Teacher Input Ideas:

Ask the children to create mind maps of different units of measure and any relationships they know between units. Such as: I know that 10 mm = 1cm. 100 cm = 1m 1000mm = 1 m. What different facts can the children record and share?

Discuss what the children know and make a class wall display to demonstrate the links between ml and l, mm and cm, m and km and g and kg.

Depending on the children's gaps in question 2a and 2b of the prior learning assessment, you may want to split the inputs and tasks over a set of lessons so that the children can explore weight, length and capacity in individual sections.

G and KG

Model converting grams to kilograms. Establish that 1000 g = 1 kilogram. Encourage the children to suggest conversions using this such as 2000 g = 2kg = 3000 g = 3kg, 500 = ½ kg, 3.25 = 3250kg etc.

What if we have 1500 grams. This is 1 and half kilograms. How will we write this? What about 2750 grams. Encourage the children to discuss the link and model that we are dividing by 1000 to work this out. If we have 1289 g then we will write this as 1.289 kg. Model dividing by 1000 on place value chart. Repeat with other amounts.

The first purple activity provides the children with opportunity to work out grams to kg with reminders of what they need to do and a place value chart for children who need to help with dividing by 1000.

Then introduce kg to grams. So if I have 1 kg, how many grams will I have? What about 2.35 kg? Establish that this time we need to use the link between g and kg to multiply by 1000 to work these out. Model 1.3 kg, x 1000 on a place value chart, then repeat for amounts such as 1.25kg x 1000 and 3.456 x 1000. Encourage the children to discuss how they can check their answers.

ML to L

Once the children show confidence with the link between kg and g, the children can then explore the similarities with ml and L. Discuss that there are 1000 ml in one L. How is this similar to kg and g? What knowledge can we use ? How do you think I can convert l to ml and ml to l?

Provide some examples , encouraging the children to divide and multiply by 1000 accurately. Encourage children to model and explain how they converted between the units.

Purple activities 3 and 4 provide support with converting ml to l and l to ml.

MM, CM , M and KM

Provide children with a metre long strip of paper. Encourage the children to discuss what they know about 1m.

For example, children could make markings for different units of measure, such as finding the half way mark and put half a metre/50cm or they could use a ruler to mark centimetres and groups of these . How many mm will we need to mark out if we were going to think about mm? How can this strip of paper be used to think about a km?

Look at the relationship between mm and cm. How many mm are in 1cm? How can we use this to calculate and convert measurements? For example if I want to add 34mm to this string which is 12cm how would I do so? What will I need to do?

Establish that we will need to divide by 10 as 10 mm is 1cm so I have 3 whole cm and 4 mm . I would write this as 3.4cm. Recap for other examples:

What if I want to find out how many mm are in 5.6 cm? What will I do?

Model x by 10 as there a 10 mm in every 1cm so if I have 5cm will have 50mm and then the 6mm.

Once children have explored mm to cm, green task sheet 1 provides the opportunity to convert between the 2 measurements.

When the children are confident, model the link between cm and m. Discuss key information about how many cm are in 1m. How can this information be used to convert cm to m and m to cm? When may we need to do this? Can you think of any examples?

Let's try and convert these:

1.35 m to cm	12.09 m to cm	0.67 m to cm	0.895m to cm
782 cm to m	6472cm to m	98 cm to m	504 cm to m

Ask the children to explain with the use of a place value chart what calculation they are performing each time and why using the link between 100cm = 1m.

Recap what kilo means. How many grams are in 1kg? So how many m are in there in 1 km?

Children should demonstrate knowledge of multiplying and dividing by 1000 , linking to the calculations they performed for kg to g and g to kg.

Which calculation will you perform to convert m into km? Why? How will you work this out?

Which calculation will you perform to convert km into m? Why? How will you work this out?

Practice Activities

Purple Practice: Most suited for children who made errors in question 2b of the prior learning assessment and will benefit from exploring the link between grams and kilograms and litres and millilitres.

There are 4 sheets provided for the purple activity which look in depth at converting between grams/kg and between millilitres/litres. You may want to split these across multiple lessons dependent on the children's knowledge and gaps.

Purple sheets 1 and 2 focus on the link between grams and kg. The children are encouraged to convert between the 2 units of measure. To support, the children are provided with a reminder that there are 1000g in 1 kilogram and how to calculate this. Additionally they are provided with a place value chart to support with ÷ and x by 1000.

Purple sheets 3 and 4 provide the children with the opportunity to convert between litres and millilitres. The layout is as above and the children are provided with reminders of how to convert between the 2 units and a place value chart.

Green Practice: Most suited for children who made errors in Question 2a of the prior learning assessment due to lack of understanding with the links between mm, cm, m and km.

The green activity is laid out the same as the purple activities, however the children are provided with the opportunity to convert between different units of length. The children are provided with 3 sheets that support the children through converting between mm and cm, cm, and m and m and km. The children should be able to use their knowledge of x and ÷ by 10, 100 and 1000 to convert the different units of measure. The children also have the opportunity to apply this knowledge and skills in the mastery section of the lesson.

Yellow Practice Most suited for children who show some accuracy with their knowledge of converting units and Q2 of the Prior Learning Assessment and will benefit from ordering amounts presented in different units of measure.

For the yellow activity the children are presented with sets of different units of measure and amounts. The children should be encouraged to order the amounts from smallest to largest/ lightest to heaviest/ longest to shortest.

The children should apply their knowledge of how the amounts can be converted into other metric units to help them to order. The children should suggest which unit of measure they would like to work in and convert into one unit of measure to help to order. Remind the children that when they write the amounts back in order that they should record these as they are written in the question. The children may want to cut out each set and stick them in the correct order. Model using the space around the blocks to make jottings of their conversions.

Mastery For this activity the children are asked to work out how many mm are in 1 km. This question provides the opportunity to apply their knowledge of length conversions and knowledge of multiplying by 10, 100 and 1000. Additionally the children should be encouraged to talk through the steps they have taken and share their working out with others. They may also suggest ways of recording their working out so that they can prove and explain to others.

Key Questions: Do you know how many mm are in an km? What relationships do you know? How will these help you? Where will you start? Why? What will you convert the mm or km into first? Why? Explain the knowledge you are using next? How is this helping you? How are you keeping a track of the steps you have taken? Will you be able to explain to a partner how you worked this out and prove you are right? What record are you keeping of your working out to help you?

Answers:

Purple activity 1 :

3000g = 3kg

5000 g = 5kg

6500 g= 6.5kg

32000g – 3.2kg

2450 g = 2.45kg

4125g = 4.125 kg

5789 g = 5.789 kg

345 g = 0.345 kg

Purple Activity 2:

4 kg = 4000g

9 kg = 9000g

7.5 kg = 7500g

4.2 kg = 4200g

2.75 kg = 2750g

3.123kg = 3123 g

5.098 = 5098 g

0.899 = 899g

Purple Activity 3:

8000ml = 8 L

2000ml = 2L

1800 ml = 1.8 L

4900ml = 4.9 L

5250ml = 5.25L

2890 ml = 2.890 L

800ml = 0.8 L

125ml = 0.125 L

Purple Activity 4:

6 L =6000ml

3 L = 3000ml

2.5 L = 2500ml

8.1 L = 8100ml

3.25L = 3250 ml

9.102L = 9102ml

3.125 L = 3125ml

0.050L = 50ml

Green Activity 1:

40 mm = 4 cm   45 cm = 450 mm

13 mm = 1.3 cm   8 cm = 80 mm

145mm = 14.5 cm   3.2 cm = 32 mm

5 mm = 0.5 cm   25.1 cm = 251 mm

Green Activity 2:

600 cm = 6 m   8m = 800 cm

350 cm = 3.5 m   1.2 m = 120cm

105cm = 1.05 m   4.56 m = 456cm

84 cm = 0.84m   12.9 m = 1290cm

Green Activity 3 :

5000m = 5km   0.5km = 500m

4200m = 4.2 Km   1.8km = 1800m

350m = 0.35Km   2.008 = 2008m

1566= 1.566Km   3.12 Km = 3120m

Yellow:

1)	1 ¼ Kg	1.2 Kg	1020 g	200g
2)	0.65L	600ml	60ml	6 ml
3)	13cm	120mm	10.5 cm	100mm
4)	0.41 m	400mm	0.14m	0.4 cm
5)	2300m	2250m	2.2km	2.03 km

Mastery :

1, 000,000 millimetres = 1 KM

10 mm = 1 cm (x by 100) =1000mm = 1m

1000 x 1000 = 1,000,000 mm

BRICKWORK
Mathematics

There are 1000 grams in 1 kilogram

To convert grams to kilograms

÷ by 1000

grams	kilograms
3000 →	
5000 →	
6500 →	
3200 →	

grams	kilograms
2450 →	
4125 →	
5789 →	
345 →	

Divide by 1000 = move each digit 3 places to the right

thousands	hundreds	tens	ones	tenths	hundredths	thousandths
			•			

BRICKWORK
Mathematics

There are 1000 grams in 1 kilogram.

To convert kilograms to grams

x by 1000

kilograms	grams
4 ⟶	
9 ⟶	
7.5 ⟶	
4.2 ⟶	

kilograms	grams
2.75 ⟶	
3.123 ⟶	
5.098 ⟶	
0.899 ⟶	

⟵ multiply by 1000 = move each digit 3 places to the left

thousands	hundreds	tens	ones	tenths	hundredths	thousandths
			•			

BRICKWORK
Mathematics

There are 1000 litres in 1 litre

To convert millilitres to litres

÷ by 1000

millilitres	litres
8000 →	
2000 →	
1800 →	
4900 →	

millilitres	litres
5250 →	
2890 →	
800 →	
125 →	

Divide by 1000 = move each digit 3 places to the right

thousands	hundreds	tens	ones	tenths	hundredths	thousandths

BRICKWORK
Mathematics

There are 1000 millilitres in 1 litre.

To convert litres to millilitres

x by 1000

litres	millilitres
6	⟶
3	⟶
2.5	⟶
8.1	⟶

litres	millilitres
3.25	⟶
9.102	⟶
3.125	⟶
0.050	⟶

← multiply by 1000 = move each digit 3 places to the left →

thousands	hundreds	tens	ones	tenths	hundredths	thousandths

BRICKWORK Mathematics

LO: I can convert millimetres and centimetres.

There are 10 mm in 1 cm.	There are 10 mm in 1 cm.
To convert mm to cm	To convert cm to mm
÷ by 10	x by 10

millimetres	centimetres	centimetres	millimetres
40	→	45	→
13	→	8	→
145	→	3.2	→
5	→	25.1	→

divide by 10 = move each digit 1 place to the right

thousands	hundreds	tens	ones	tenths	hundredths	thousandths
			●			

multiply by 10 = move each digit 1 place to the left

BRICKWORK Mathematics

There are 100 cm in 1 m.	There are 100 cm in 1 m.
To convert cm to m	To convert m to cm
÷ by 100	**x by 100**

centimetres	metres
600	→
350	→
105	→
84	→

metres	centimetres
8	→
1.2	→
4.56	→
12.9	→

Divide by 100 = move each digit 2 places to the right

thousands	hundreds	tens	ones	tenths	hundredths	thousandths
			•			

multiply by 100 = move each digit 2 places to the left

BRICKWORK
Mathematics

There are 1000m in 1 km.

To convert m to km

÷ by 1000

There are 1000 m in 1km.

To convert km to m

x by 1000

metres	kilometres
5000	→
4200	→
350	→
1566	→

kilometres	metres
0.5	→
1.8	→
2.008	→
3.12	→

divide by 1000 = move each digit 3 places to the right

thousands	hundreds	tens	ones	tenths	hundredths	thousandths
			●			

multiply by 1000 = move each digit 3 places to the left

BRICKWORK
Mathematics

LO: I can convert units of measure to help me to order amounts.

Order the following measures in order from smallest to largest.

1.

| 1.2kg | 1020g | 1 ¼ Kg | 200g |

2.

| 0.65 l | 60ml | 0.006l | 600ml |

3.

| 120 mm | 10.5 cm | 100mm | 13cm |

4.

| 400mm | 0.4cm | 0.41m | 0.14 m |

5.

| 2300 m | 2.03 km | 2250 m | 2.2km |

Challenge : think of 4 of your own amounts to give to a friend to order.

BRICKWORK
Mathematics

Insert the correct answer in the pink box.

There are [ ] millimetres in 1 kilometre

1, 000

10, 000

100, 000

1, 000, 000