

# Measurement: Converting Units

*Master The Curriculum*



# 6

Fluency Teaching Slides

# Metric Measures

6

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# Activity 1

## Metric Measures

Look at the unit of measures.

tonnes

kg

km

litres

cm

mm

ml

g

?

*What are they used to measure?*

# Activity 1

# Metric Measures

Look at the unit of measures.

Weight

tonnes

kg

g

Length

km

cm

mm

Volume

litres

ml

## Activity 2

# Metric Measures

Choose the unit of measure that is the most appropriate to measure the items below.

litres

tonnes

cm

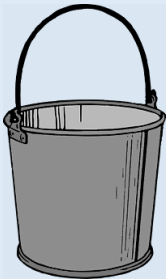
kg

ml

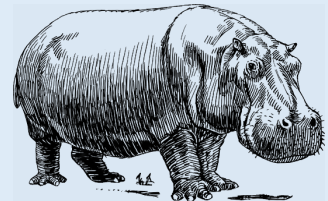
mm

g

km



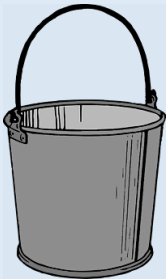
- The weight of a mouse
- The volume of water in a bucket
- The length of a book
- The weight of a child
- The weight of a hippo
- The length of a park



## Activity 2

# Metric Measures

Choose the unit of measure that is the most appropriate to measure the items below.



- The weight of a mouse
- The volume of water in a bucket
- The length of a book
- The weight of a child
- The weight of a hippo
- The length of a park

g

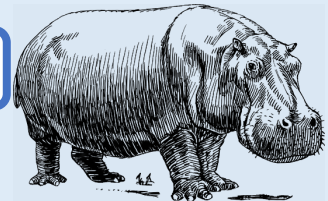
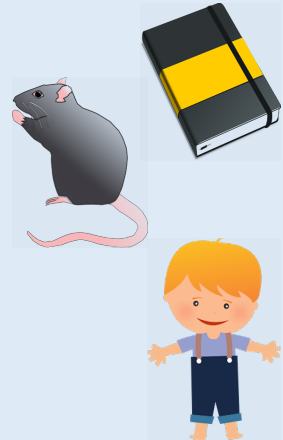
litres

cm

kg

tonnes

km



## Activity 3

# Metric Measures

Estimate the measurements of the following:



How much would a large fish tank hold?

100 ml    100 litres    150kg    1 litre



How much would this teaspoon hold?

500 ml    5 ml    5 litres    0.5 ml



What could the height of this trolley be?

200 ml    1 m    100 metres     $\frac{1}{2}$  m



How much could a tea cup hold?

1000 cm    600 litres    200 ml     $\frac{1}{2}$  litre

## Activity 3

# Metric Measures

Estimate the measurements of the following:



How much would a large fish tank hold?

100 ml    **100 litres**    150kg    1 litre



How much would this teaspoon hold?

500 ml    **5 ml**    5 litres    0.5 ml



What could the height of this trolley be?

200 ml    **1 m**    100 metres     $\frac{1}{2}$  m



How much could a tea cup hold?

1000 cm    600 litres    **200 ml**     $\frac{1}{2}$  litre



Which unit measure length? Mass Capacity?

When would you use km instead of m? When would you use mm instead of cm?

Which is the most appropriate unit to use to measure the object? Explain your answer.

Why do you think \_\_\_\_\_ is not an appropriate estimate?



# Convert Metric Measures

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# Learning 1

# Convert Metric Measures

Remember these facts:

1 kg

=

1,000 g

1,000 kg

=

1 tonne

# Example 1

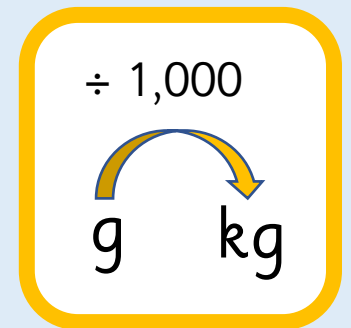
## Convert Metric Measures

Convert grams to kilograms.

$$3,000 \text{ g} = \text{--- kg}$$

There are 1,000 g in a kg, so we need to divide 3,000 by 1,000 to convert this into kg.

$$3,000 \div 1,000 = 3$$



$$3,000 \text{ g} = 3 \text{ kg}$$

## Example 2

# Convert Metric Measures

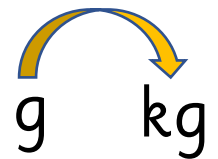
Convert grams to kilograms.

$$1,500 \text{ g} = \text{--- kg}$$

There are 1,000 g in a kg, so we need to divide 1,500 by 1,000 to convert this into kg.

$$1,500 \div 1,000 = 1.5$$

÷ 1,000



$$1,500 \text{ g} = 1.5 \text{ kg}$$

## Example 4

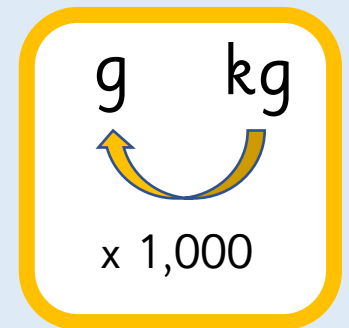
# Convert Metric Measures

Convert kilograms to grams.

$$2.05 \text{ kg} = \text{ — } \text{ g}$$

There are 1,000 g in a kg, so we need to multiply 2.05 by 1,000 to convert this into g.

$$2.05 \times 1,000 = 2,050$$



$$2.05 \text{ kg} = 2,050 \text{ g}$$

## Example 3

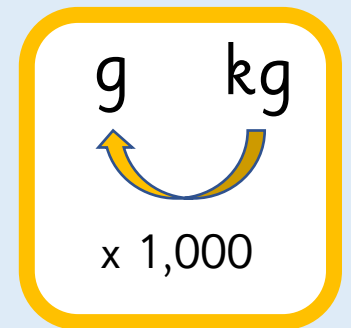
# Convert Metric Measures

Convert kilograms to grams.

$$20 \text{ kg} = \text{---} \text{ g}$$

There are 1,000 g in a kg, so we need to multiply 20 by 1,000 to convert this into g.

$$20 \times 1,000 = 20,000$$



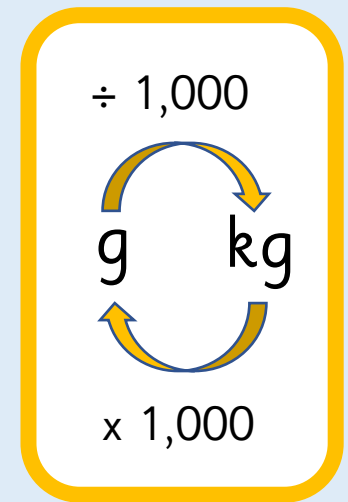
$$20 \text{ kg} = 20,000 \text{ g}$$

# Activity 1

## Convert Metric Measures

Complete the table.

Grams	Kilograms
2,500	
	4.05
2,005	
4,020	
	2.15
6,700	



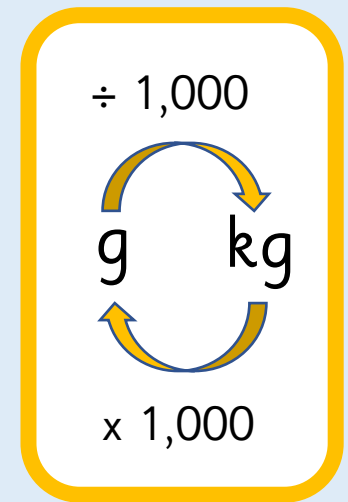


# Activity 1

## Convert Metric Measures

Complete the table.

Grams	Kilograms
2,500	2.5
4,050	4.05
2,005	2.005
4,020	4.02
2,150	2.15
6,700	6.7



## Example 5

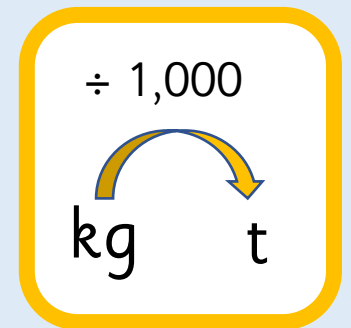
# Convert Metric Measures

Convert kilograms to tonnes.

$$7,000 \text{ kg} = \underline{\quad} \text{ tonnes}$$

There are 1,000 kg in a tonne, so we need to divide 7,000 by 1,000 to convert this into kg.

$$7,000 \div 1,000 = 7$$



$$7,000 \text{ kg} = 7 \text{ tonnes}$$

## Example 6

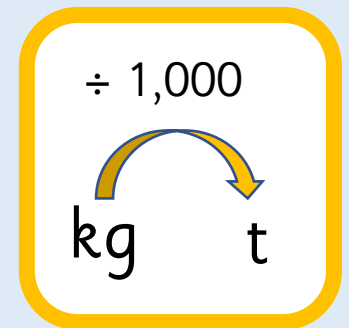
# Convert Metric Measures

Convert kilograms to tonnes.

$$1,356 \text{ kg} = \underline{\hspace{2cm}} \text{ tonnes}$$

There are 1,000 kg in a tonne, so we need to divide 1,356 by 1,000 to convert this into kg.

$$1,356 \div 1,000 = 1.356$$



$$1,356 \text{ kg} = 1.356 \text{ tonnes}$$

## Example 7

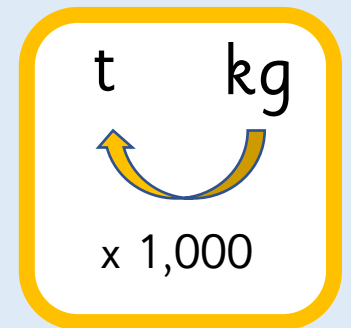
# Convert Metric Measures

Convert tonnes to kilograms.

$$4.56 \text{ tonnes} = \text{--- kg}$$

There are 1,000 kg in a tonne, so we need to multiply 4.56 by 1,000 to convert this into kg.

$$4.56 \times 1,000 = 4,560$$



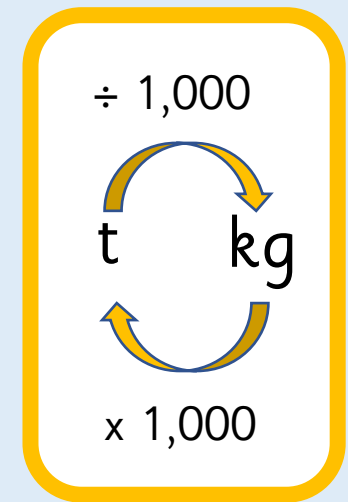
$$4.56 \text{ tonnes} = 4,560 \text{ kg}$$

## Activity 2

# Convert Metric Measures

Complete the table.

Kilograms	Tonnes
6,000	
	4.009
1,705	
435	
	0.741
126	

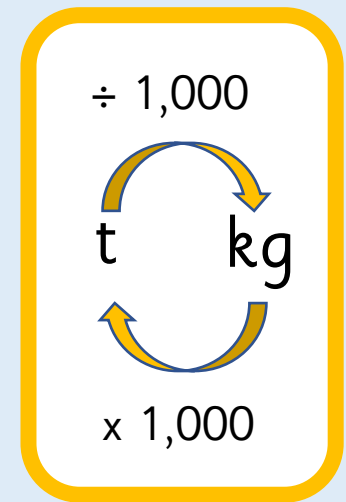


## Activity 2

# Convert Metric Measures

Complete the table.

Kilograms	Tonnes
6,000	6
4,009	4.009
1,705	1.705
435	0.435
741	0.741
126	0.126



## Learning 2

# Convert Metric Measures

Remember these facts:

10 mm

=

1 cm

100 cm

=

1 m

1,000 m

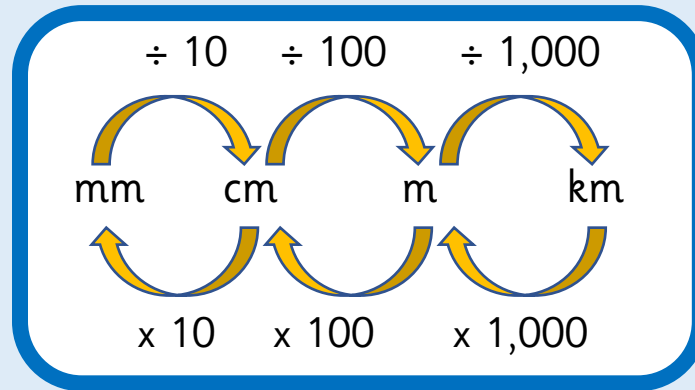
=

1 km

# Activity 3

# Convert Metric Measures

Complete the table.



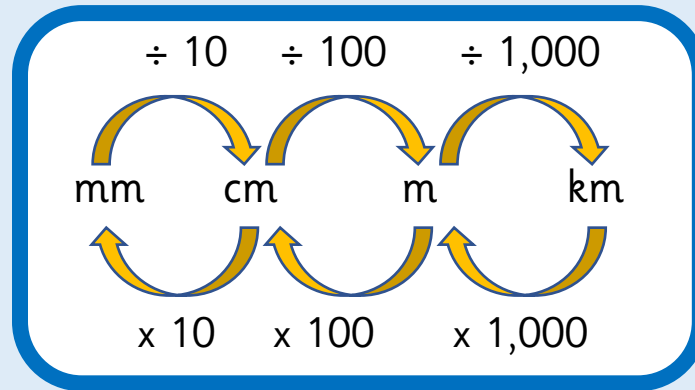
mm	cm	m	km
87,000			
	2,867		
		19.5	
			6.75



# Activity 3

# Convert Metric Measures

Complete the table.



mm	cm	m	km
87,000	8,700	87	0.087
28,670	2,867	28.67	0.02867
19,500	1,950	19.5	0.0195
6,750,000	675,000	6,750	6.75

## Discuss

# Convert Metric Measures

How could you work out what each mark is worth on the scales?

What do you think would be the most efficient method for converting the units of time?

What's the same and what's different between 1.5 km and 1.500 km? Are the zeroes needed? Why or why not?

What do you notice about the amounts in the table? Can you spot a pattern?

What's the same and what's different about km and kg?

# Calculate with Metric Measures

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## Activity 1

# Calculate with Metric Measures

A bottle of suntan lotion holds 50 ml.  
How many bottles can be filled using 3 litres of suntan lotion?



1 litre

=

1,000 ml

3 litres

=

3,000 ml

1 bottle = 50 ml

bottles = 3,000 ml

## Activity 1

# Calculate with Metric Measures

A bottle of suntan lotion holds 50 ml.  
How many bottles can be filled using 3 litres of suntan lotion?



1 litre

=

1,000 ml

3 litres

=

3,000 ml

1 bottle = 50 ml

**60** bottles = 3,000 ml

## Activity 2

## Calculate with Metric Measures

Another bottle of suntan lotion holds 500 ml.

How many bottles can be filled using  $4\frac{1}{2}$  litres of suntan lotion?



1 litre

=

1,000 ml

$4\frac{1}{2}$  litres

=

4,500 ml

1 bottle = 500 ml

bottles = 4,500 ml

## Activity 2

## Calculate with Metric Measures

Another bottle of suntan lotion holds 500 ml.

How many bottles can be filled using  $4\frac{1}{2}$  litres of suntan lotion?



1 litre

=

1,000 ml

$4\frac{1}{2}$  litres

=

4,500 ml

1 bottle = 500 ml

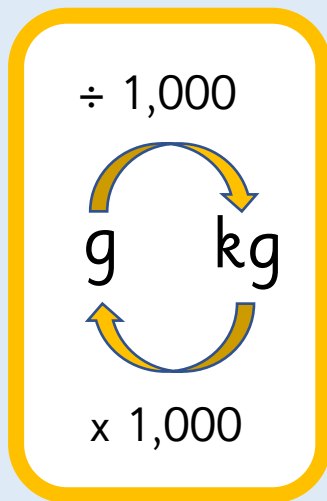
9

bottles = 4,500 ml

## Activity 3

# Calculate with Metric Measures

A vase weighs 614 g.  
How much would 23 vases weigh?  
Write the answer in kg.



$$1 \text{ vase} = 614 \text{ g}$$

$$23 \text{ vase} = \boxed{\phantom{00000}} \text{ kg}$$

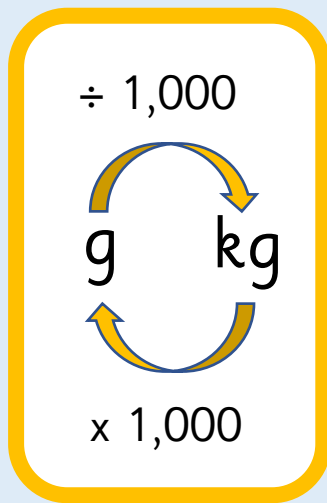




## Activity 3

# Calculate with Metric Measures

A vase weighs 614 g.  
How much would 23 vases weigh?  
Write the answer in kg.



$$1 \text{ vase} = 614 \text{ g}$$

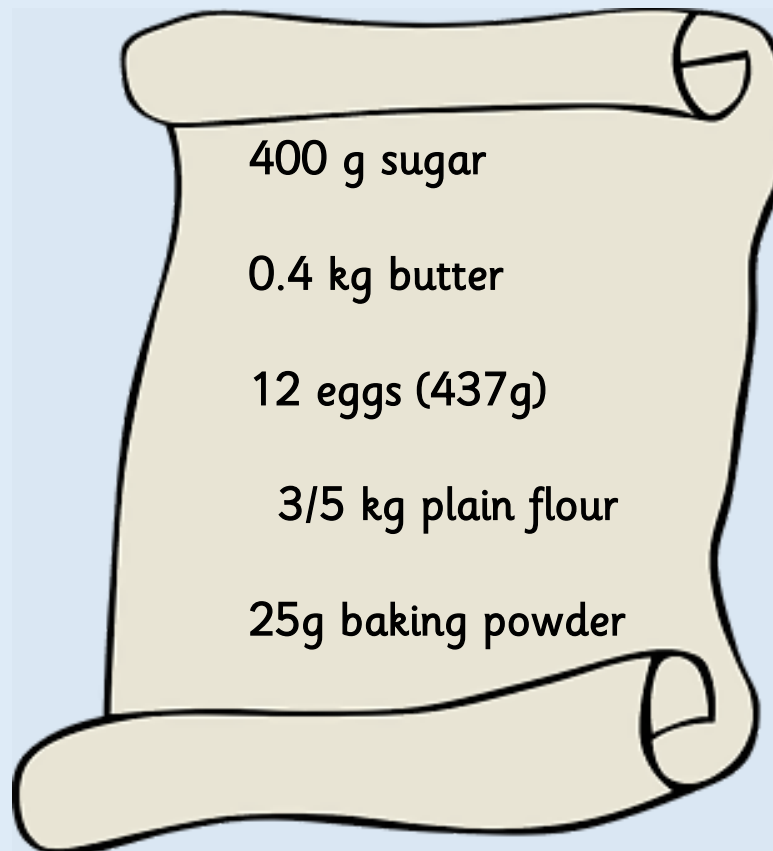
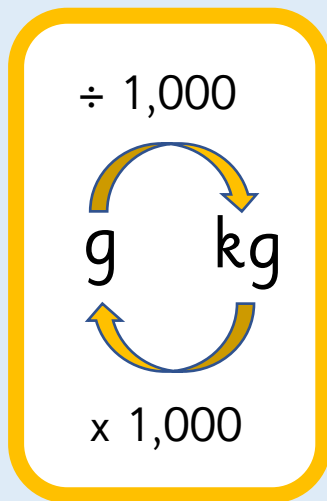
$$23 \text{ vase} = \boxed{14.122} \text{ kg}$$



## Activity 3

# Calculate with Metric Measures

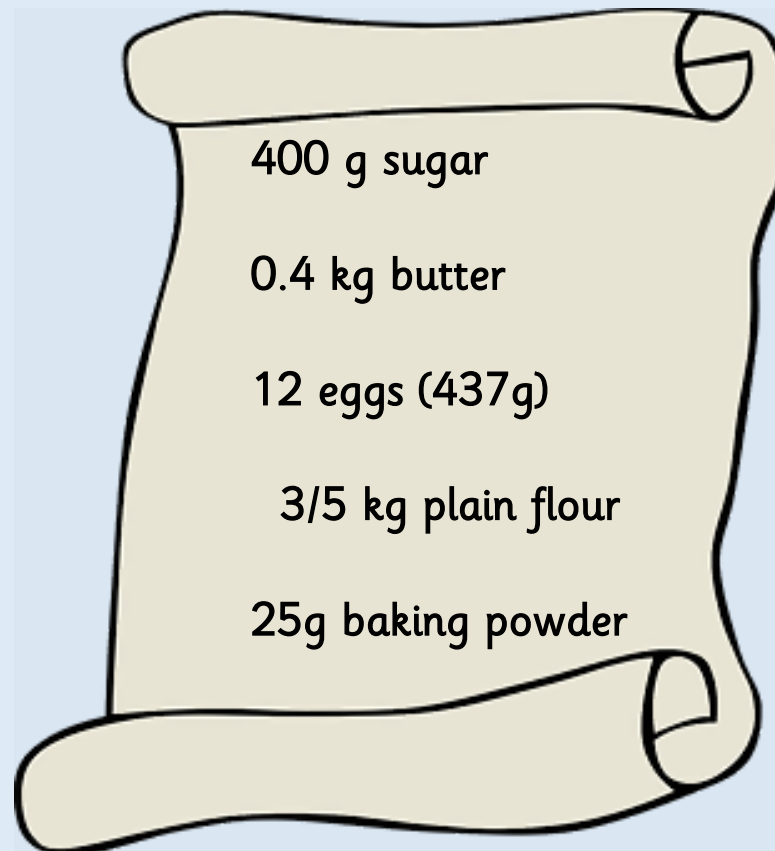
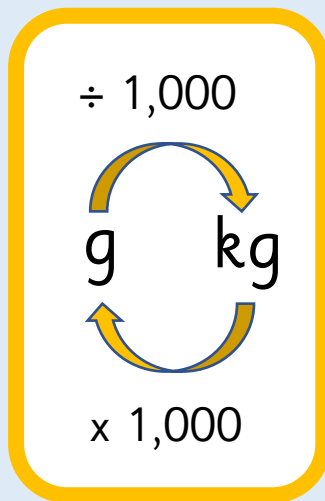
Look at the recipe below.  
What is the total weight of the ingredients?  
Write your answer in grams and kilograms.



## Activity 3

# Calculate with Metric Measures

Look at the recipe below.  
What is the total weight of the ingredients?  
Write your answer in grams and kilograms.



**1862  
grams**

or

**1.862  
kilograms**

What operation are you going to use and why?

How could you use a bar model to help you understand the question?

How many \_\_\_\_\_ are there in a \_\_\_\_\_?

How can we convert between \_\_\_\_\_ and \_\_\_\_\_ ?



# Miles and Kilometres

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## Activity 1

# Miles and Kilometres

Use this information to work out the following:

8 km

$\approx$   
approximately

5 miles

How many km are there in 10 miles?

How many miles are there in 64 km?

Sophie ran  $13 \frac{1}{2}$  miles. Kimberly ran 20 km.  
Who ran the furthest?

## Activity 1

# Miles and Kilometres

Use this information to work out the following:

8 km

$\approx$   
approximately

5 miles

How many km are there in 10 miles? **16 km**

How many miles are there in 64 km? **40 miles**

Sophie ran  $13 \frac{1}{2}$  miles. Kimberly ran 20 km.  
Who ran the furthest? **Sophie ran furthest.**

## Activity 2

# Miles and Kilometres

Use this information to work out the following:

5 miles

$\approx$   
approximately

8 km

20 miles

$\approx$

\_\_\_ km

800 km

$\approx$

\_\_\_ miles

30 miles

$\approx$

\_\_\_ km

32 km

$\approx$

\_\_\_ miles

$10\frac{1}{2}$  miles

$\approx$

\_\_\_ km

20 km

$\approx$

\_\_\_ miles



## Activity 2

# Miles and Kilometres

Use this information to work out the following:

5 miles

$\approx$   
approximately

8 km

20 miles

$\approx$

32 km

800 km

$\approx$

500 miles

30 miles

$\approx$

48 km

32 km

$\approx$

20 miles

$10\frac{1}{2}$  miles

$\approx$

16.8 km

20 km

$\approx$

$12\frac{1}{2}$  miles

## Activity 3

# Miles and Kilometres

If 10 miles is approximately 16 km, therefore:

1 miles

≈  
approximately

\_\_\_ km

2 miles

≈

\_\_\_ km

6 miles

≈

\_\_\_ km

0.5 miles

≈

\_\_\_ km

## Activity 3

# Miles and Kilometres

If 10 miles is approximately 16 km, therefore:

1 miles

≈  
approximately

1.6 km

2 miles

≈

3.2 km

6 miles

≈

9.6 km

0.5 miles

≈

0.8 km

## Discuss

# Miles and Kilometres

---

Give an example of a length you would measure in miles or km.

If we know 5 miles is approximately 8 km, how can we work out 15 miles converted to km?

Can you think of a situation where you may need to convert between miles and kilometres?



# Imperial Measures

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# Activity 1

# Imperial Measures

Use this information to work out the following Inches and Centimetres conversion:

2.5 cm

≈  
approximately

1 inch

25 cm

≈

\_\_\_ inches

7 inches

≈

\_\_\_ cm

250 cm

≈

\_\_\_ inches

100 inches

≈

\_\_\_ cm

125 cm

≈

\_\_\_ inches

13 inches

≈

\_\_\_ cm

# Activity 1

# Imperial Measures

Use this information to work out the following Inches and Centimetres conversion:

2.5 cm

≈  
approximately

1 inch

25 cm

≈

10 inches

7 inches

≈

17.5 cm

250 cm

≈

100 inches

100 inches

≈

250 cm

125 cm

≈

50 inches

13 inches

≈

32.5 cm

## Activity 2

# Imperial Measures

Use this information to work out the following Feet and Inches conversion:

1 foot

≈  
approximately

12 inches

7 ft

≈

\_\_\_ inches

48 inches

≈

\_\_\_ feet

100 ft

≈

\_\_\_ inches

18 inches

≈

\_\_\_ feet

6.5 ft

≈

\_\_\_ inches

1,200 inches

≈

\_\_\_ feet



## Activity 2

# Imperial Measures

Use this information to work out the following Feet and Inches conversion:

1 foot

≈  
approximately

12 inches

7 ft

≈

84 inches

48 inches

≈

4 feet

100 ft

≈

1,200 inches

18 inches

≈

1.5 feet

6.5 ft

≈

78 inches

1,200 inches

≈

100 feet

## Activity 3

# Imperial Measures

Use this information to work out the following Pounds and Ounces conversion:

1 pound (lb)

≈  
approximately

16 ounces

5 lbs

≈

\_\_\_ ounces

144 ounces

≈

\_\_\_ lbs

1000 lbs

≈

\_\_\_ ounces

160 ounces

≈

\_\_\_ lbs

18.5 lbs

≈

\_\_\_ ounces

168 ounces

≈

\_\_\_ lbs

## Activity 3

# Imperial Measures

Use this information to work out the following Pounds and Ounces conversion:

1 pound (lb)

≈  
approximately

16 ounces

5 lbs

≈

80 ounces

144 ounces

≈

9 lbs

1000 lbs

≈

16,000 ounces

160 ounces

≈

10 lbs

18.5 lbs

≈

296 ounces

168 ounces

≈

10.5 lbs

## Activity 4

# Imperial Measures

Use this information to work out the following  
Stones and Pounds conversion:

1 stone

$\approx$   
approximately

14 pounds (lbs)

4.5 stones

$\approx$

\_\_\_ lbs

42 lbs

$\approx$

\_\_\_ stones

$1\frac{1}{4}$  stones

$\approx$

\_\_\_ lbs

7 lbs

$\approx$

\_\_\_ stones

15 stones

$\approx$

\_\_\_ lbs

280 lbs

$\approx$

\_\_\_ stones

## Activity 4

# Imperial Measures

Use this information to work out the following  
Stones and Pounds conversion:

1 stone

≈  
approximately

14 pounds (lbs)

4.5 stones

≈

63 lbs

42 lbs

≈

3 stones

$1\frac{1}{4}$  stones

≈

17.5 lbs

7 lbs

≈

0.5 stones

15 stones

≈

210 lbs

280 lbs

≈

20 stones

# Activity 5

# Imperial Measures

Use this information to work out the following  
Gallon and Pint conversion:

1 gallon

≈  
approximately

8 pints

10 gallons

≈

\_\_\_ pints

64 pints

≈

\_\_\_ gallons

15.5 gallons

≈

\_\_\_ pints

2 pints

≈

\_\_\_ gallons

1,000 gallons

≈

\_\_\_ pints

12 pints

≈

\_\_\_ gallons

## Activity 5

# Imperial Measures

Use this information to work out the following  
Gallon and Pint conversion:

1 gallon

$\approx$   
approximately

8 pints

10 gallons

$\approx$

80 pints

64 pints

$\approx$

8 gallons

15.5 gallons

$\approx$

124 pints

2 pints

$\approx$

$\frac{1}{4}$  gallons

1,000 gallons

$\approx$

8,000 pints

12 pints

$\approx$

1.5 gallons

Put these in order of size: 1 cm, 1 mm, 1 inch, 1 foot, 1 metre. How do you know?

When do we use imperial measures instead of metric measures?

Why are metric measures easier to convert than imperial measures?

