters in metric units, then converting between units using multiplicative place value, for example:

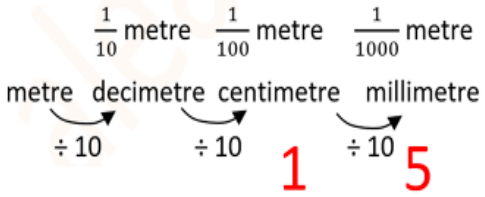
- ▶ How could we convert between centimetres and millimetres using multiplicative place value?
- ▶ How could we convert between millimetres and centimetres using multiplicative place value?
- ▶ How could we convert between metres and centimetres using multiplicative place value?
- ▶ How could we convert between centimetres and metres using multiplicative place value?
- ▶ How could we convert between kilometres and metres using the relationship between kilometres and metres?
- ▶ How could we convert between metres and kilometres using the relationship between kilometres and metres?
- ▶ What is the imperial measurement system?

LENGTH – CONVERT, EXTEND TO KILOMETRES.

EXPLICIT TEACHING PLAN

FULL EXPLICIT TEACHING PLAN, EMBEDDING DEEP RELATIONAL UNDERSTANDING, METALANGUAGE, AND QUESTIONS THAT MAY BE USED OVER MULTIPLE LESSONS.

WHAT COULD WE DO?	WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?
Children think about, talk and listen to a friend about, then have the opportunity to share what they already know.	▸ Today brings an investigation about length. ▸ What do you know about length? ▸ Talk about length with a friend. ▸ Is anyone ready to share what they are thinking about length?
Display a shape and an object, indicating their dimensions, for example, 	▸ We've investigated measuring length. ▸ We found that when we measure the length of shapes and objects, we measure one dimension - up and down, left to right or front to back.
Display the length around a shape and an object, for example, 	▸ We investigated measuring the length all the way around a shape or an object. ▸ And we found that this length was called a perimeter.
Display an eraser and a ruler, for example, 	▸ We've investigated the units we could use to measure lengths. ▸ And we found that we measure lengths in metres, centimetres and millimetres. ▸ We found that we could convert between units of measurement. ▸ We measured lengths and perimeters in millimetres, and in combinations of centimetres and millimetres.
Record, for example, Length of eras Length of eraser = 1 centimetre and 5 millimetres	



Length of eraser = $1\frac{5}{10}$ centimetres

Length of eraser = 1.5 centimetres

Children use their ruler to draw a line 1 centimetre long, for example,

1 centimetre

Children use their ruler to draw a line 1 millimetre long, for example,

1 millimetre

Children identify they need 10 millimetres to make a centimetre.

Allow children to identify that a centimetre is 10 times longer than a millimetre and a millimetre is 10 times shorter than a centimetre.

Record, for example, 1.5 centimetres

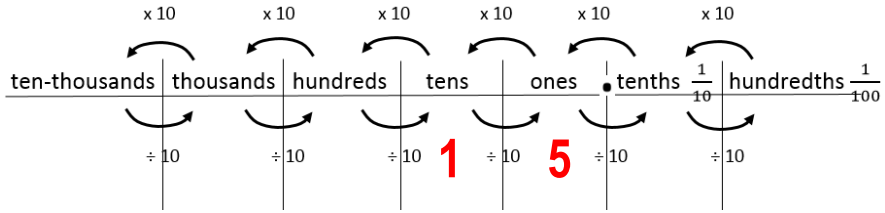
- Then we recorded the measurement in a metric measurement chart.
- And explained how we could read the measurement as millimetres, or as a combination of centimetres and millimetres.
- Then converted to centimetres and a fraction of a centimetre.
- Then converted to centimetres and a decimal fraction of a centimetre.

- Let's use our ruler to draw and label a line that is 1 centimetre long in green.

- Now let's use our ruler to draw and label a line that is 1 millimetre long in red.
- Is a millimetre a very short length?

- Do we need 10 millimetres to make a centimetre?
- Is a centimetre, 10 times longer than a millimetre?
- Is a millimetre, 10 times shorter than a centimetre?

- **Let's investigate using multiplicative place value to convert from centimetres to millimetres.**
- Let's record our length in centimetres.
- Is our length, 1.5 centimetres?

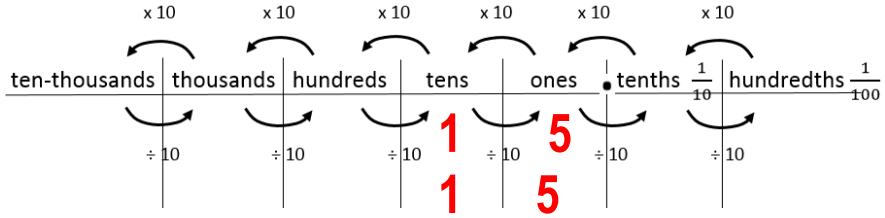
Display a place value chart, with 1.5 recorded in it, for example,  	▸ Let's record this in a place value chart.
	▸ Let's look at our millimetre and our centimetre. ▸ Will we need more centimetres or more millimetres to measure the same length? ▸ Will we need more millimetres? ▸ Why? ▸ Will we need more millimetres than centimetres because a millimetre is shorter than a centimetre? ▸ How many times more millimetres than centimetres will we need? ▸ Will we need 10 times more millimetres than centimetres to measure the same length?
Allow children to identify 1 centimetre is 10 millimetres on their ruler.	▸ If we have 1 centimetre, how many millimetres do we have? ▸ Do we have 10 millimetres in 1 centimetre? ▸ What did we do to the number of centimetres to get millimetres – did we multiply by 10?
Allow children to identify 2 centimetres is 20 millimetres on their ruler.	▸ If we have 2 centimetres, how many millimetres do we have? ▸ Do we have 20 millimetres in 2 centimetres? ▸ What did we do to the number of centimetres to get millimetres – did we multiply by 10?
Allow children to identify 5 centimetres is 50 millimetres on their ruler.	▸ If we have 5 centimetres, how many millimetres do we have? ▸ Do we have 50 millimetres in 5 centimetres? ▸ What did we do to the number of centimetres to get millimetres – did we multiply by 10? Why?

Allow children to use their cm and mm drawn lines, and their ruler, to explain that we need 10 times more millimetres than centimetres to measure the same length because:

- for every centimetre we need 10 millimetres,
- so we need 10 times more millimetres than centimetres to measure the same length
- so we multiply the number of centimetres by 10 to get the number of millimetres.

Record, for example, 1.5 x 10 =

Move the digits 1 place to the left, for example,



Record, for example, 1.5 x 10 = 15

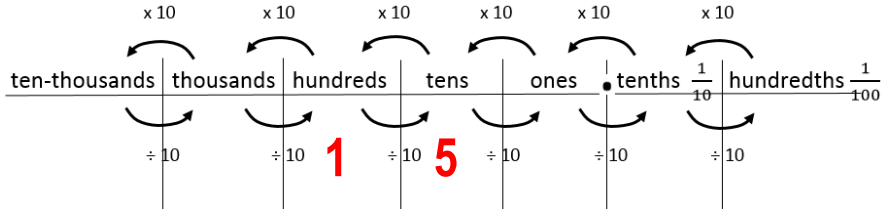
Record, for example, 1.5 centimetres = 15 millimetres

Children identify 1.5 centimetres is equal to 15 millimetres on their ruler.

- Is there 1 centimetre for every 10 millimetres?
- If we need 10 millimetres for each 1 centimetre, will there be 10 times more millimetres than centimetres to measure the same length?
- If we need 10 times more millimetres than centimetres to measure the same length, will we multiply the number of centimetres by 10 to get the number of millimetres?
- How could we use multiplicative place value to multiply 1.5 by 10?
- When we multiply by 10, do the digits move 1 place to the left?
- Is 1.5 times 10, 15?
- Is 1.5 centimetres the same length as 15 millimetres?
- Could we check on our ruler?
- **Let's investigate using multiplicative place value to convert from**

Record, for example, 15 mm

Display a place value chart, with 15 recorded in it, for example,



Allow children to identify 10 millimetres is 1 centimetre on their ruler.

Allow children to identify 20 millimetres is 2 centimetres on their ruler.

millimetres to centimetres.

- Let's record our length in millimetres.
- Is our length, 15 millimetres?
- Let's record this in a place value chart.

- Will we need fewer (less) centimetres or millimetres to measure the same length?
- Will we need fewer (less) centimetres?
- Why?
- Will we need fewer centimetres than millimetres because a centimetre is longer than a millimetre?
- How many times fewer centimetres than millimetres will we need?
- Will we need 10 times fewer centimetres than millimetres to measure the same length?

- If we have 10 millimetres – how many centimetres do we have?
- Do we have 1 centimetre?
- What did we do to the number of millimetres to get centimetres – did we divide by 10?

- If we have 20 millimetres – how many centimetres do we have?
- Do we have 2 centimetres?
- What did we do to the number of millimetres to get centimetres – did we divide by 10?

- If we have 50 millimetres – how many centimetres do we have?

Allow children to identify 50 millimetres is 5 centimetres on their ruler

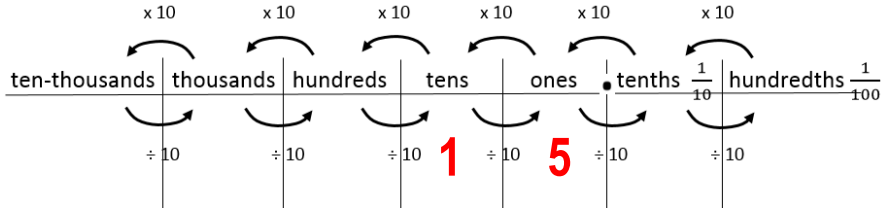
- Do we have 5 centimetres?

Allow children to use their cm and mm drawn lines, and their ruler, to explain that we need 10 times fewer centimetres than millimetres to measure the same length because:

- for every 10 millimetres we only need 1 centimetre,
- so we need 10 times fewer centimetres than millimetres to measure the same length
- so we divide the number of millimetres by 10 to get the number of centimetres.

- What did we do to the number of millimetres to get centimetres – did we divide by 10?
- Are we dividing the number of millimetres by 10 to get the number of centimetres? Why?
- Are there 10 millimetres in every centimetre?
- If there are 10 millimetres in every centimetre, will there 10 times fewer centimetres than millimetres to measure the same length?

Move the digits 1 place to the right, for example,



- How could we use multiplicative place value to divide 15 by 10?
- When we divide by 10, do the digits move 1 place to the right?

Record, for example, 15 ÷ 10 = 1.5

- Is 15 divided by 10, 1.5?

Record, for example, 15 millimetres = 1.5 centimetres

- Is 15 millimetres the same length as 1.5 centimetres?

Children identify 15 millimetres is equal to 1.5 centimetres on their ruler.

- Could we check on our ruler?

- In 1.5 centimetres, what is the value of the 5?

Record, for example, 1.5 centimetres = $1\frac{5}{10}$ centimetres

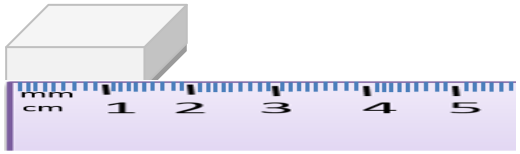
Record, for example, 1 millimetre = $\frac{1}{10}$ centimetre

Record, for example, $1\frac{5}{10} = 1\frac{1}{2}$

Display a ruler with centimetres and millimetres marked, for example,

Children identify 15 millimetres is equal to 1.5 centimetres.

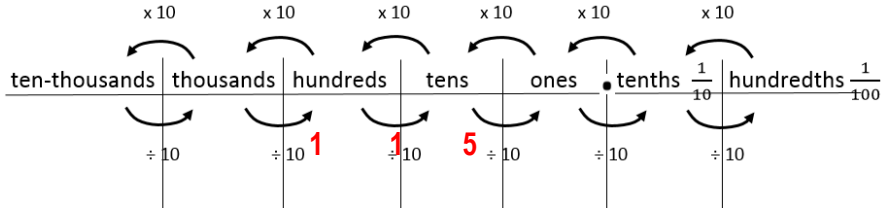
Display an eraser and a ruler, for example,



- Is the value of the 5, 5 tenths?
- Is 1.5 centimetres, 1 and five tenths centimetres?
- Is 1 millimetre, 1 tenth of a centimetre?
- So does it make sense that 1 centimetre and 5 millimetres is 1 and 5 tenths centimetres?
- So does it make sense that 15 millimetres is 1 and 5 tenths centimetres?
- Is 5 tenths equivalent to a half?
- Is the numerator half of the denominator? Is 5 half of 10?
- Is 15 millimetres equal to 1 and a half centimetres?
- Does that make sense?
- Can you see the 15 millimetres on the ruler?
- Can you see 1 centimetre and 5 millimetres?
- Can you see 1 and 5 tenths centimetres?
- Can you see 1 point 5 centimetres?
- Can you see the 1 and a half centimetres on the ruler?
- Can you see 1.5 centimetres on the ruler?

Record, for example, 115 cm

Display a place value chart, with 115 recorded in it, for example,

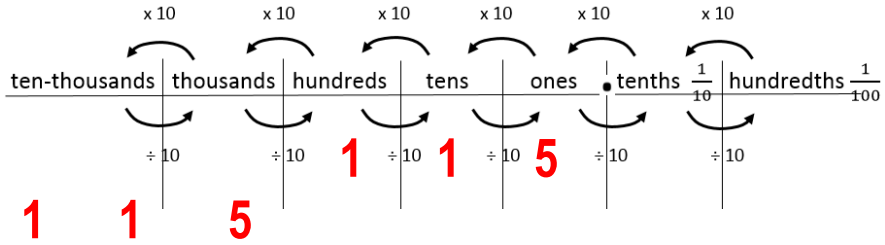


- **Let's investigate using multiplicative place value to convert from centimetres to metres.**
- Let's record our length in centimetres.
- Is our length, 115 centimetres?
- Let's record this in a place value chart.

- Will we need fewer (less) metres or centimetres to measure the same length?
- Will we need fewer (less) metres?
- Why?
- Will we need fewer metres than centimetres because a metre is longer than a centimetre?
- How many times fewer metres than centimetres will we need?
- Will we need 100 times fewer centimetres than metres to measure the same length?

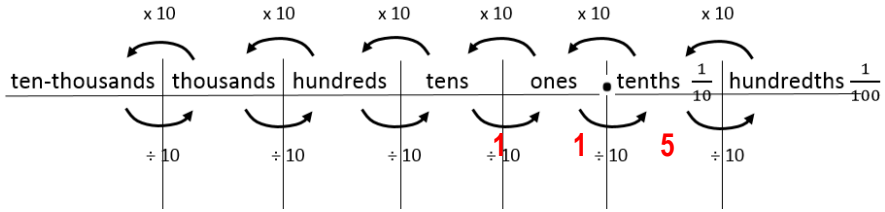
- If we have 100 centimetres – how many metres do we have?
- Do we have 1 metre?
- What did we do to the number of centimetres to get metres – did we divide by 100?

- If we have 200 centimetres – how many metres do we have?
- Do we have 2 metres?
- What did we do to the number of centimetres to get metres – did we divide by 100?

	▸ If we have 500 centimetres – how many metres do we have? ▸ Do we have 5 metres?
	▸ What did we do to the number of centimetres to get metres – did we divide by 100? ▸ Are we dividing the number of centimetres by 100 to get the number of metres? Why? ▸ Are there 100 centimetres in every metre? ▸ If there are 100 centimetres in every metre, will there 100 times fewer metres than centimetres to measure the same length?
Children explain that we need 100 times fewer metres than centimetres to measure the same length because: • for every 100 centimetres we only need 1 metre, • so we need 100 times fewer metres than centimetres to measure the same length so we divide the number of centimetres by 100 to get the number of metres.	
	▸ How could we use multiplicative place value to divide 115 by 100? ▸ When we divide by 100, do the digits move 2 place to the right?
Move the digits 2 places to the right, for example,  	▸ Is 115 divided by 100, 1.15? ▸ Is 115 centimetres the same length as 1.15 metres?
	▸ What fraction of a metre is 1 centimetre? ▸ Is 1 centimetre, 1 hundredth of a metre? ▸ Does centi mean hundredth? ▸ If 1 centimetre is 1 hundredth of a metre, what fraction of a metre is 15 centimetres?

Record, for example, 1.15 m

Display a place value chart, with 1.15 recorded in it, for example,



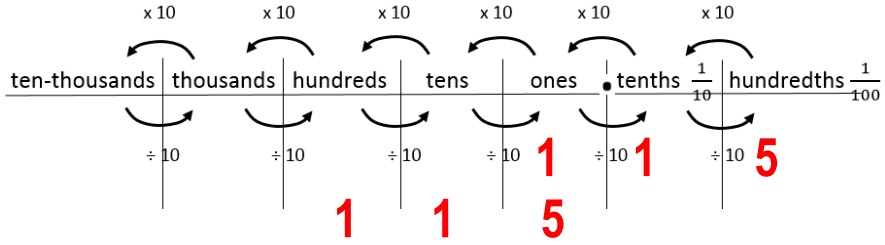
- Is 15 centimetres, 15 hundredths of a metre?
- How do we record 15 hundredths using a place value chart?
- Do we record 15 hundredths using a place value chart, point one five?
- Does it make sense that 1.15 metres is 100 centimetres plus 15 centimetres?
- Does it make sense that 1.15 metres is 115 centimetres?

- **Let's investigate using multiplicative place value to convert from metres to centimetres.**
- Let's record our length in metres.
- Is our length, 1.15 metres?
- Let's record this in a place value chart.

- Let's look at our centimetre and our metre.
- Will we need more metres or more centimetres to measure the same length?
- Will we need more centimetres?
- Why?
- Will we need more centimetres than metres because a centimetre is shorter than a metre?
- How many times more centimetres than metres?
- Will we need 100 times more centimetres than metres to measure the same length?

Children explain that we need 10 times more millimetres than centimetres to measure the same length because: • for every centimetre we need 10 millimetres, • so we need 10 times more millimetres than centimetres to measure the same length so we multiply the number of centimetres by 10 to get the number of millimetres.	► If we have 1 metre, how many centimetres do we have? ► Are there 100 centimetres in 1 metre? ► What did we do to the number of metres to get centimetres – did we multiply by 100? ► If we have 2 metres, how many centimetres do we have? ► Are there 200 centimetres in 2 metres? ► What did we do to the number of metres to get centimetres – did we multiply by 100? ► If we have 5 metres, how many centimetres do we have? ► Are there 500 centimetres in 5 metres? ► What did we do to the number of metres to get centimetres – did we multiply by 100? Why? ► Is there 1 metre for every 100 centimetres? ► If we need 100 centimetres for each 1 metre, will there be 100 times more centimetres than metres to measure the same length? ► If we need 100 times more centimetres than metres to measure the same length, will we multiply the number of metres by 100 to get the number of centimetres?

Move the digits 2 places to the left, for example,



Record, for example, 1.15 m

Record, for example, 1 centimetre = $\frac{1}{100}$ metre

Record, for example, 15 centimetre = $\frac{15}{100}$ metre

Record, for example, 1.15 metres = 1 $\frac{15}{100}$ centimetres

Children identify 115 centimetres is equal to 1.15 metres.

- How could we use multiplicative place value to multiply 1.15 by 100?
- When we multiply by 100, do the digits move 2 places to the left?

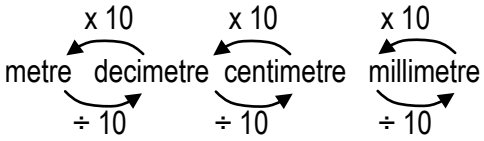
- Is 1.15 times 100, 115?
- Is 1.15 metres the same length as 115 centimetres?

- What fraction of a metre is 1 centimetre?
- Is 1 centimetre, 1 hundredth of a metre?

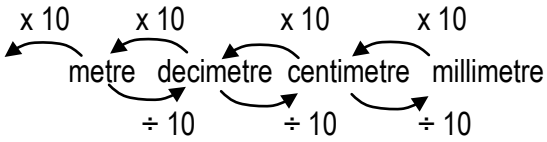
- If 1 centimetre is 1 hundredth of a metre, what fraction of a metre is 15 centimetres?
- Is 15 centimetres, 15 hundredths of a metre?

- How do we record 15 hundredths using a place value chart?
- Do we record 15 hundredths using a place value chart, point one five?
- Does it make sense that 1.15 metres is 100 centimetres plus 15 centimetres?
- Does it make sense that 1.15 metres is 115 centimetres?

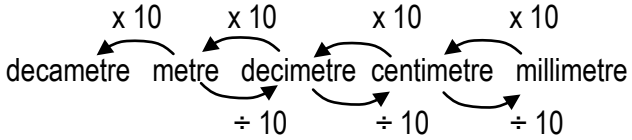
Display, for example,



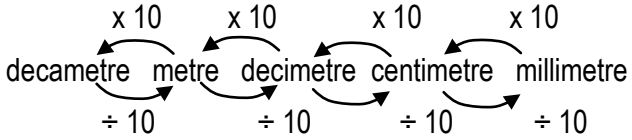
Record, for example,



Record, for example,

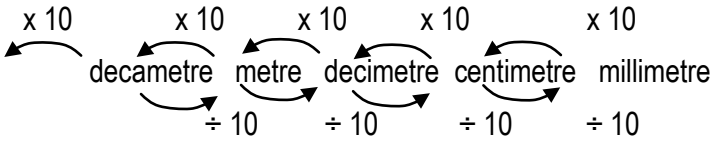


Record, for example,

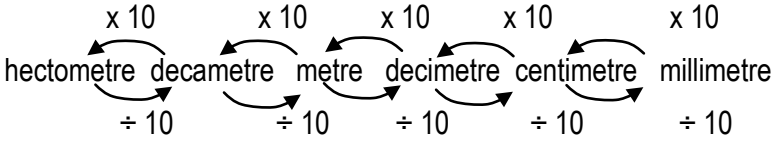


- **Today we're going to extend our investigation of the metric system to really long units of measurement!**
- A metre is a great length if we want to measure the length of things that are a bit longer than a metre.
- But what if we want to measure the length of things that are much longer than a metre?
- What could we multiply the metre by?
- Could we multiply the metre by 10?
- If we multiply the metre by 10, will we have 10 metres?
- When we divided the metre by 10, we used French to describe the units.
- When we multiply the metre by 10, we use Greek.
- The prefix 'deca' means 10,.
- Do we use decametres to measure length?
- No we don't use decametres to measure length – but we could!
- If we divide the decametre by 10, will we have a metre?
- A decametre is a great length if we want to measure the length of things that are a

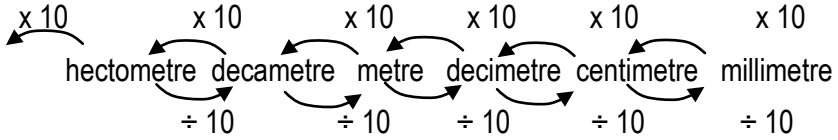
Record, for example,



Record, for example,



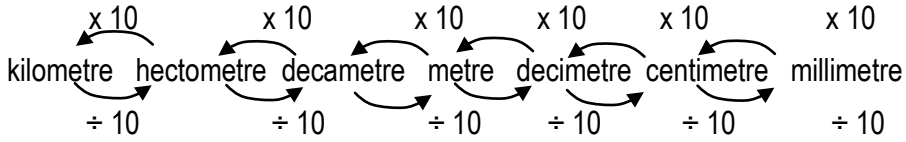
Record, for example,



bit longer than a decametre.

- But what if we want to measure the length of things that are much longer than a decametre?
- What could we multiply the decametre by?
- Could we multiply the decametre by 10?
- If we multiply the decametre by 10, will we have 100 metres?
- This unit of measurement '100 metres', is a hectometre, because we are speaking Greek.
- The prefix 'hecto' means 100.
- Do we use hectometres to measure length?
- No we don't use hectometres to measure length – but we could!
- If we divide the hectometre by 10, will we have a decametre?
- A hectometre is a great length if we want to measure the length of things that are a bit longer than a hectometre.
- But what if we want to measure the length of things that are much longer than a hectometre?
- What could we multiply the hectometre by?
- Could we multiply the hectometre by 10?
- If we multiply the hectometre by 10, will we have 1000 metres?
- This unit of measurement '1000 metres', is a kilometre, because we are speaking Greek.

Record, for example,



- The prefix ‘kilo’ means 1000.
- Do we use kilometres to measure length? We do!
- If we divide the kilometre by 10, will we have a hectometre?
- We’ve investigated converting between metres and centimetres, and between centimetres and millimetres using place value.

- Today we’re going to investigate converting between kilometres and metres.
- How many metres in every kilometre?
- Are there 1000 metres in every kilometre? Does the prefix ‘kilo’ tell us that?
- So if we had a length or a distance that was 16 kilometres and 350 metres, could we change each kilometre into 1000 metres?

Record, for example, 1 kilometre = 1000 metres

- Is 16 kilometres, 16 thousand metres?
- 16 thousand metres plus the 350 metres equals 16 350 metres.

Record, for example, 16 kilometres + 350 metres

= 16 000 metres + 350 metres

= 16 350 metres

- Let’s investigate converting between metres and kilometres.
- How many metres in a kilometre?
- Are there 1000 metres in every kilometre?
- If there are 1000 metres in every kilometre, could we change every 1000 metres into 1 kilometre?

Record, for example, 1 kilometre = 1000 metres

- If a length was 2865 metres, how many kilometres would that be?
- Would there be 2 kilometres, plus another 865 metres?

Record, for example, 2865 metres

= 2 kilometres + 865 metres

= 2 kilometres, 865 metres

- **Before the metric system, Europe was using a measurement system that was not easy to understand or remember! Let's investigate the system of measurement that the metric system replaced in Europe.**

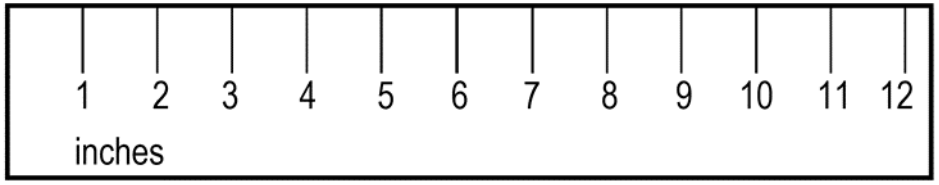
Allow children to discuss where they have heard of feet (foot long sub, six feet tall).

Record, for example, foot

Display a 30 cm ruler, with imperial units of measurement (inches) marked.

- It is called the imperial system because it was created by empires. Have you heard of empires? Empires were ruled by kings and queens.
- Some countries, like the United States of America still use the imperial system today to measure length!
- Have you heard of a unit of measurement called a foot? You may have heard someone say they are 6 foot tall? Have you heard of a foot long sub?
- A foot is about as long as your 30 centimetre ruler.
- Are you wondering why it's called a foot? It's called a foot because originally it was the length of some king or queen's foot! The king or queen told everyone that they had to measure length using the length of their foot as the unit of measurement!
- When another king or queen came along, the length of the foot changed!
- Finally someone decided to make a foot remain the same length all of the time.

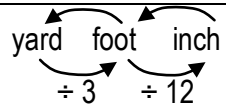
Display a ruler divided into inches, for example,



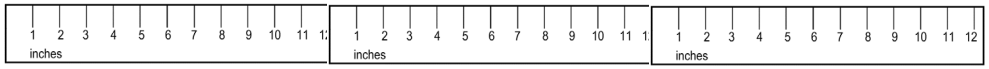
- Now the foot is fine to measure the length of things that are longer than a foot.
- But if they want to measure something shorter than a foot, they needed a shorter unit of measurement.
- So they decided to divide the foot.
- How many parts do you think they decided to divide the foot into?
- 10 would make a lot of sense – but they divided the foot into 12 parts!

Allow children to suggest the number of parts that the foot was divided into – they

are likely to suggest 10! Record, for example, foot ÷ 12 Display the 12 inches that the foot ruler has been divided into. Record, for example, foot inch ÷ 12 Record, for example, x 12 foot inch ÷ 12 Allow children to suggest the number that the foot was multiplied by – they are likely to suggest 10! Record, for example, x 3 x 12 yard foot inch ÷ 12 Record, for example, x 3 x 12	► Let's look closely at this ruler. ► Can you see that it has been divided into 12 parts? ► Each part is called an inch. ► If we have 12 inches, we have a foot. ► Have you ever heard anyone say they are 5 foot 6 inches tall? Have you ever heard of a six inch sub? ► An inch is about 2 and a half centimetres long. ► They didn't divide the inch into new units of measurement. They just made half an inch, quarter of an inch, and an eighth of an inch. ► So now we have feet and inches. ► People found that feet and inches are great if they wanted to measure fairly short things. ► If they want to measure something a lot longer than a foot, they needed a longer unit of measurement. ► So they decided to multiply the foot. ► What do you think they decided to multiply the foot by? ► 10 would make a lot of sense – but they multiplied the foot by 3! ► And they called the new unit of measurement a yard – because they used it to



Display three 12 inch / 30 centimetre rulers end to end.



measure their yard!

- And if they divide the yard by 3, they'd have a foot.

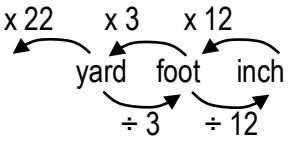
- A yard is a bit shorter than a metre.
- A metre is 3 of these 30 centimetre rulers, plus 10 more centimetres.
- A yard is 3 of these 30 centimetre rulers.
- So a yard is about 10 centimetres shorter than a metre.

- People found that yards are great if they wanted to measure things a bit longer than a yard.
- If they want to measure something a lot longer than a yard, they needed a longer unit of measurement.
- So they decided to multiply the yard.

Allow children to suggest the number that the yard was multiplied by – they are probably less likely to suggest 10 now, but may suggest 3!

- What do you think they decided to multiply the yard by?
- 10 would make a lot of sense – but they multiplied the yard by 22!

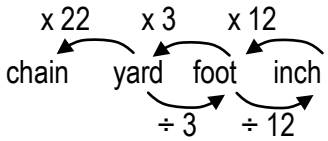
Record, for example,



Display a picture of a cricket pitch – freely available on the Internet.

- Now this unit of measurement was invented in England where they use to – and still do – love to play cricket!
- They wanted the cricket pitch to always be the same length – so they used a piece of chain that was 22 yards long to measure the length of the cricket pitch.

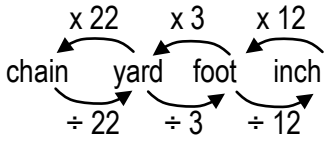
Record, for example,



- After a while, because they used a chain that was 22 yards long to measure the cricket pitch, they called 22 yards length a chain.

Record, for example,

- And if we divide the chain by 22, we'd have a yard.



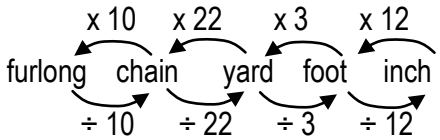
- People found that chains are great if they wanted to measure things like a cricket pitch.
- If they want to measure something a lot longer than a chain, - like the length of whole stadiums - they needed a longer unit of measurement.
- So they decided to multiply the chain so they could measure the length of stadiums.

Allow children to suggest the number that the chain was multiplied by – they are probably less likely to suggest 10 now!

- What do you think they decided to multiply the chain by, to measure a stadium?

- They did multiply a chain by 10!

Record, for example,



- And they called the new unit of measurement a furlong. It comes from the word 'furrow' and the word 'long'. A furrow is a row that farmers make to plant crops.
- And if we divide the furlong by 10, we'd have a chain.

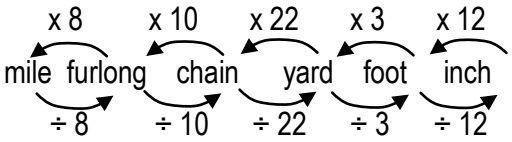
- People found that furlongs are great if they wanted to measure things like a furrow in a field, or a stadium.
- If they want to measure something a lot longer than a furlong - like the distance between towns -they needed a longer unit of measurement.
- So they decided to multiply the furlong so they could measure the distance between towns.

Allow children to suggest the number that the furlong was multiplied by – will they suggest 10 again?

- What do you think they decided to multiply the furlong by, to measure the distance between towns?

Record, for example,

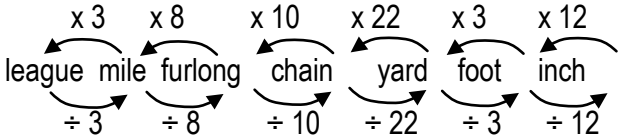
- 10 would make sense – but they multiplied a furlong by 8!



- And they called the new unit of measurement a mile.
- A kilometre is five-eighths as long as mile.
- And if we divide the mile by 8, we'd have a furlong.

- When all of these units of measurement were being invented, the most common way that people travelled was by walking!
- So people wanted to measure how far they could walk in an hour.

Record, for example,



- They found that most people walk about 3 miles in an hour, so they multiplied the mile by 3, and called this new unit of measurement, a league!
- And if we divide the league by 3, we'd have a mile.
- These are some of the units of measurement that are used to measure length in the Imperial system!
- Can you understand why, about 300 years ago, the French mathematicians decided to invent new units of measurement?
- Most countries in the world use the metric system's units of measurement, because European countries took it with them when they went to explore the world.
- A few countries still use some of the imperial units of measurement.
- The main imperial units of measurement of length that are used today in countries like the United States of America are the inch, the foot and the mile.

12 inch ruler - Print 2 x the sizeback