Mass and Capacity

Master The Curriculum

3

Fluency & Reasoning Teaching Slides

Measure Mass (1)

3

Fluency & Reasoning Teaching Slides

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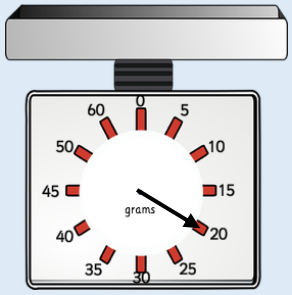
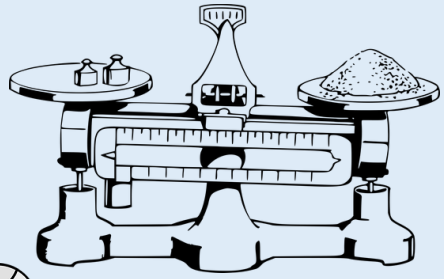
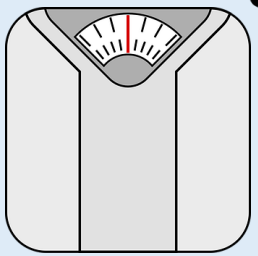
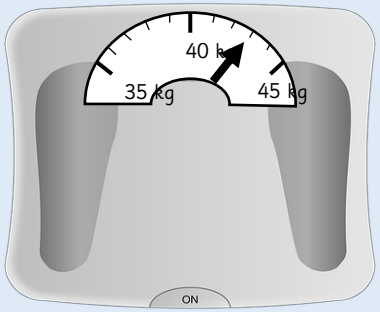
Lesson 1 Measure Mass (1)

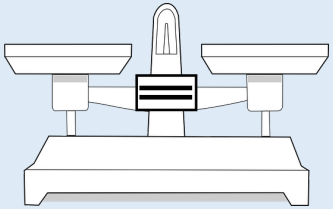
Look at the variety of scales.
What is the same and what is different?

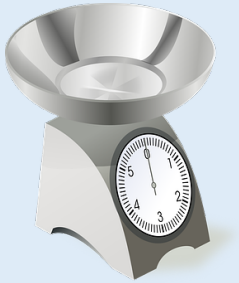












Measure Mass (1)

Which is heavier, grams or kilograms?

Discuss.

What would be measured in grams?

What would be measured in kilograms?

Activity 1 Measure Mass (1)

Use the balance scales to measure the mass of a range of objects. Decide whether to use gram or kilogram weights to balance the scales. Can you estimate the mass of each object before you weigh them?

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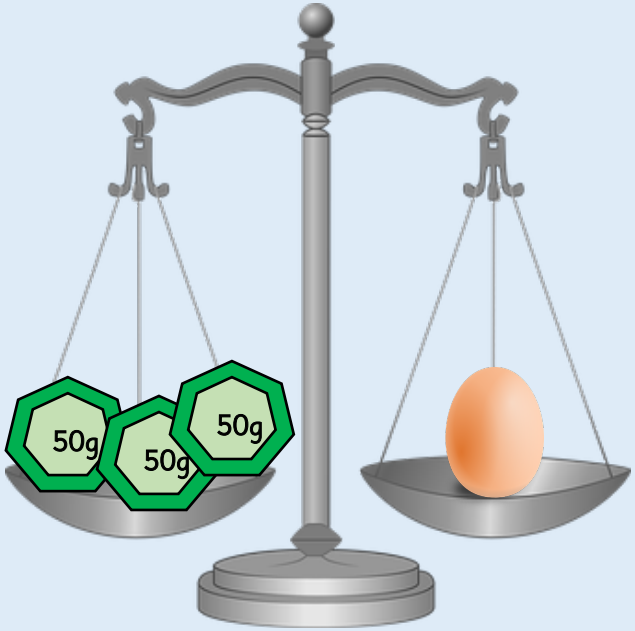
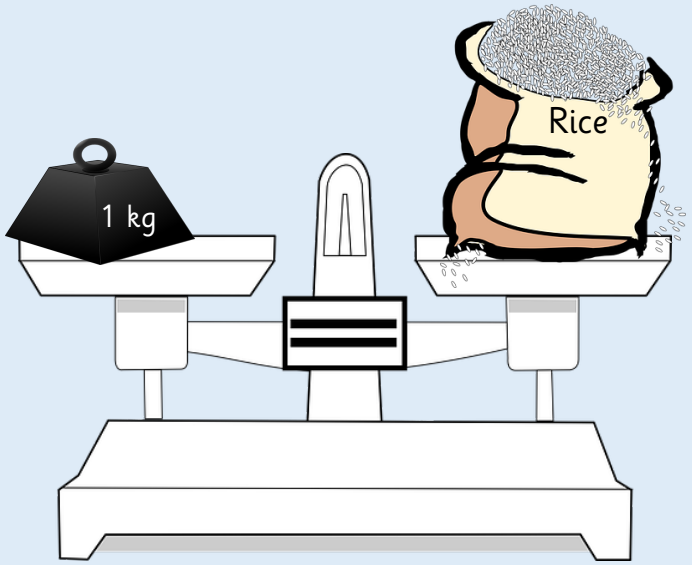
How can we measure the mass of an object?

Activity 1 Measure Mass (1)

How much do the items weigh?





The balance scale shows _____.

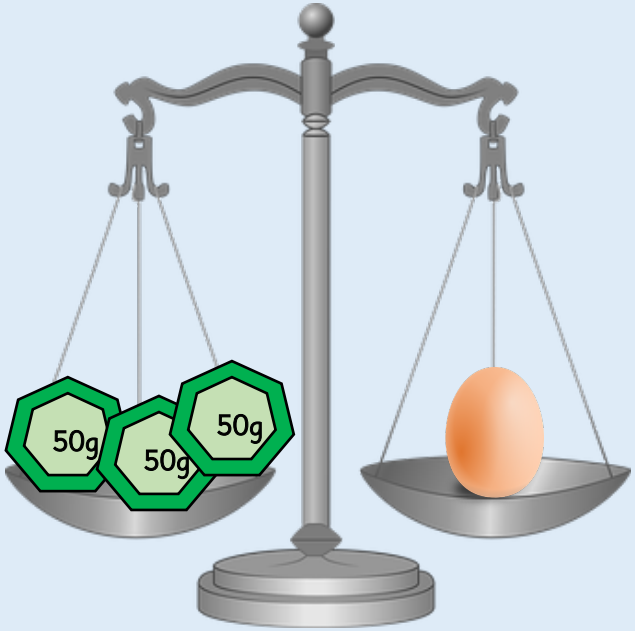
The egg weighs _____.

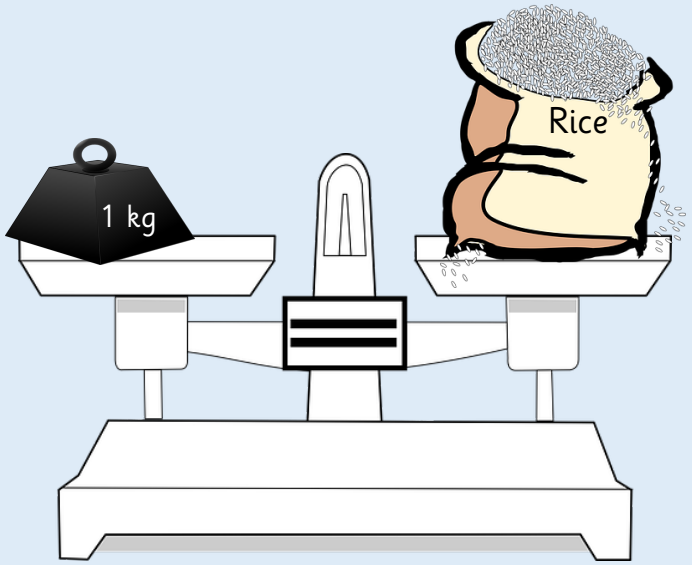
The balance scale shows _____.

The bag of rice weighs _____.

Activity 1 Measure Mass (1)

How much do the items weigh?





The balance scale shows ___150 g___.

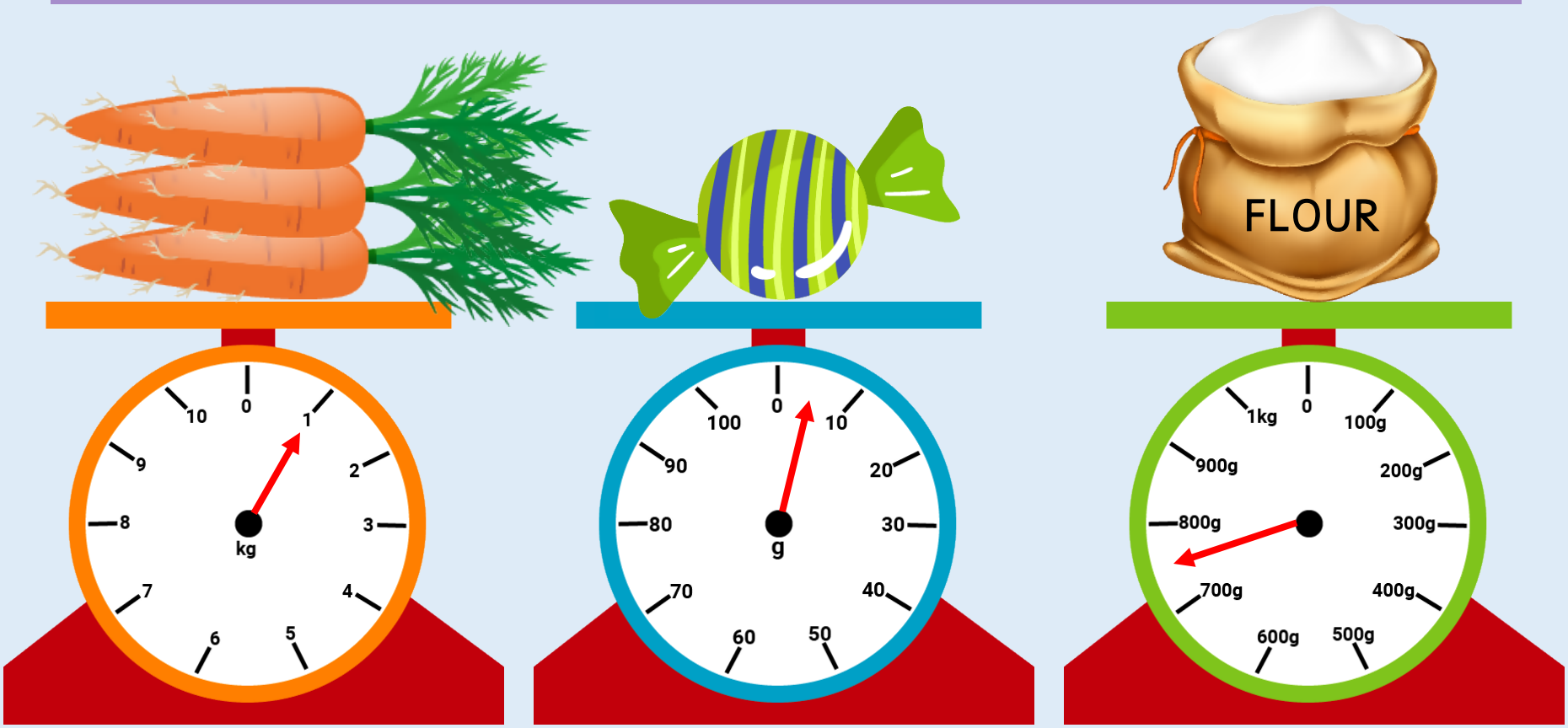
The egg weighs ___150 g___.

The balance scale shows ___1 kg___.

The bag of rice weighs ___1 kg___.

Activity 2 Measure Mass (1)

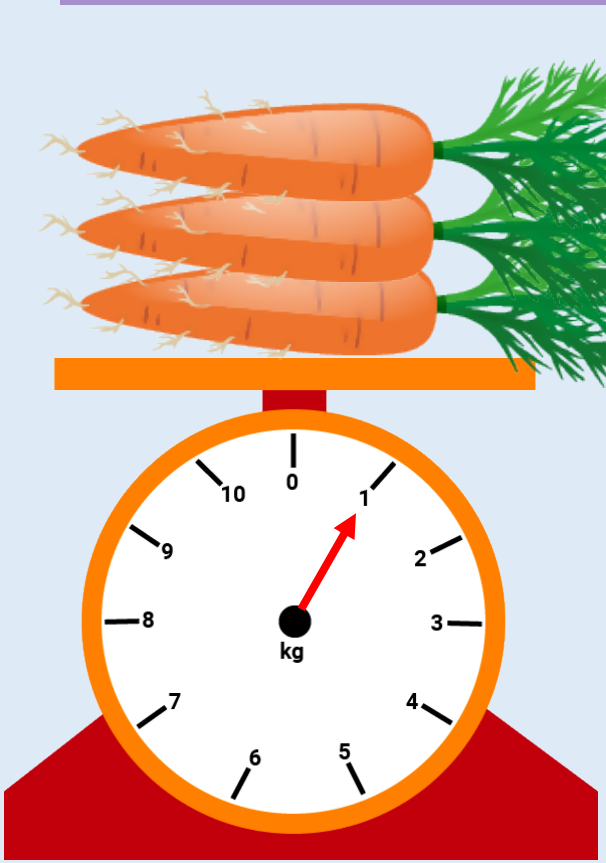
Find the mass of each item.



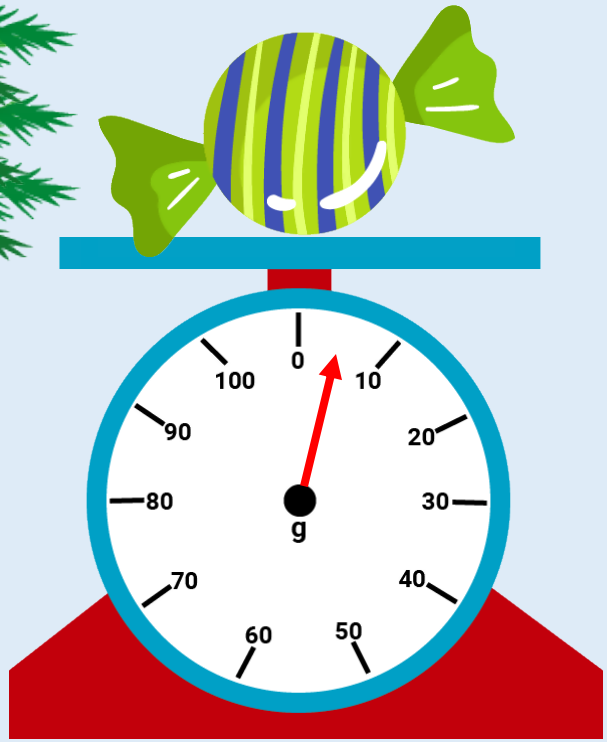
When would we use kilograms or grams to measure the mass of something?

Activity 2 Measure Mass (1)

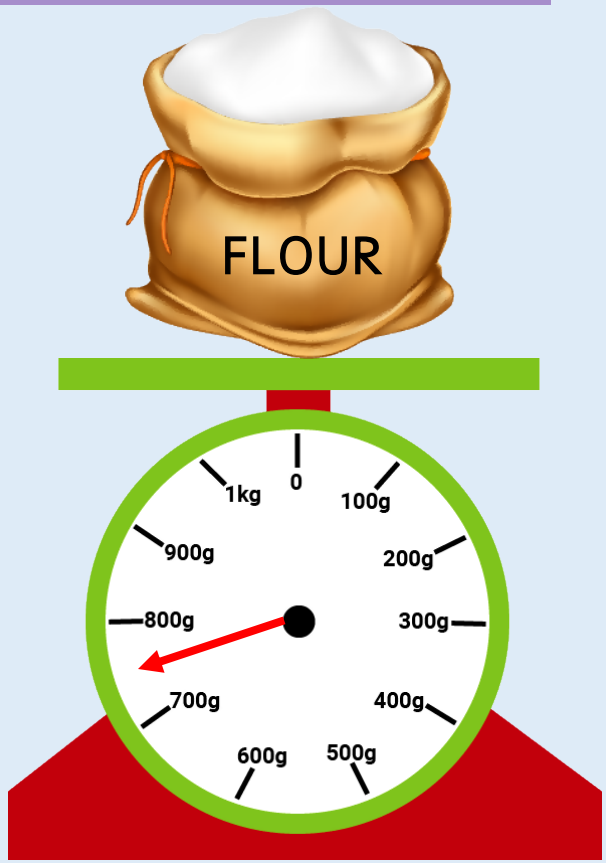
Find the mass of each item.



1 kg



5 g

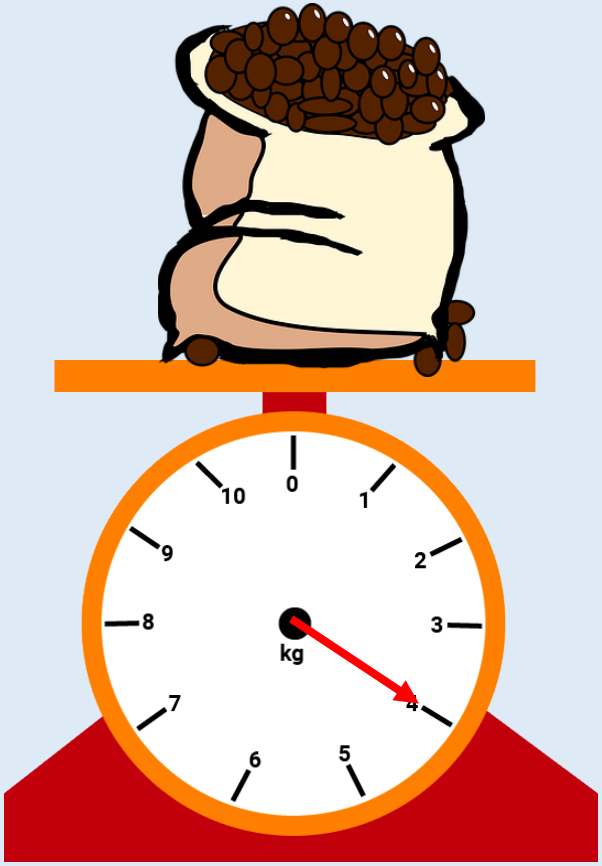


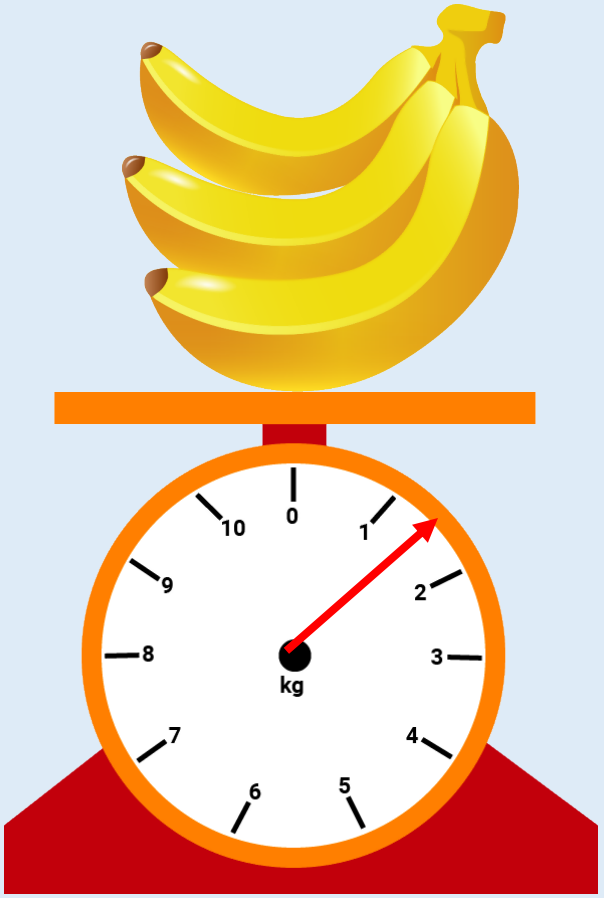
750 g

Activity 2

Measure Mass (1)

Find the mass of each item.

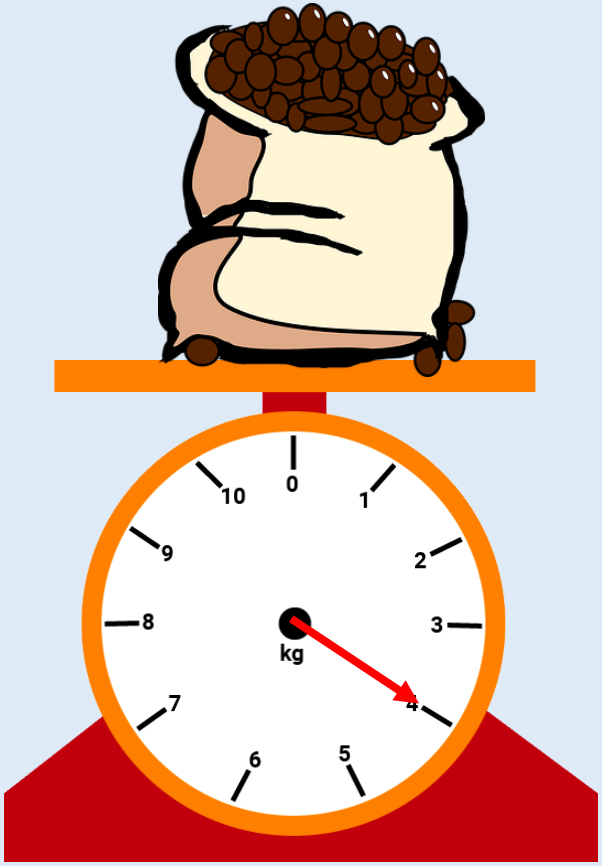




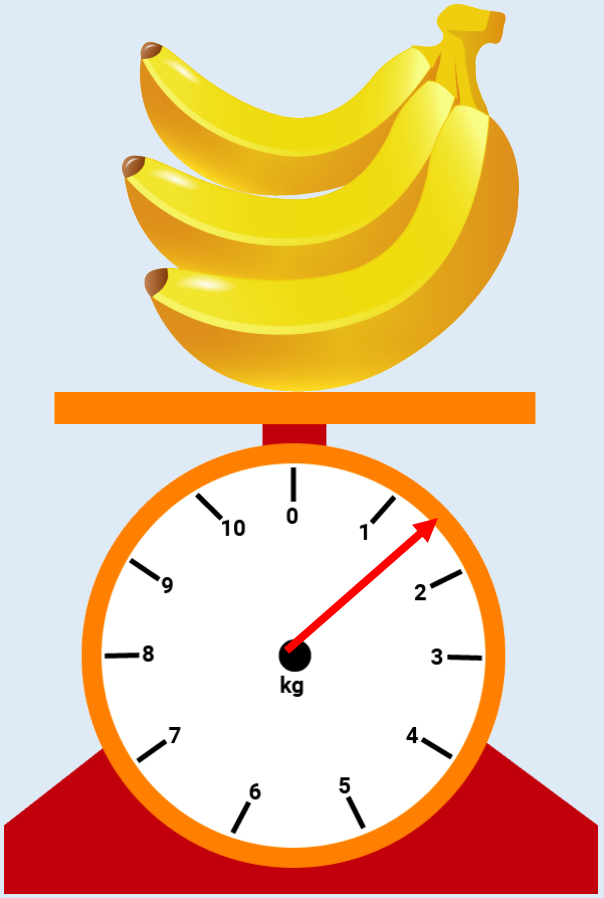
Activity 2

Measure Mass (1)

Find the mass of each item.



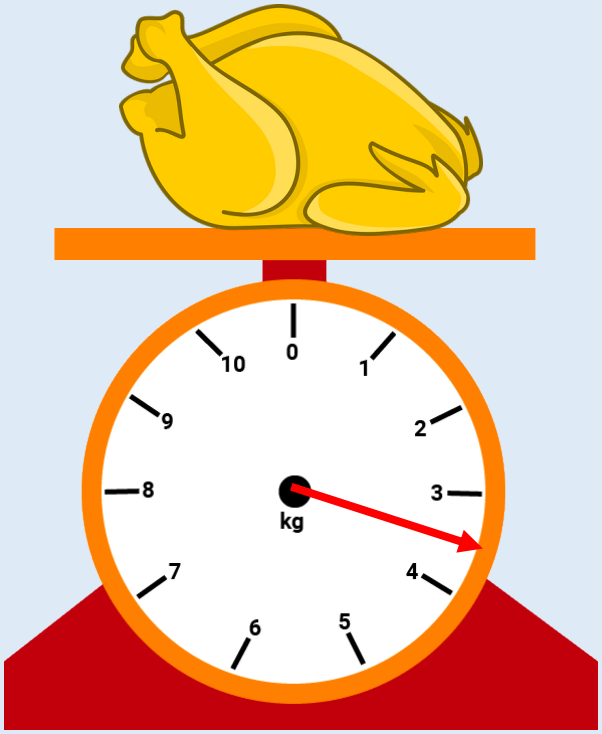
4 kg



1 kg and 500 g

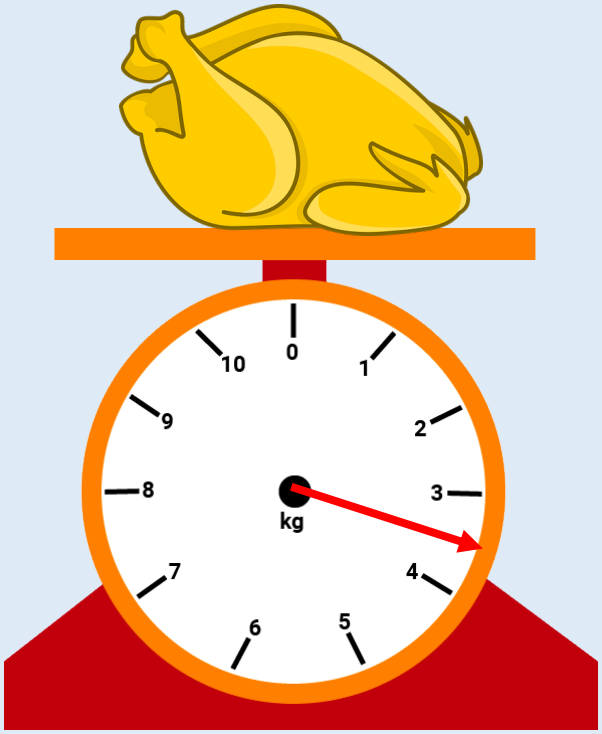
Activity 2 Measure Mass (1)

Find the mass of each item.



Activity 2 Measure Mass (1)

Find the mass of each item.



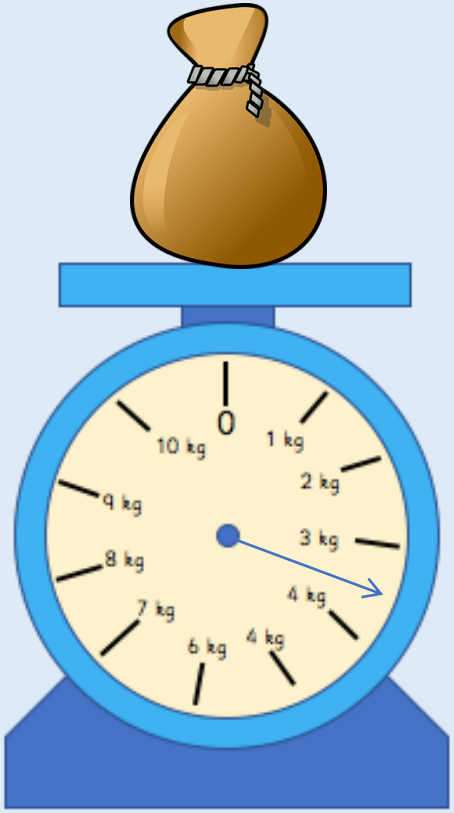
3 kg and 500 g

50 g

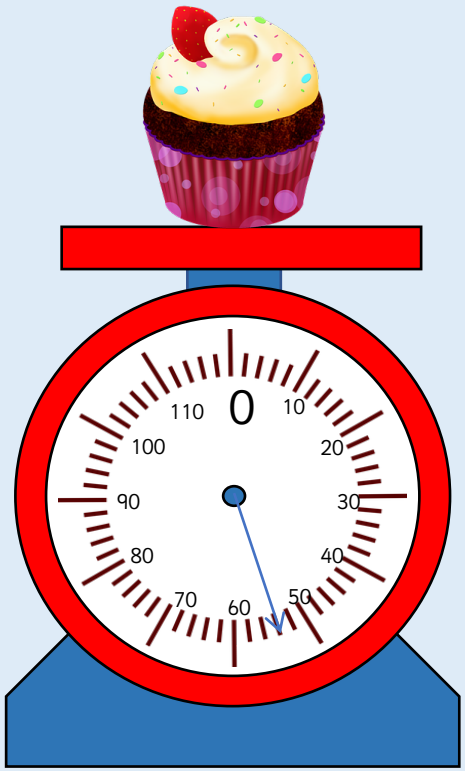
Activity 3

Measure Mass (1)

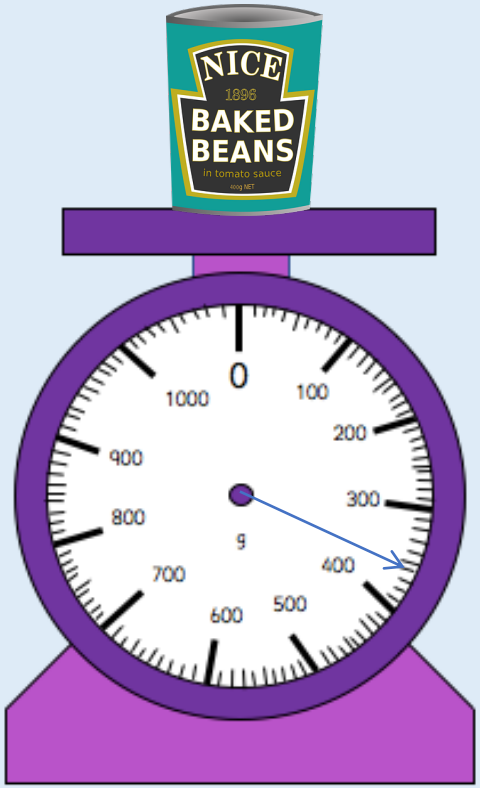
Identify the scale divisions/increments to find out how much each object weighs.



The scale uses _____ increments.
The coins weigh _____.



The scale uses _____ increments.
The cake weighs _____.

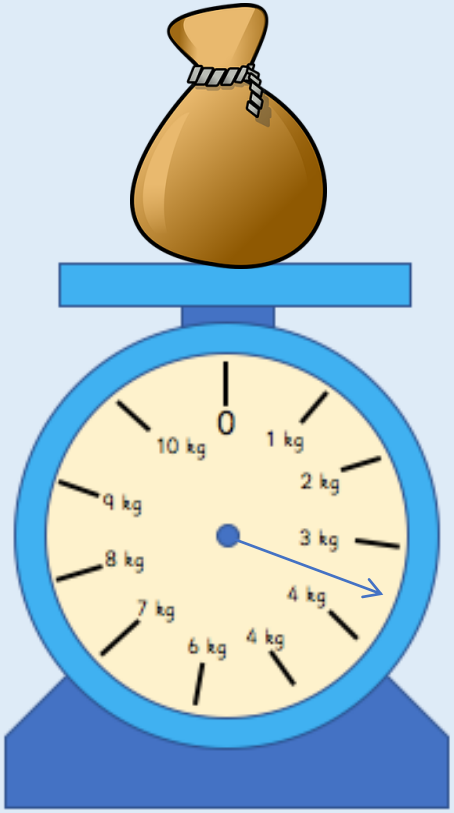


The scale uses _____ increments.
The beans weigh _____.

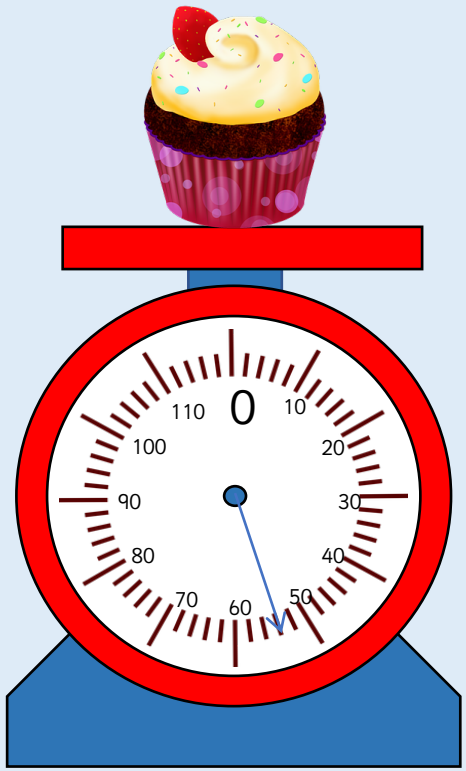
Activity 3

Measure Mass (1)

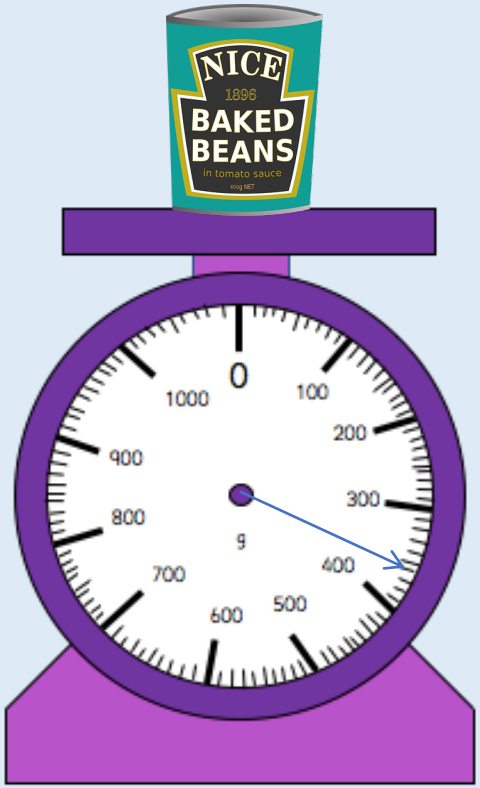
Identify the scale divisions/increments to find out how much each object weighs.



The scale uses 1 kg increments.
The coins weigh 3½ kg.



The scale uses 2 g increments.
The cake weighs 54 g.

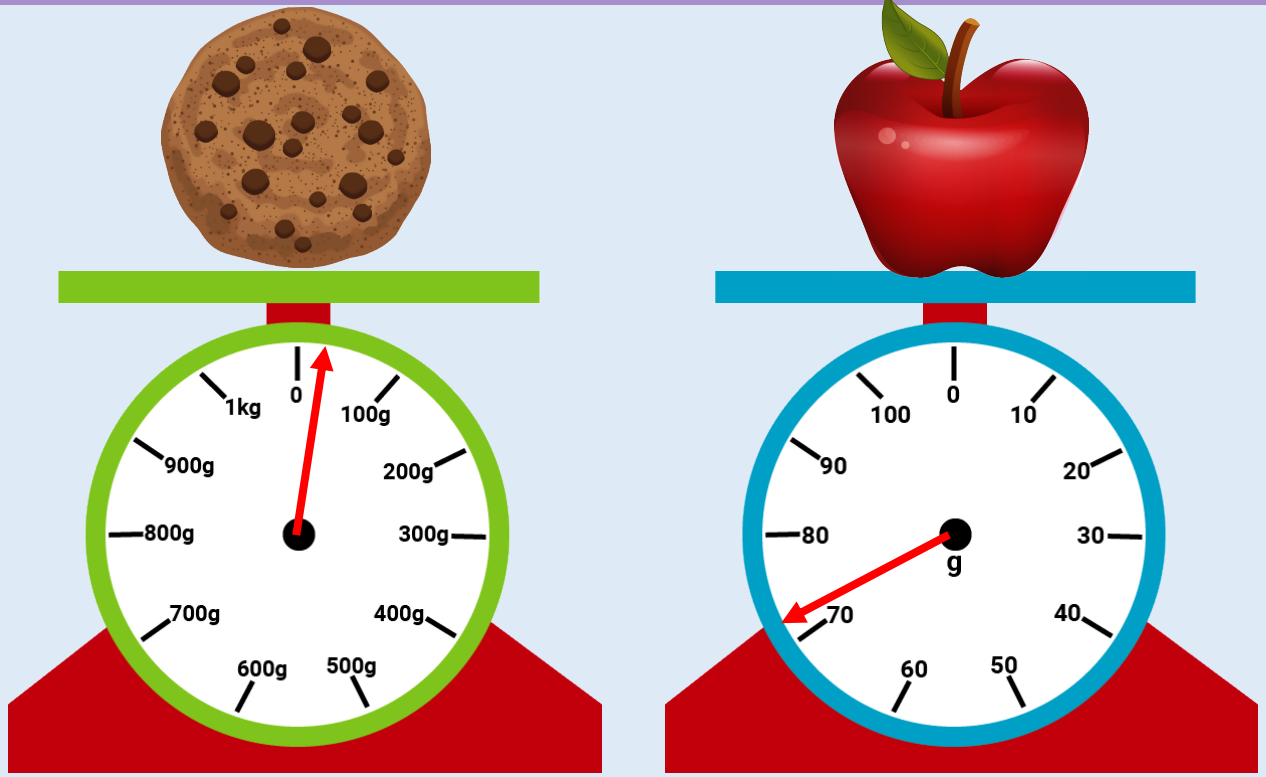


The scale uses 10 g increments.
The beans weigh 360 g.

Activity 3

Measure Mass (1)

Draw each scale as a straight number line.
Can you identify the missing intervals?



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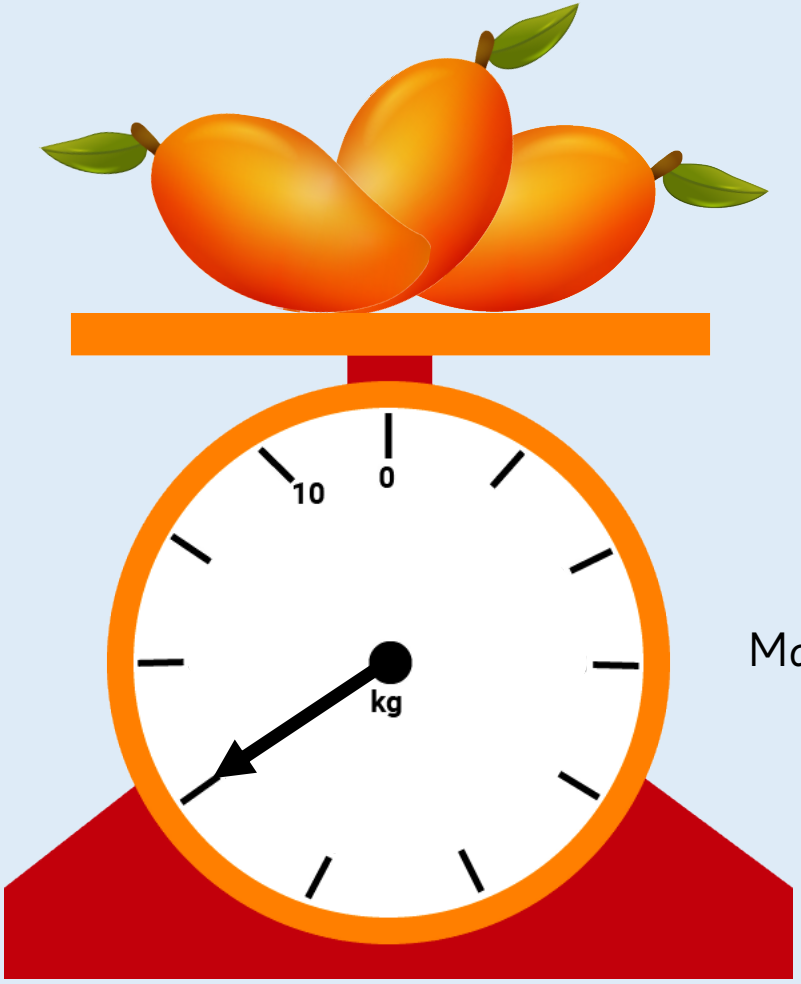
How do we know what each interval is worth?

Reasoning 1

Measure Mass (1)



Who do you agree with?
Explain why.

Zach

The mangoes weigh 13 kg.

Malachi

We don't know how much the mangoes weigh because the number is hidden.

Esin

The mangoes weigh more than half of 10 kg.

Can you calculate the weight of the mangoes?
Explain how you did it.

Reasoning 1 Measure Mass (1)

Zach is wrong – he has counted on 3 from 10 kg when he should have counted back 3 kg.

Malachi is wrong because we can work out the scale by using the 10 kg and counting back. They weigh 7 kg.

Esin is correct because half of 10 is 5 and the arrow is past where 5 kg would be.

The weight of the mangoes is 7 kg.

Who do you agree with? Explain why.

Zach

The mangoes weigh 13 kg.

Malachi

We don't know how much the mangoes weigh because the number is hidden.

Esin

The mangoes weigh more than half of 10 kg.

Reasoning 2 Measure Mass (1)

The chocolate bar weighs 100 g.
How much does one cookie weigh?

How much does each side weigh?

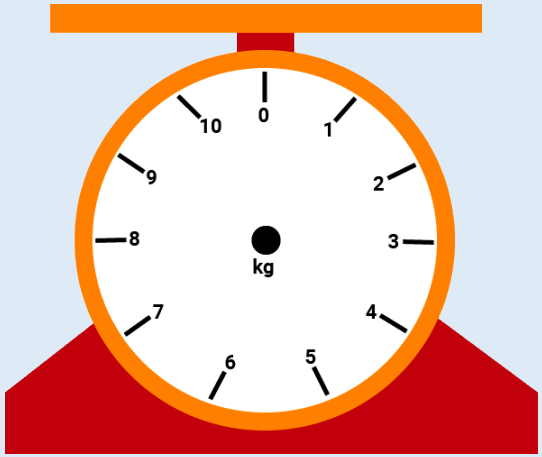
Reasoning 2 Measure Mass (1)

The chocolate bar weighs 100 g.
How much does one cookie weigh?

Children could use a bar model to work this out. They would see the chocolate bar must weigh the same as two cookies so one cookie must weigh 50 g. Each side weighs 150 g.

Reasoning 3 Measure Mass (1)

Using only two objects and a weighing scale, try to get as close to 2 kg as possible.



Explain why you chose those objects. Work out how much more or how much less is needed to make it 2 kg.

Discussion

Measure Mass (1)

How can we measure the mass of an object?

When would we use kilograms or grams to measure the mass of something?

What's the same, what's different about the scales?

How do we know what each interval is worth?

Measure Mass (2)

3

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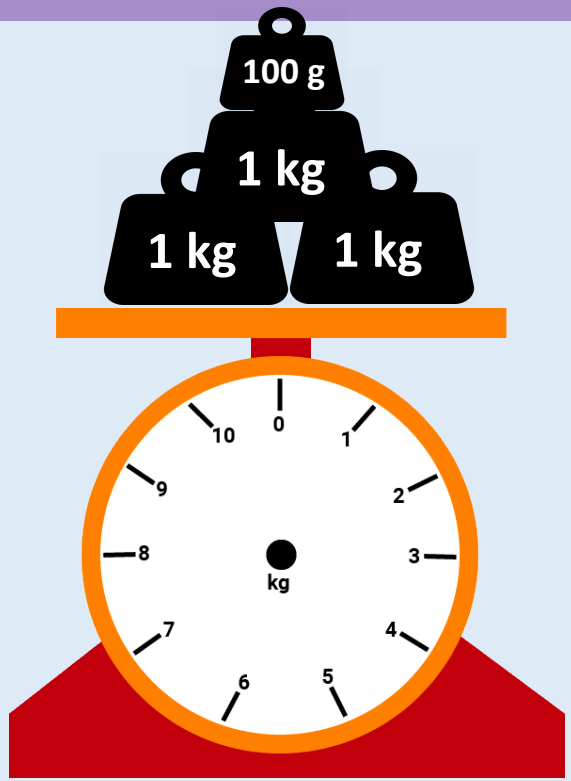
Activity 1 Measure Mass (2)

What weight is on the scales?
How do the scales show this?



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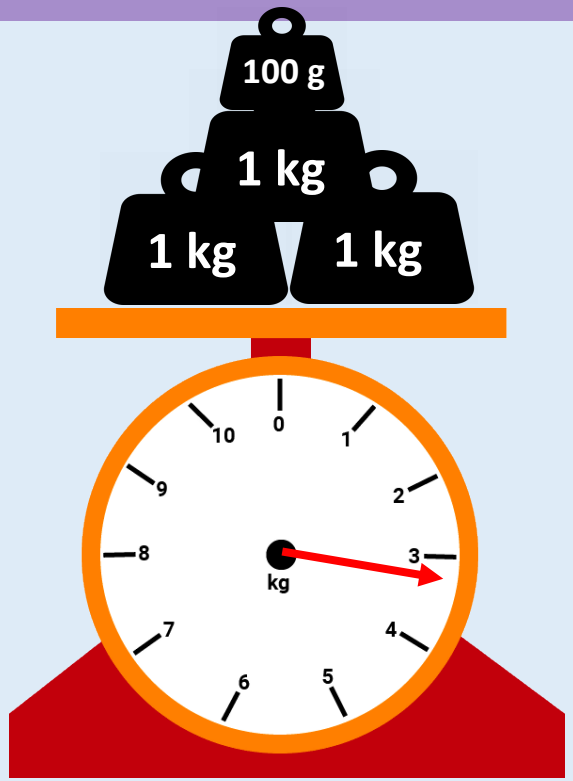
How is a scale like a number line?

Activity 1 Measure Mass (2)

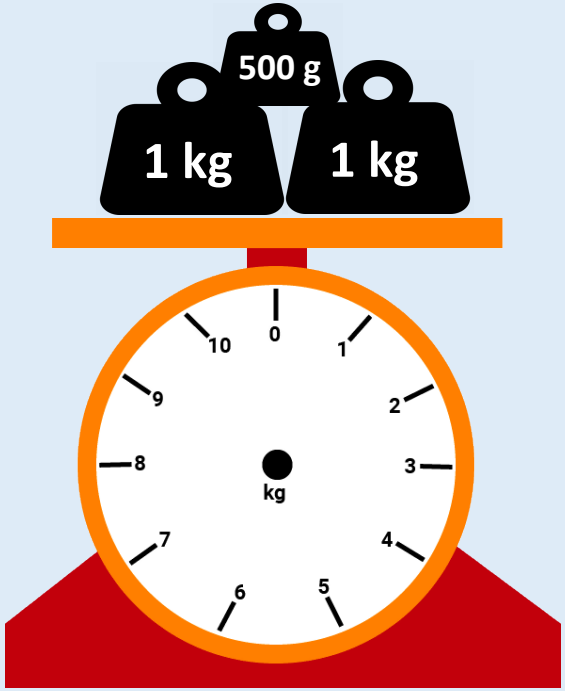
What weight is on the scales?
How do the scales show this?



3 kg and 100 g

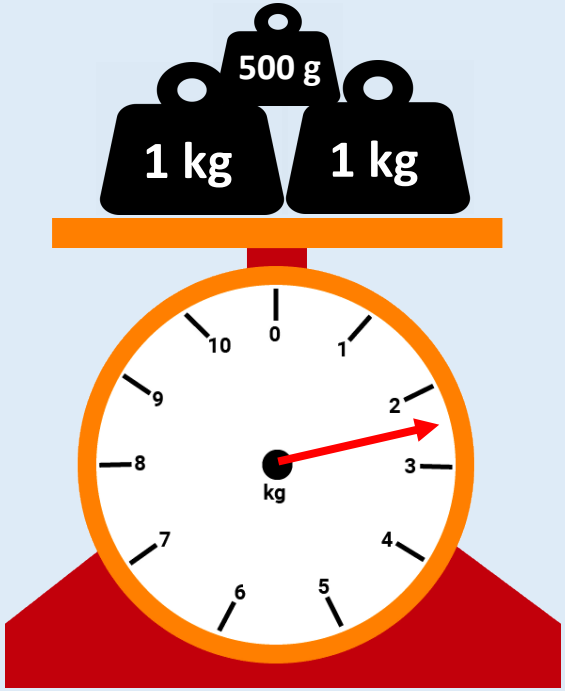
Activity 1 Measure Mass (2)

What weight is on the scales?
How do the scales show this?



Activity 1 Measure Mass (2)

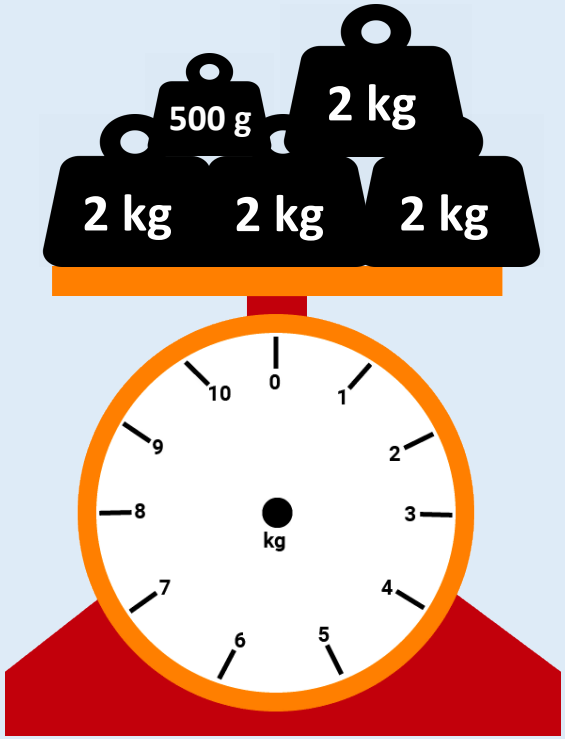
What weight is on the scales?
How do the scales show this?



2 kg and 500 g

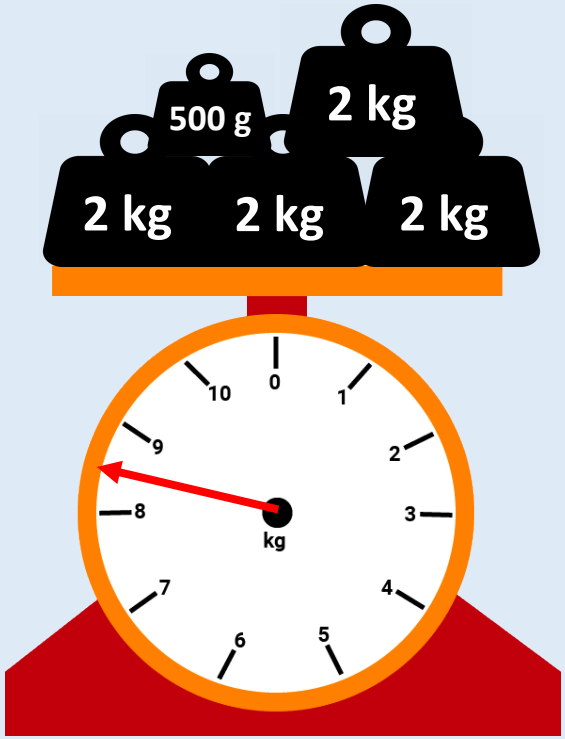
Activity 1 Measure Mass (2)

What weight is on the scales?
How do the scales show this?



Activity 1 Measure Mass (2)

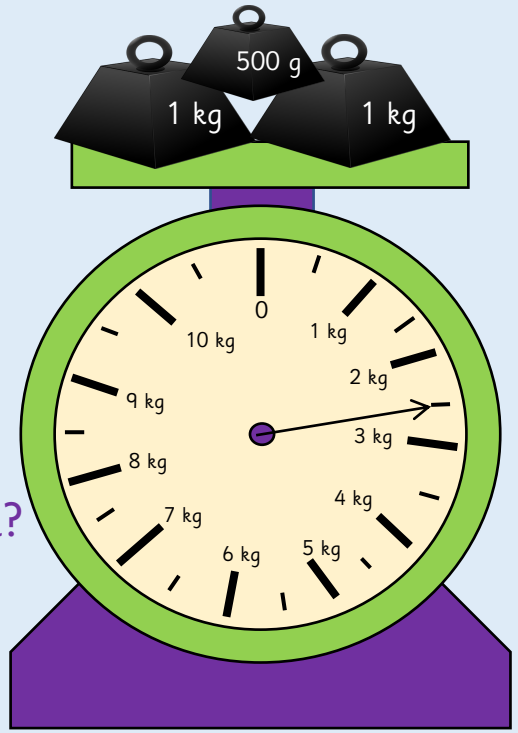
What weight is on the scales?
How do the scales show this?



8 kg and 500 g

Activity 1 Measure Mass (2)

What weight is on the scales?
How do the scales show this?



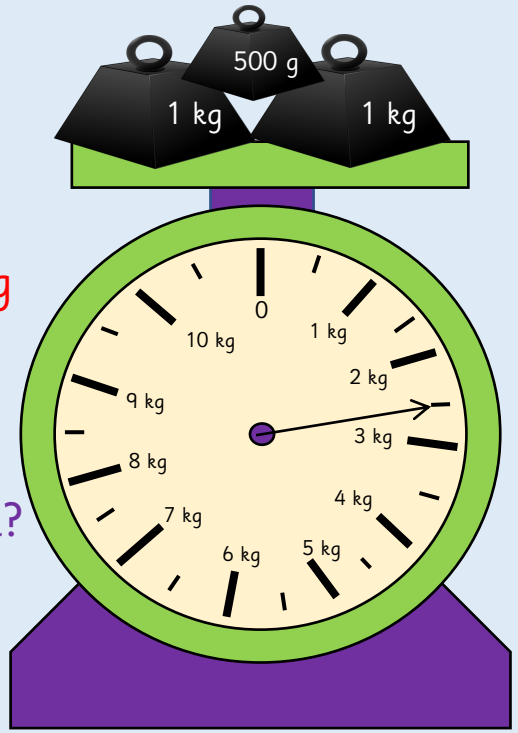
How many grams are in 1 kg?

How many grams are in ½ a kg?

How do the scales show the mass being weighed?

Activity 1 Measure Mass (2)

What weight is on the scales?
How do the scales show this?



How many grams are in 1 kg? 1,000 g

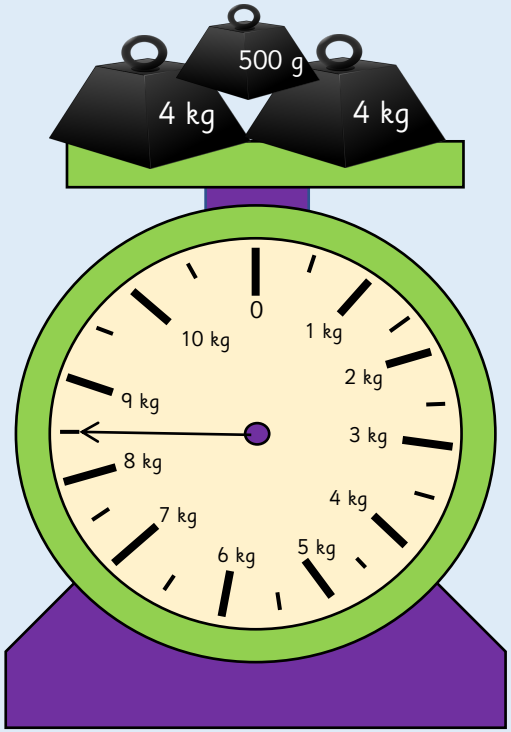
How many grams are in ½ a kg? 500 g

How do the scales show the mass being weighed?

The arrow is halfway between 2 kg and 3 kg.
The weight on the scales is therefore 2½ kg.

Activity 1 Measure Mass (2)

What weight is on the scales?
How do the scales show this?



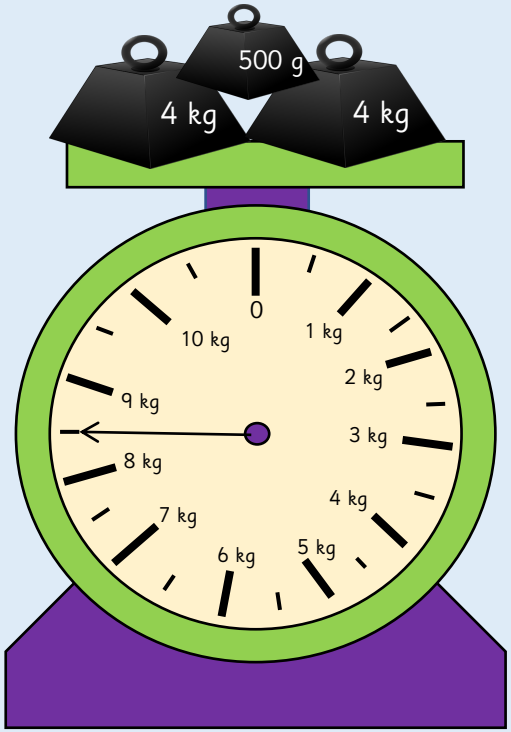
How many grams are in 1 kg?

How many grams are in ½ a kg?

How do the scales show the mass being weighed?

Activity 1 Measure Mass (2)

What weight is on the scales?
How do the scales show this?



How many grams are in 1 kg? 1,000 g

How many grams are in ½ a kg? 500 g

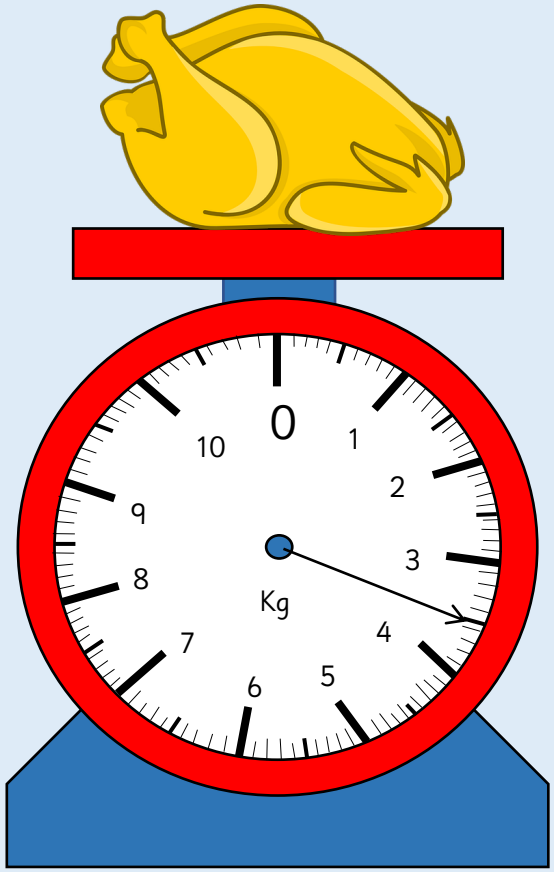
How do the scales show the mass being weighed?

The arrow is halfway between 8 kg and 9 kg.
The weight on the scales is therefore 8½ kg.

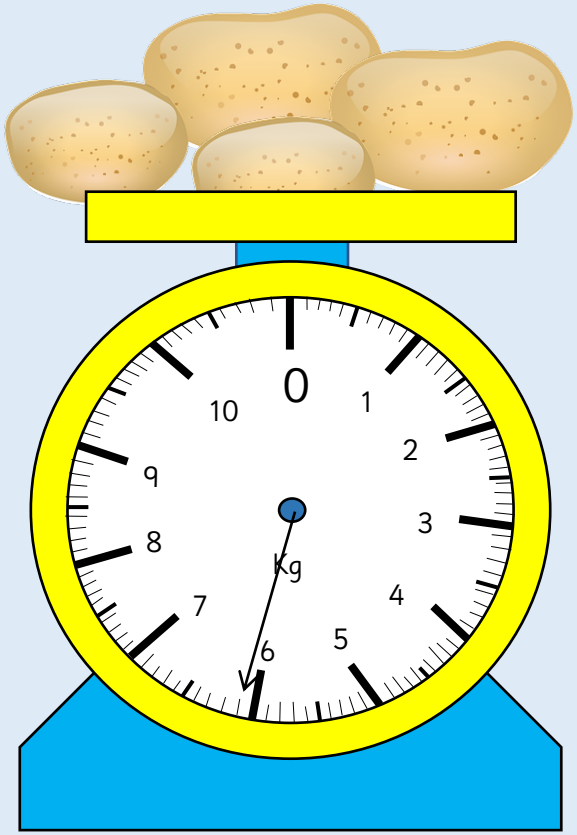
Activity 2

Measure Mass (2)

Complete the sentences.



The chicken weighs 3 kg and _____ g

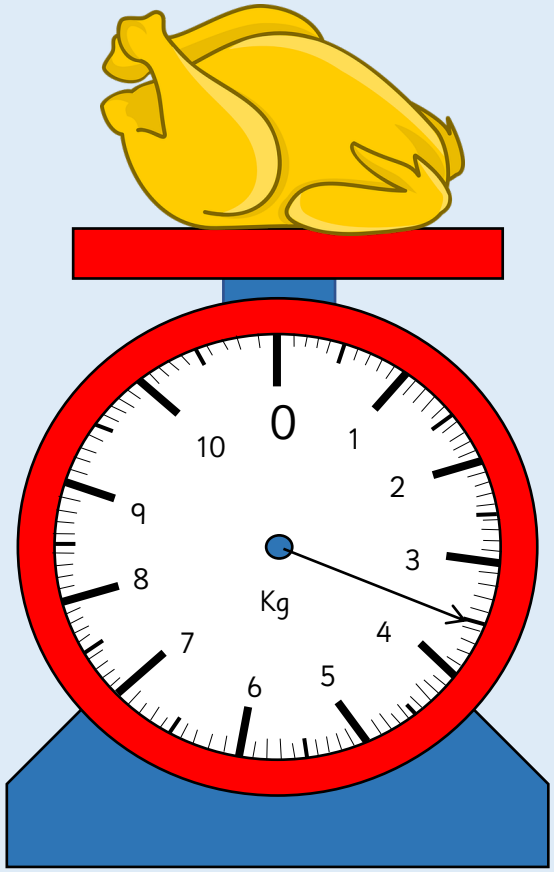


The potatoes weighs 6 kg and _____ g

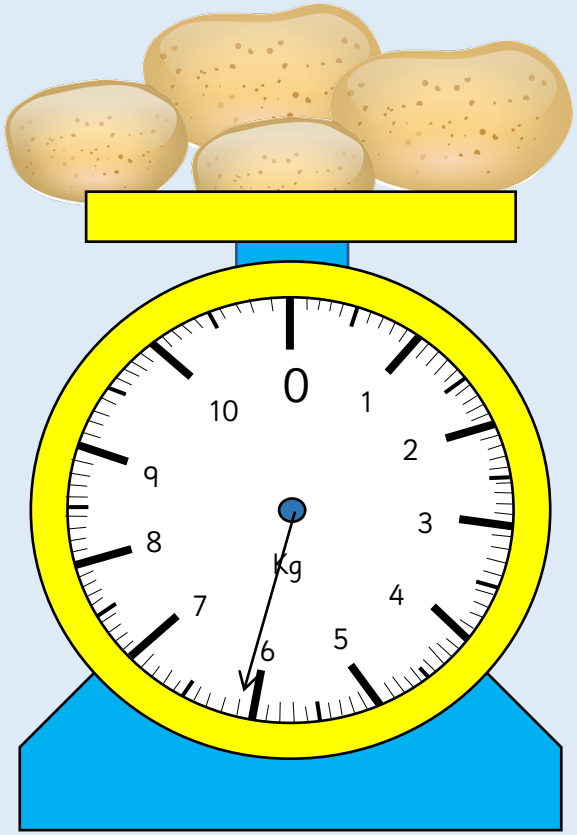
Activity 2

Measure Mass (2)

Complete the sentences.



The chicken weighs 3 kg and 500 g

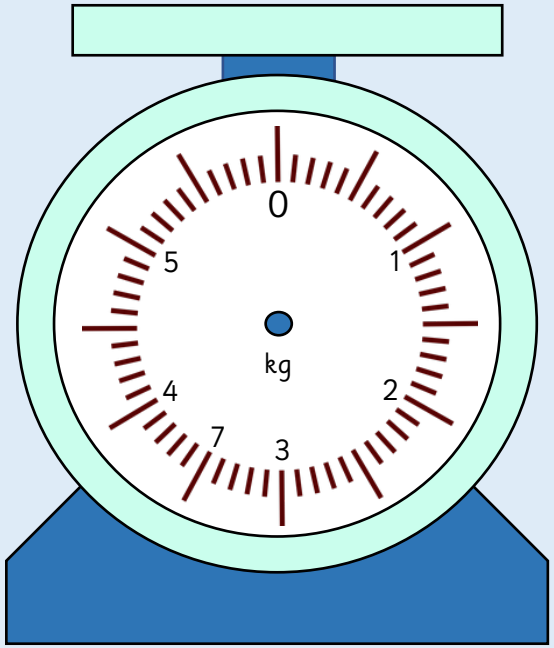


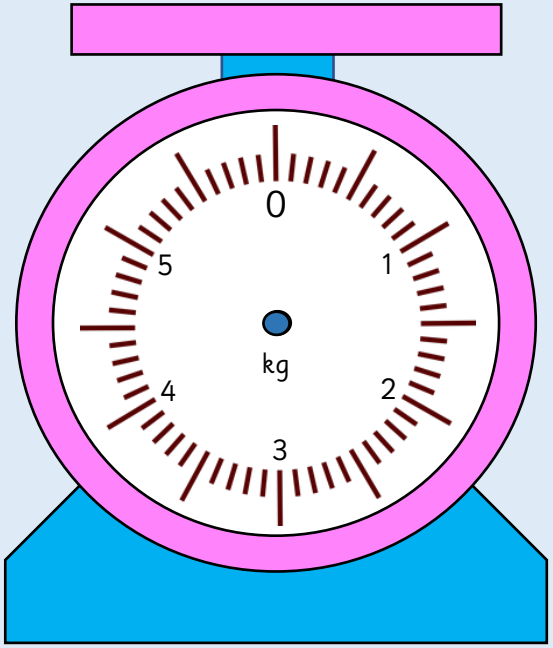
The potatoes weighs 6 kg and 100 g

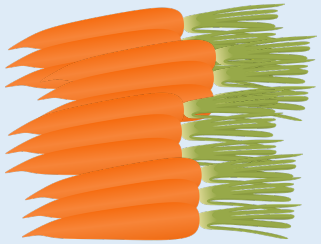
Activity 3

Measure Mass (2)

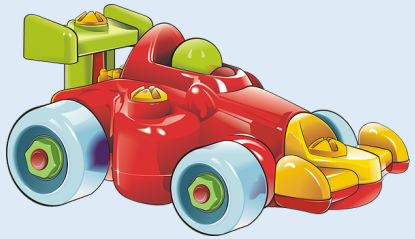
Draw an arrow on the scales to show the mass of each object.







= 2 kg and 700 g

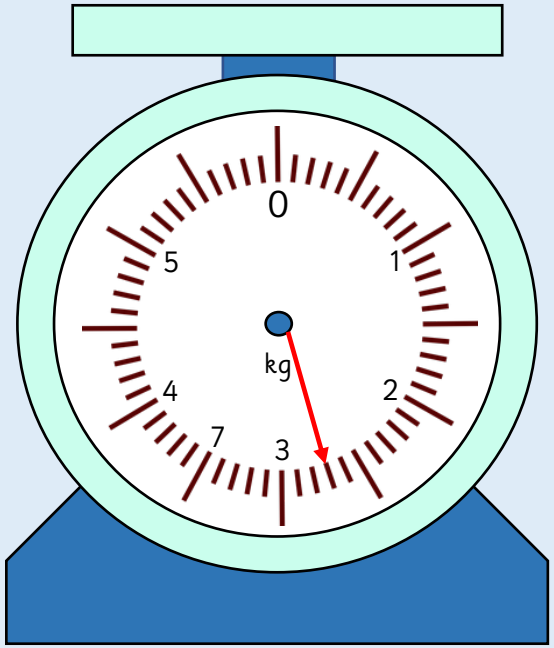


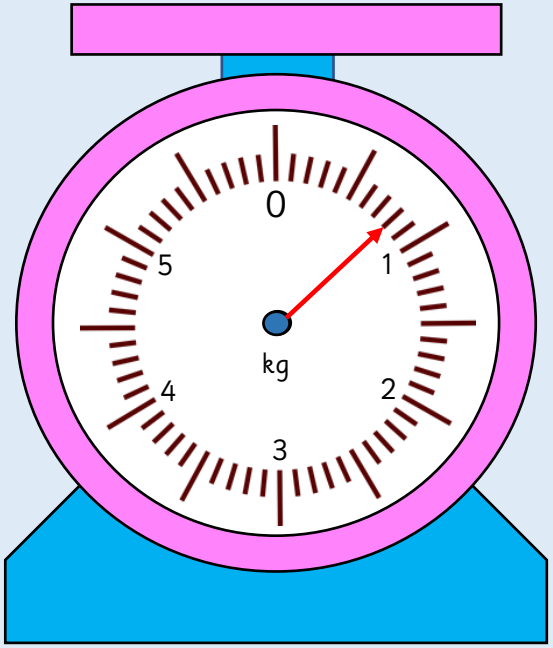
= 800 g

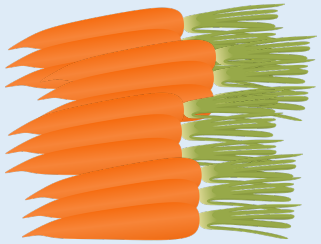
Activity 3

Measure Mass (2)

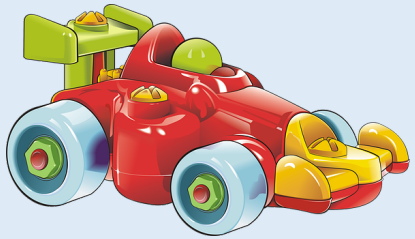
Draw an arrow on the scales to show the mass of each object.







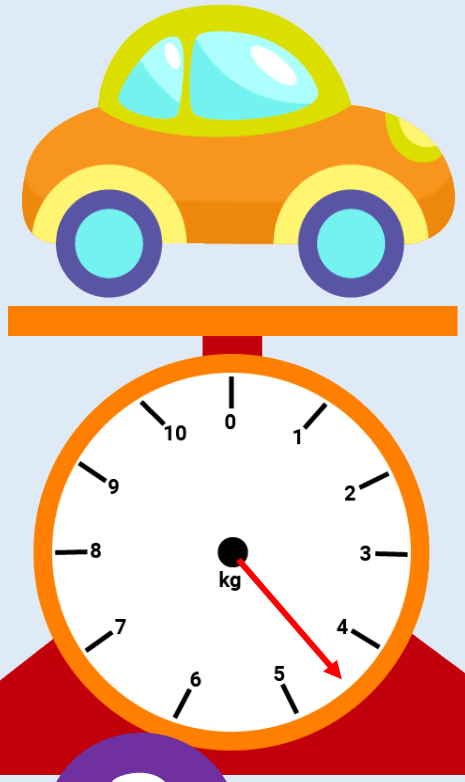
= 2 kg and 700 g



= 800 g

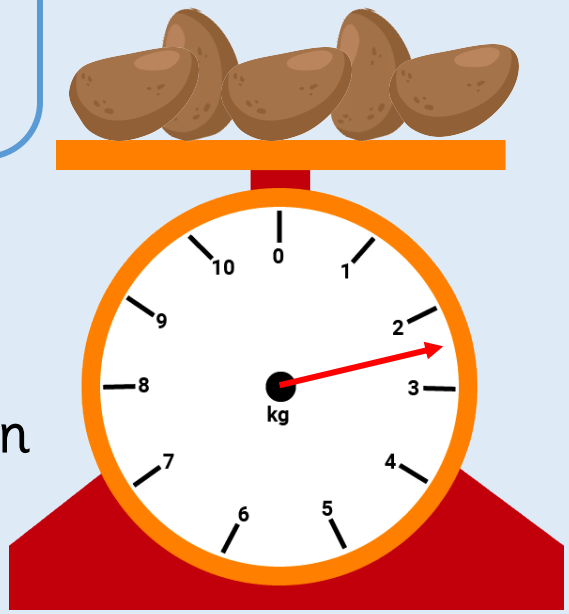
Activity 4 Measure Mass (2)

Complete the missing information.



The toy car weighs 4 kg and ____ g.

The potatoes weigh 2 kg and ___ g.



Use your own scales to measure how much objects weigh and record the mass in kg and g.

?

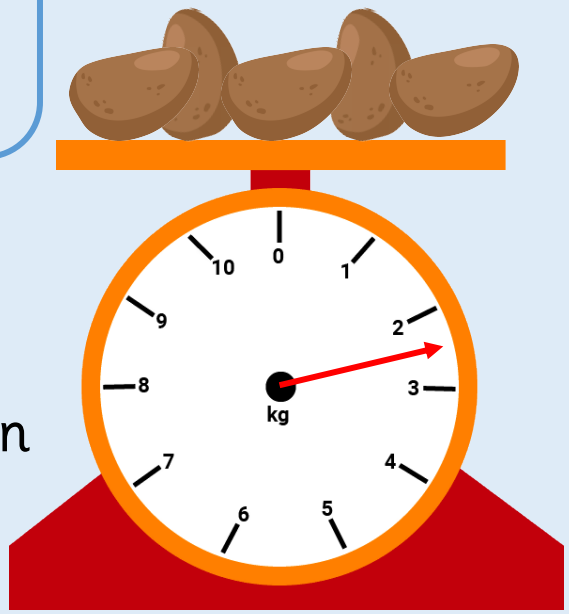
Which is heavier, 7 kilograms or 8 grams?

Activity 4 Measure Mass (2)

Complete the missing information.

The toy car weighs 4 kg and 500 g.

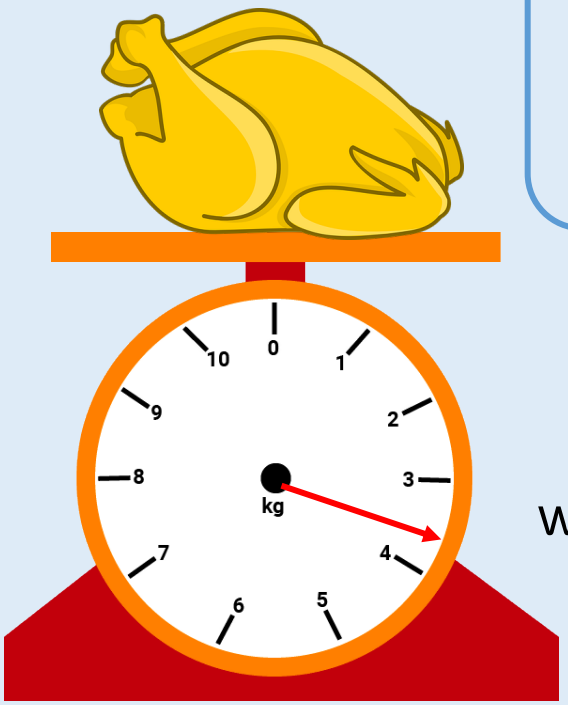
The potatoes weigh 2 kg and 500 g.



Use your own scales to measure how much objects weigh and record the mass in kg and g.

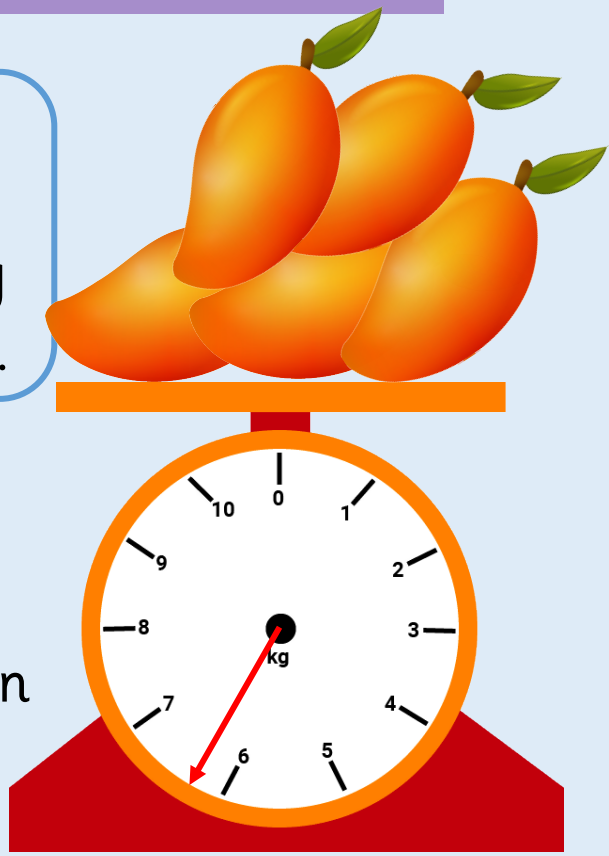
Activity 5 Measure Mass (2)

Complete the missing information.



The chicken weighs 3 kg and ____g.

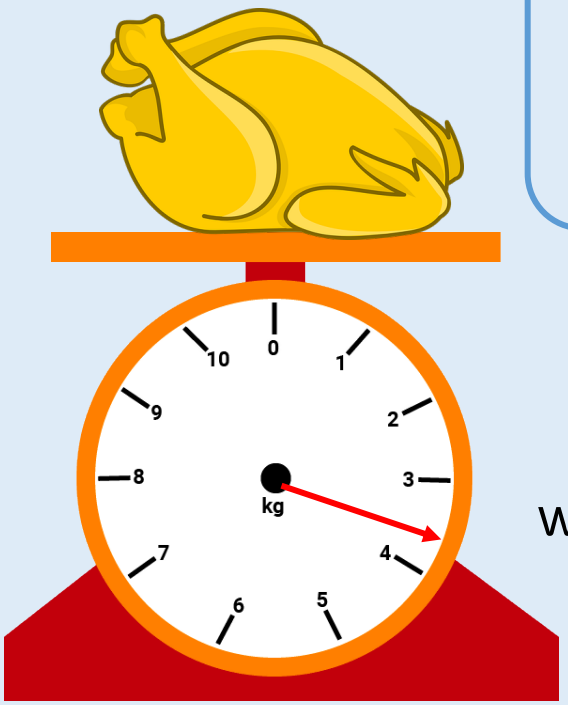
The mangoes weigh 6 kg and ____g.



Use your own scales to measure how much objects weigh and record the mass in kg and g.

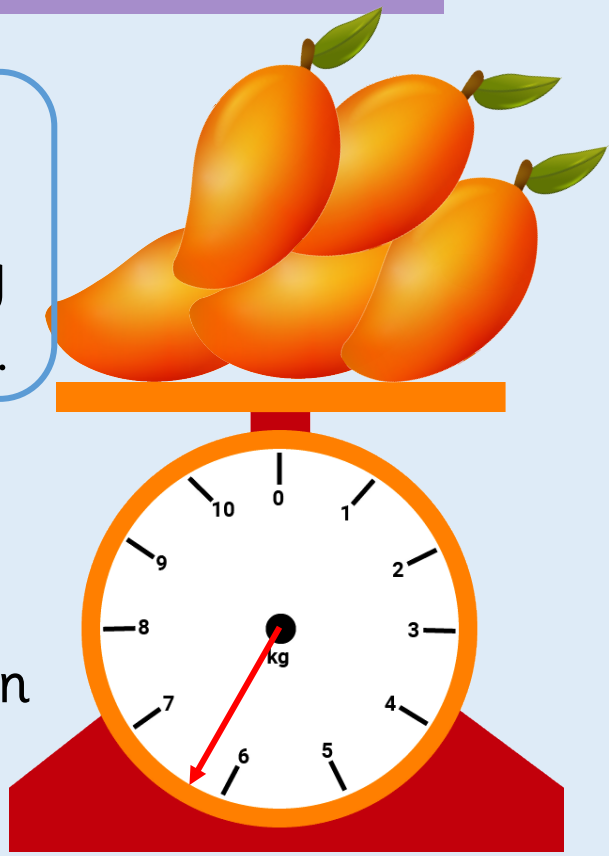
Activity 5 Measure Mass (2)

Complete the missing information.



The chicken weighs 3 kg and 600 g.

The mangoes weigh 6 kg and 200 g.

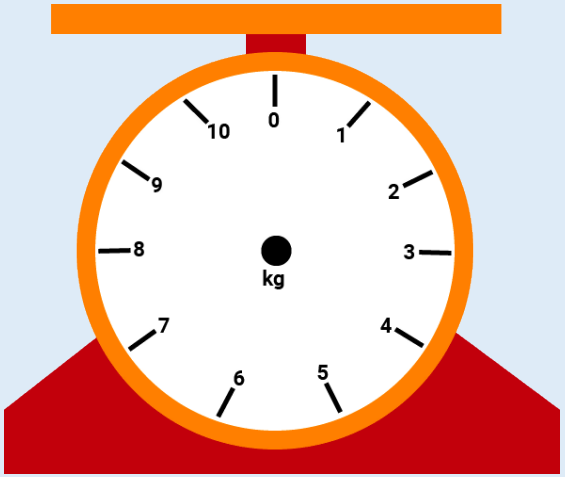


Use your own scales to measure how much objects weigh and record the mass in kg and g.

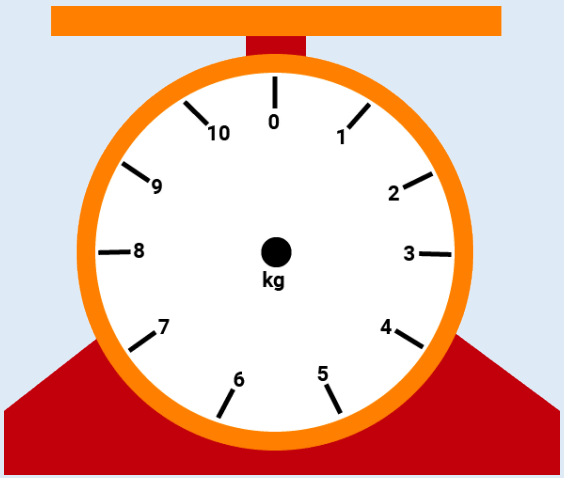
Activity 6 Measure Mass (2)

Draw an arrow on the scales to show the mass of each object.

= 1 kg and 700 g



= 2 kg and 100 g



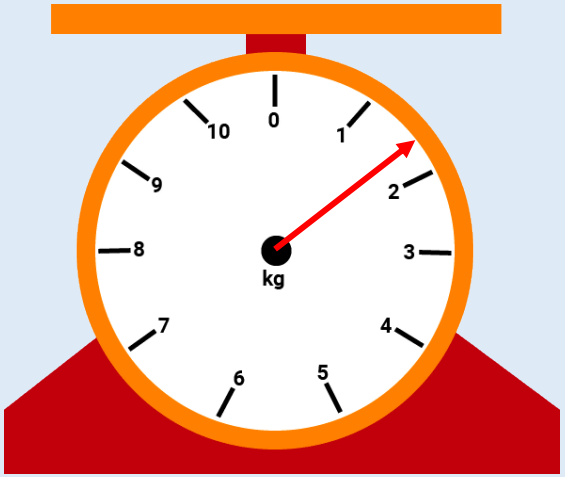
?

Does drawing a number line help you to find the intervals?

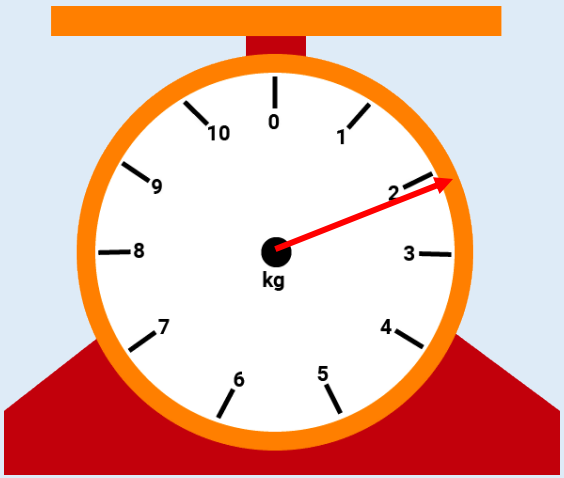
Activity 6 Measure Mass (2)

Draw an arrow on the scales to show the mass of each object.

= 1 kg and 700 g



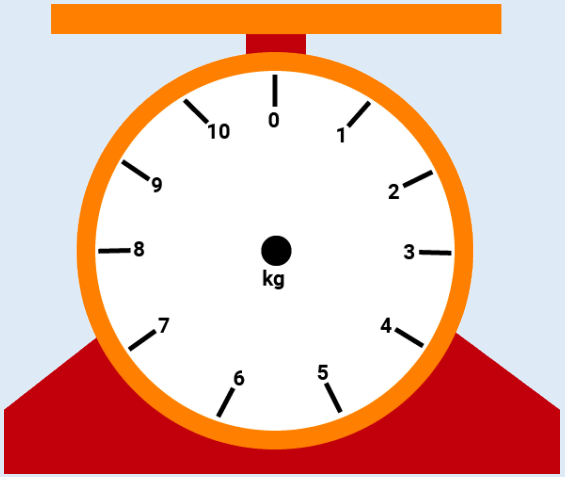
= 2 kg and 100 g



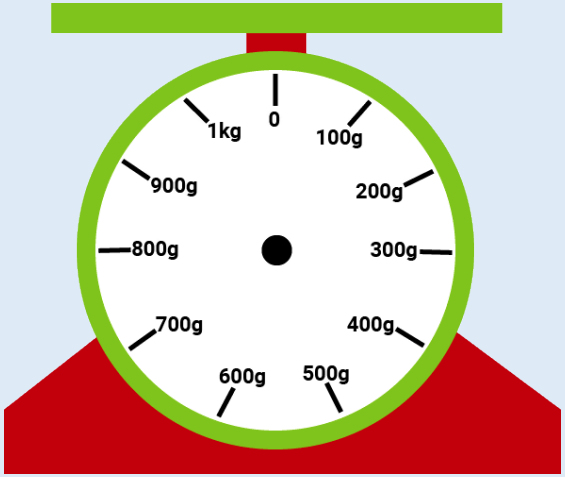
Activity 7 Measure Mass (2)

Draw an arrow on the scales to show the mass of each object.

= 2 kg and 700 g



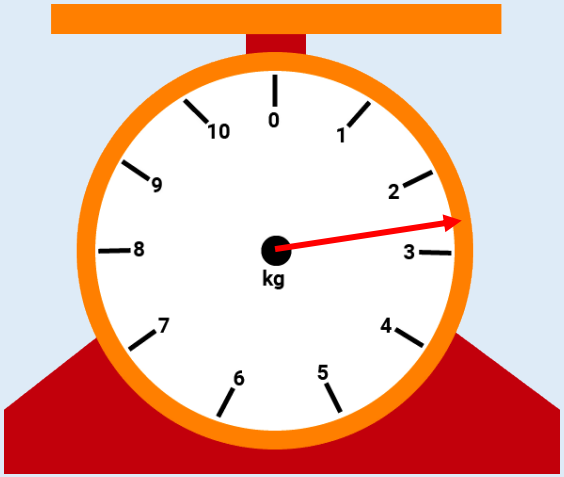
= 800 g



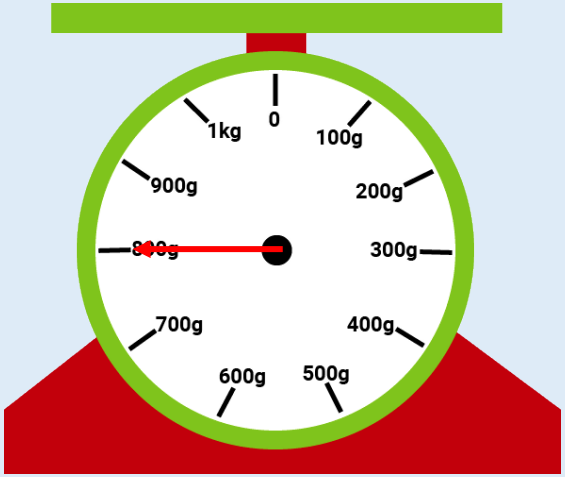
Activity 7 Measure Mass (2)

Draw an arrow on the scales to show the mass of each object.

= 2 kg and 700 g

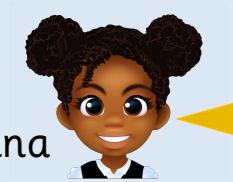


= 800 g



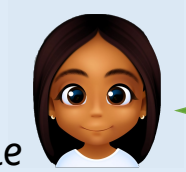
Reasoning 1 Measure Mass (2)

Zach is weighing a toy car. Use this to work out what the other children's cars weigh.



Leanna

My car weighs 2 kg more than Rosie's.



Rosie

My car weighs 100 g less than Zach's.

Tia

My car weighs 1 kg and 300 g less than Leanna's.

Reasoning 1 Measure Mass (2)

Zach is weighing a toy car. Use this to work out what the other children's cars weigh.

Zach's car weighs 5 kg and 500 g.

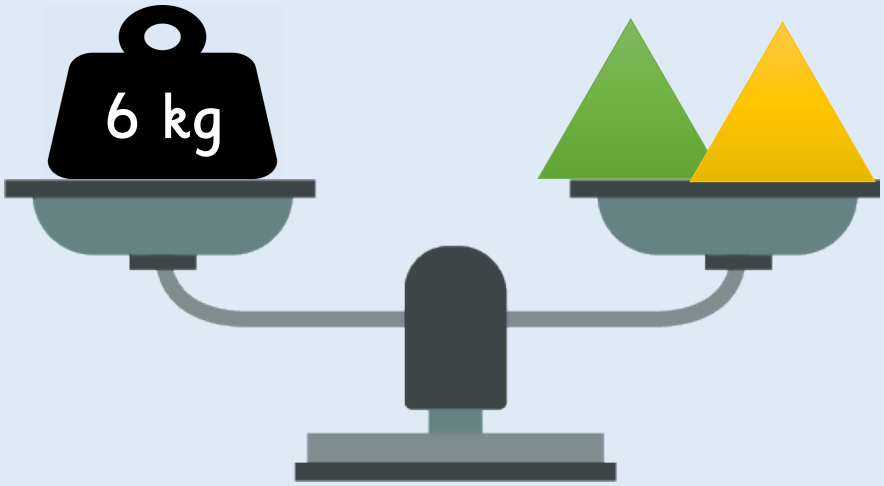
Leanna's car weighs 7 kg and 400 g.

Rosie's car weighs 5 kg and 400 g.

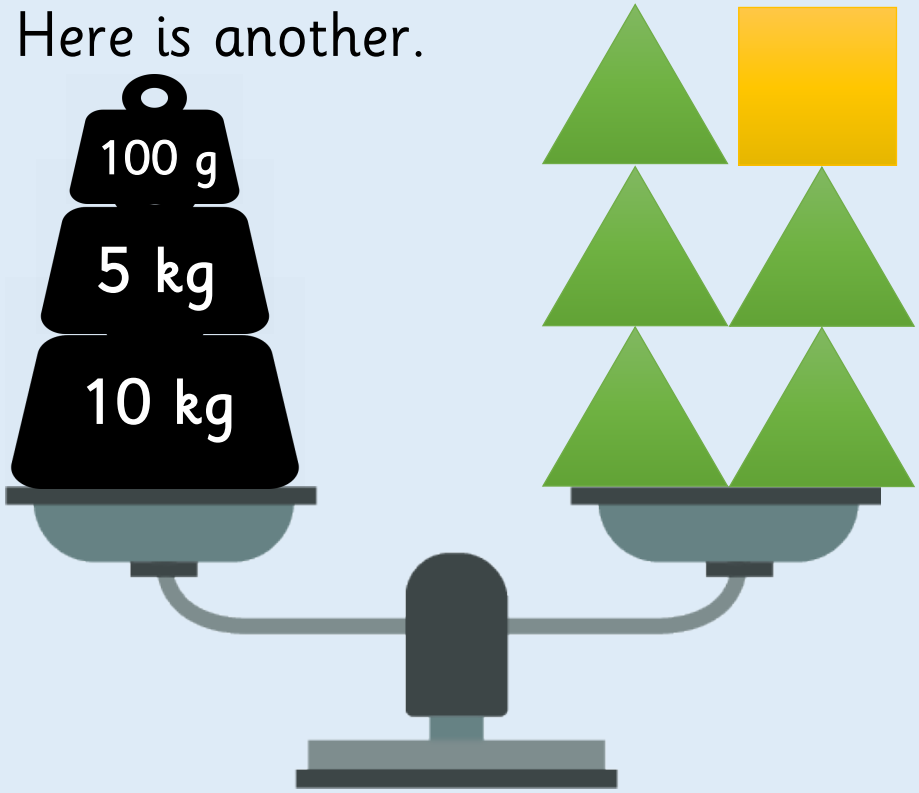
Tia's car weighs 6 kg and 100 g.

Reasoning 2 Measure Mass (2)

Here is a balance.



Here is another.

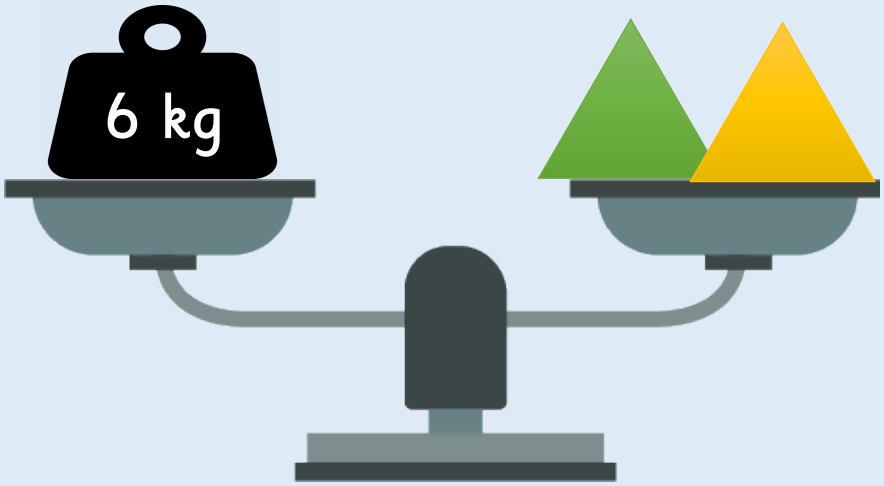


Work out the value of 

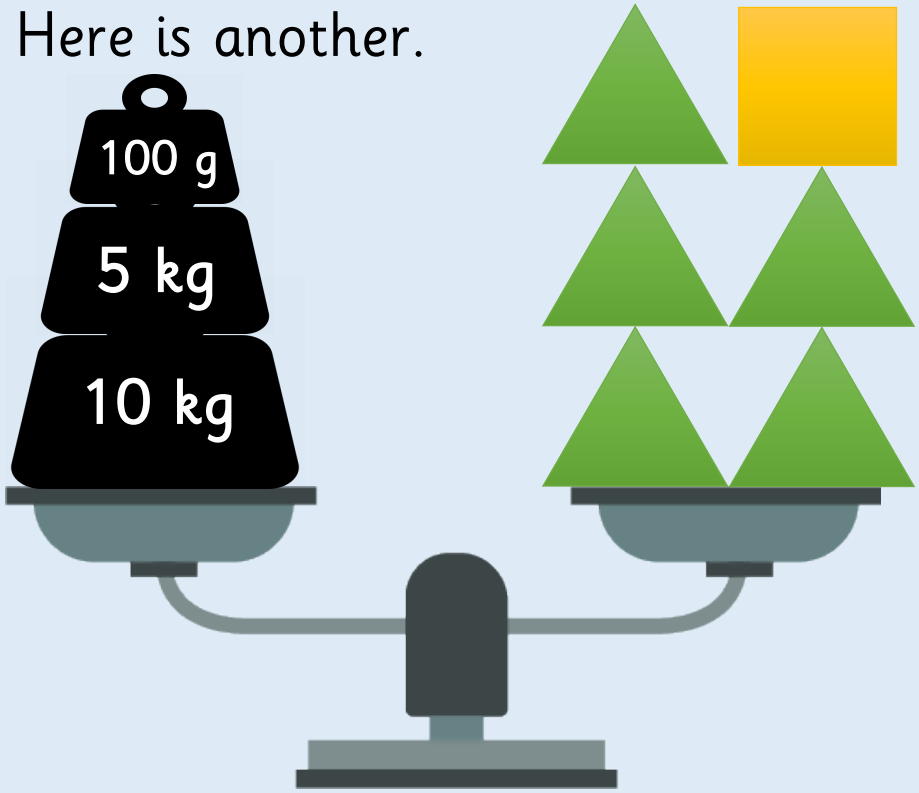
Can you create your own version for a partner?

Reasoning 2 Measure Mass (2)

Here is a balance.



Here is another.



One triangle weighs 3 kg.
The square weighs 100 g.

Discussion

Measure Mass (2)

Which is heavier, 7 kilograms or 8 grams?

How is a scale like a number line?

Does drawing a number line help you to find the intervals?

Where do we use measuring mass on a daily basis?

Compare Mass

3

Fluency & Reasoning Teaching Slides

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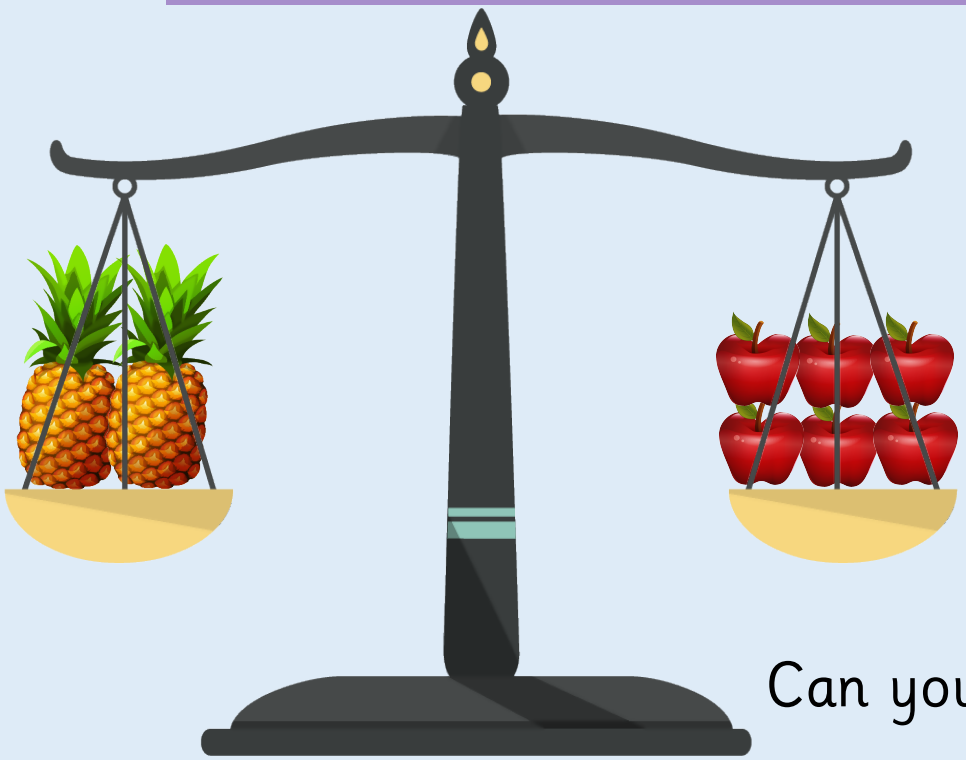
Activity 1 Compare Mass

Complete the sentences.



☐ pineapples are equal to ☐ apples.

1 pineapple is equal to ☐ apples.

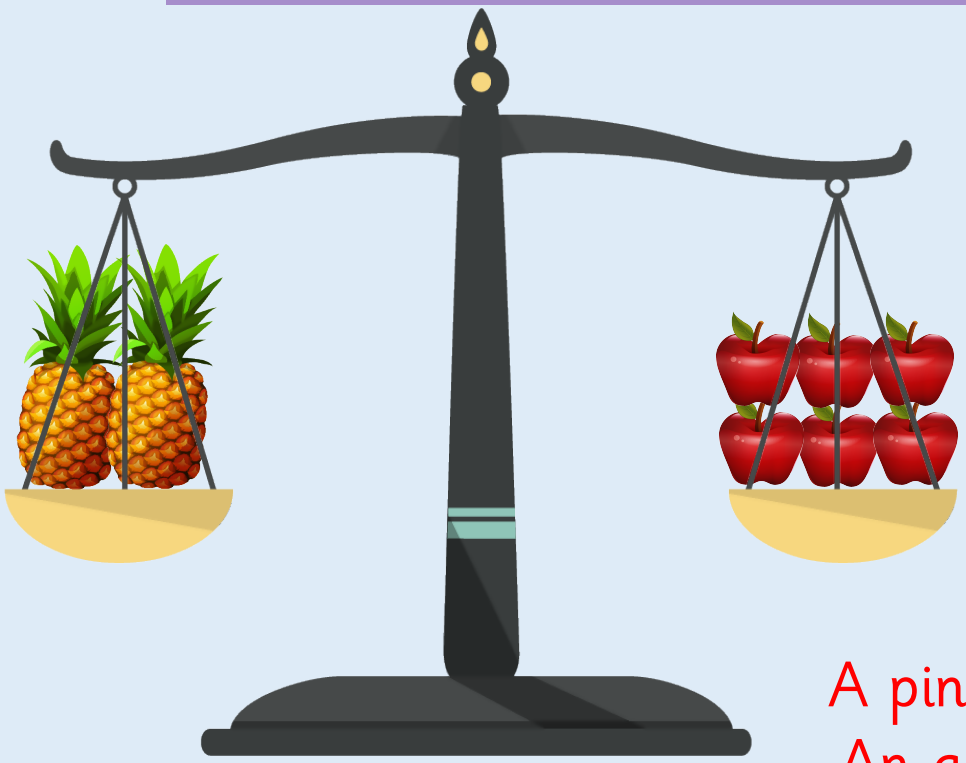
Can you write sentences using 'heavier' or 'lighter' about the image?

?

Which item is heavier or lighter? How do you know?

Activity 1 Compare Mass

Complete the sentences.



2 pineapples are equal to 6 apples.

1 pineapple is equal to 3 apples.

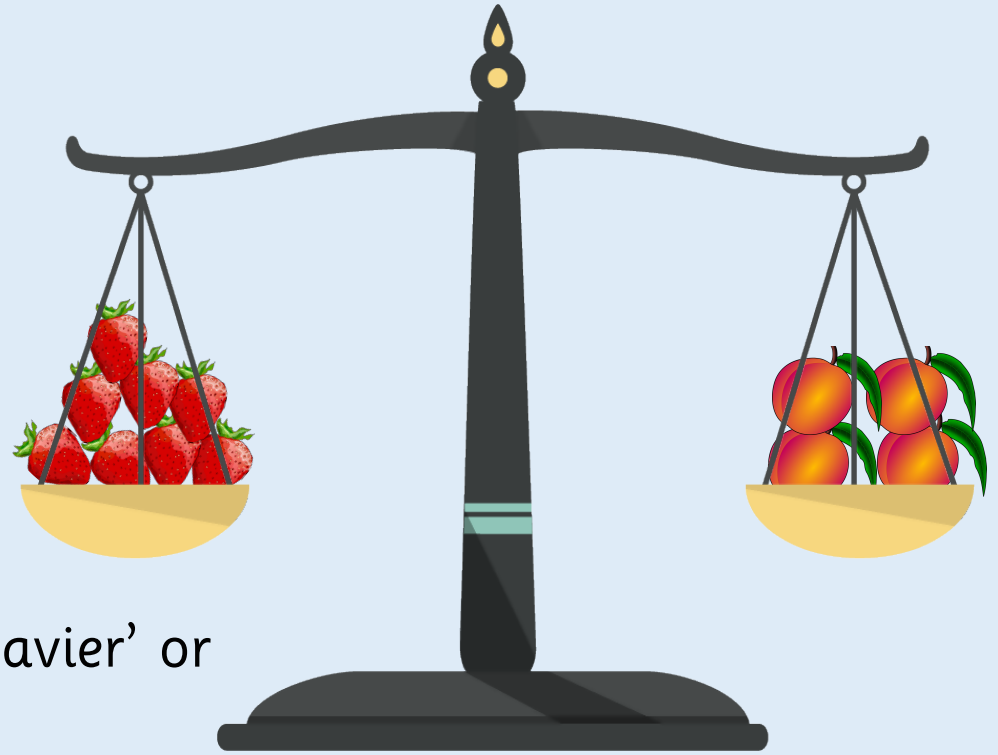
A pineapple is heavier than an apple.
An apple is lighter than a pineapple.

Activity 1 Compare Mass

Complete the sentences.

_____ strawberries are equal to _____ peaches.

1 peach is equal to _____ strawberries.



Can you write sentences using 'heavier' or 'lighter' about the image?

Activity 1 Compare Mass

Complete the sentences.

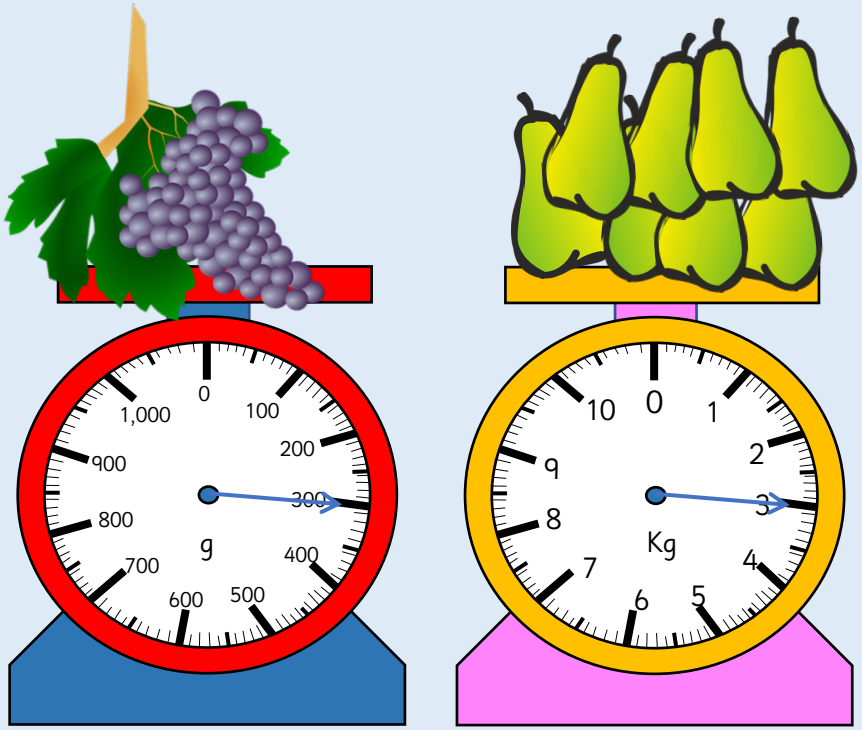
8 strawberries are equal to 4 peaches.

1 peach is equal to 2 strawberries.

A peach is heavier than a strawberry.
A strawberry is lighter than a peach.

Activity 2 Compare Mass

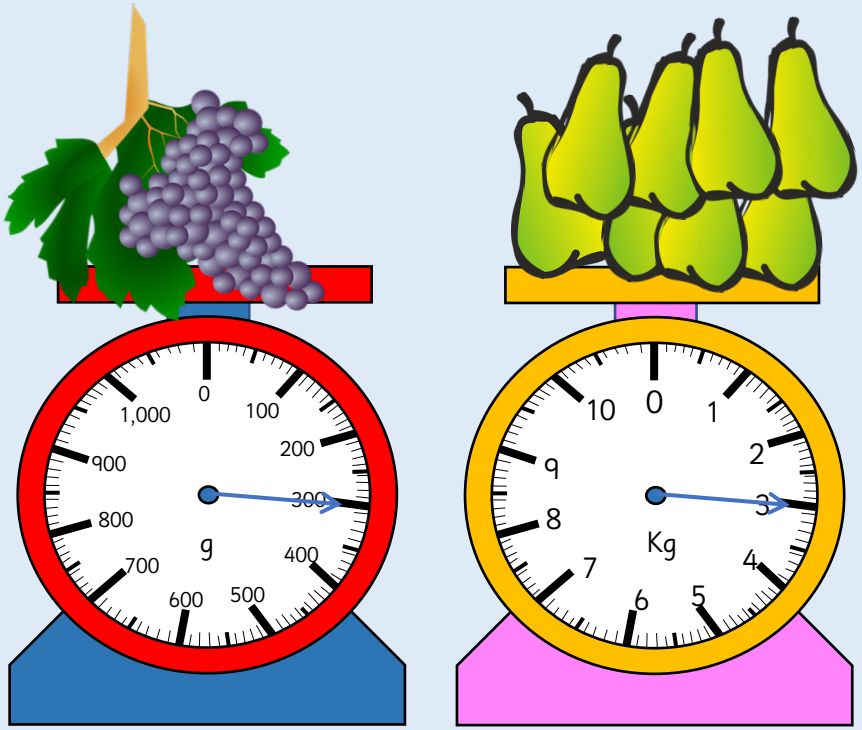
Use <, > or = to compare the mass of each pair of objects.



300 g ◯ 3 kg

Activity 2 Compare Mass

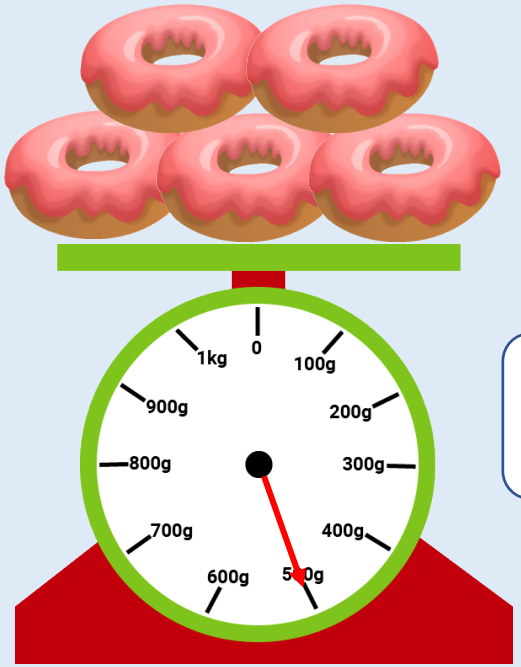
Use <, > or = to compare the mass of each pair of objects.



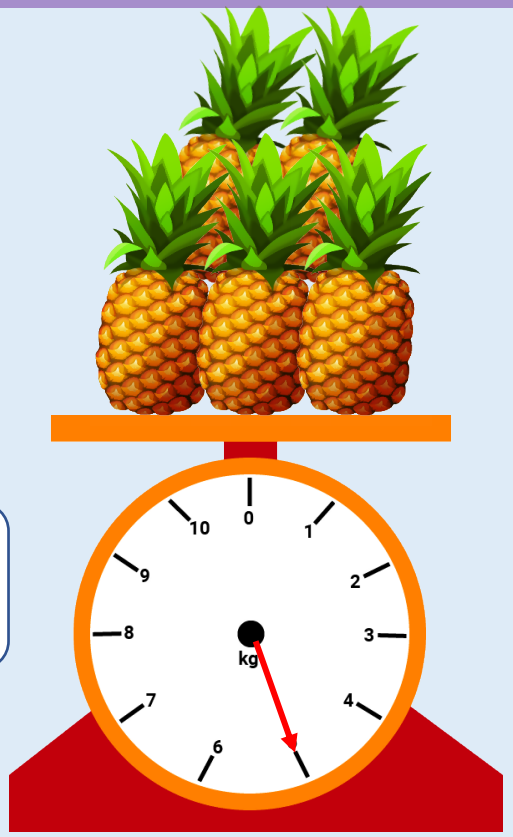
300 g < 3 kg

Activity 2 Compare Mass

Use <, > or = to compare the mass of each pair of objects.

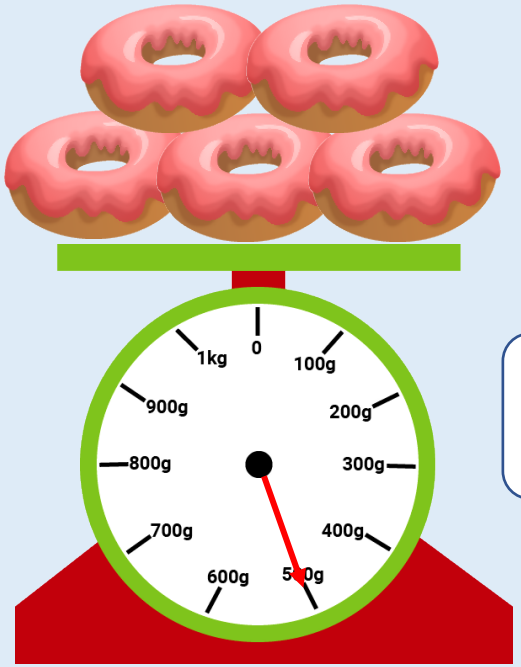


500 g ◯ 5 kg

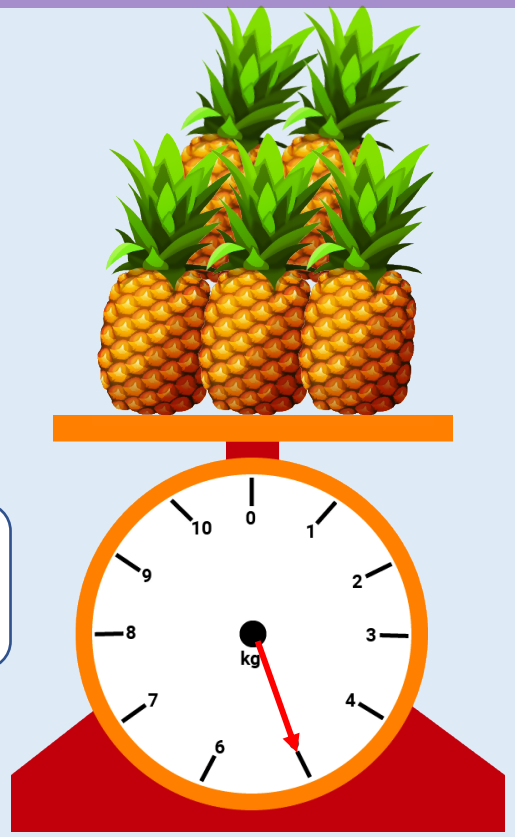


Activity 2 Compare Mass

Use <, > or = to compare the mass of each pair of objects.

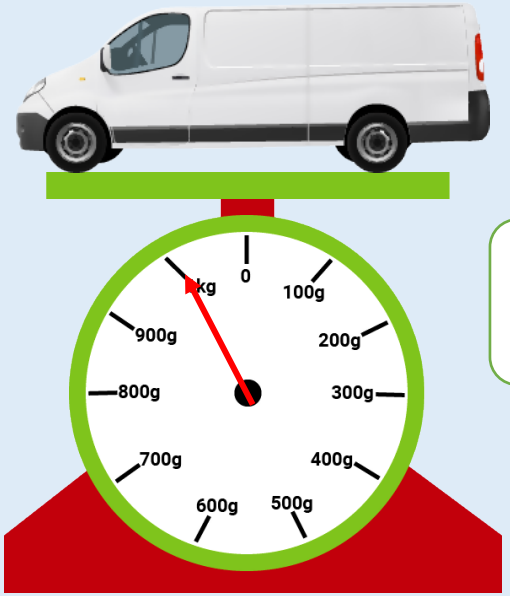


500 g < 5 kg

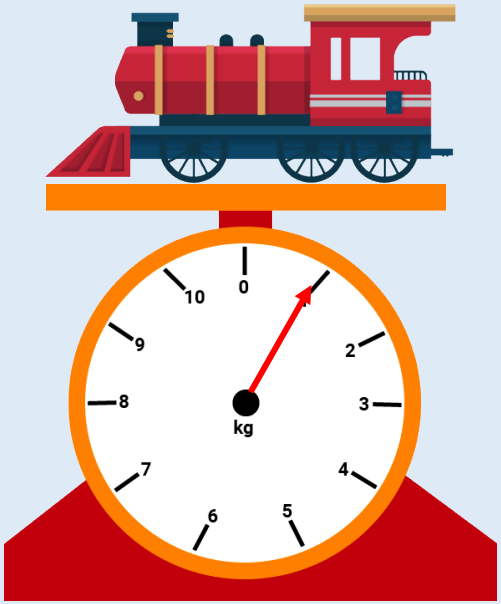


Activity 2 Compare Mass

Use <, > or = to compare the mass of each pair of objects.

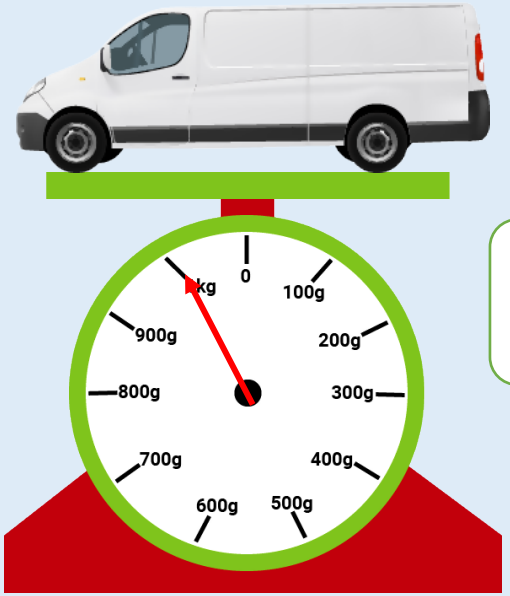


1,000 g ◯ 1 kg

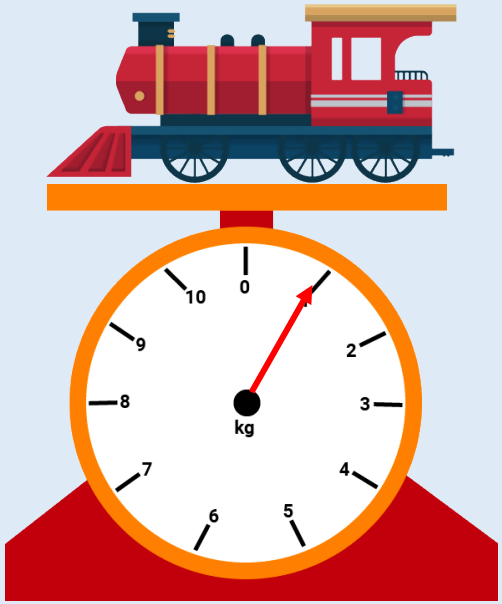


Activity 2 Compare Mass

Use <, > or = to compare the mass of each pair of objects.

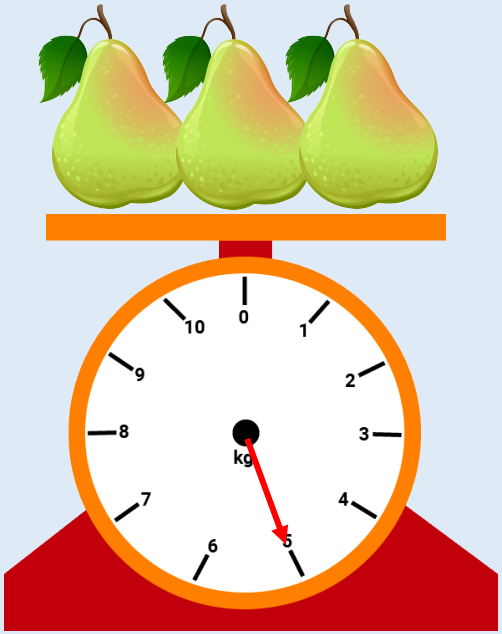


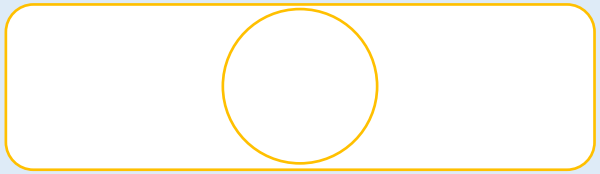
1,000 g = 1 kg

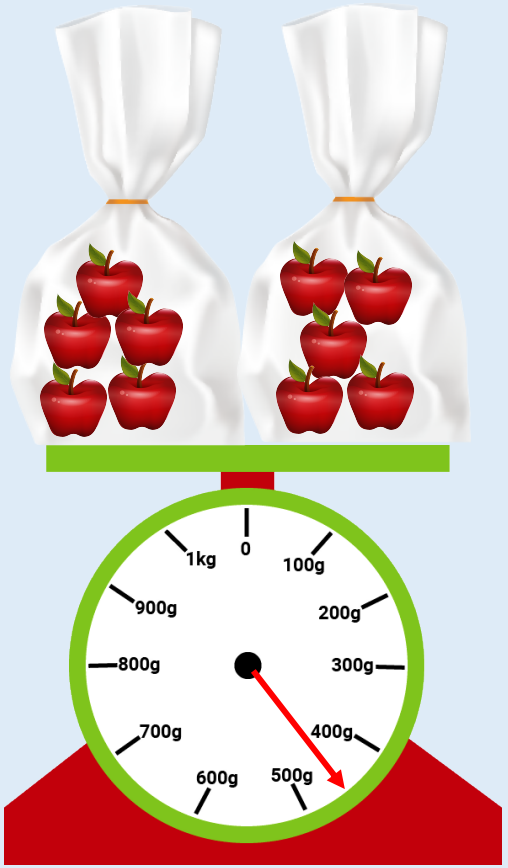


Activity 2 Compare Mass

Use <, > or = to compare the mass of each pair of objects.

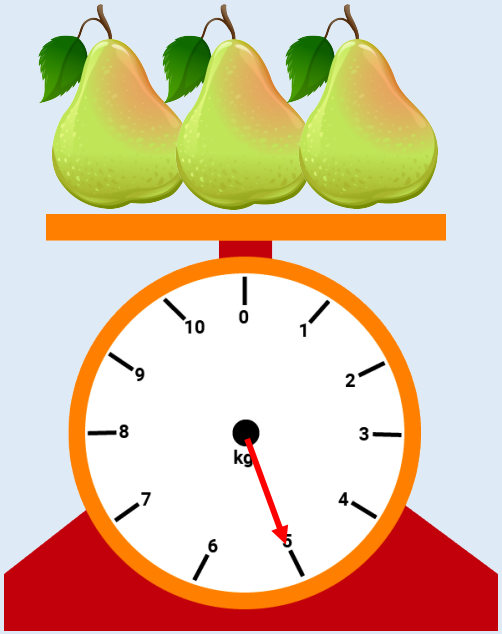




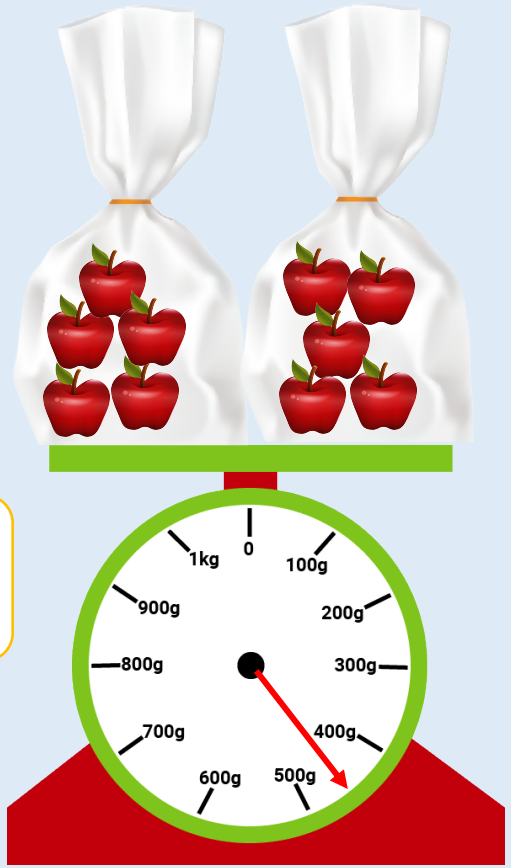


Activity 2 Compare Mass

Use <, > or = to compare the mass of each pair of objects.

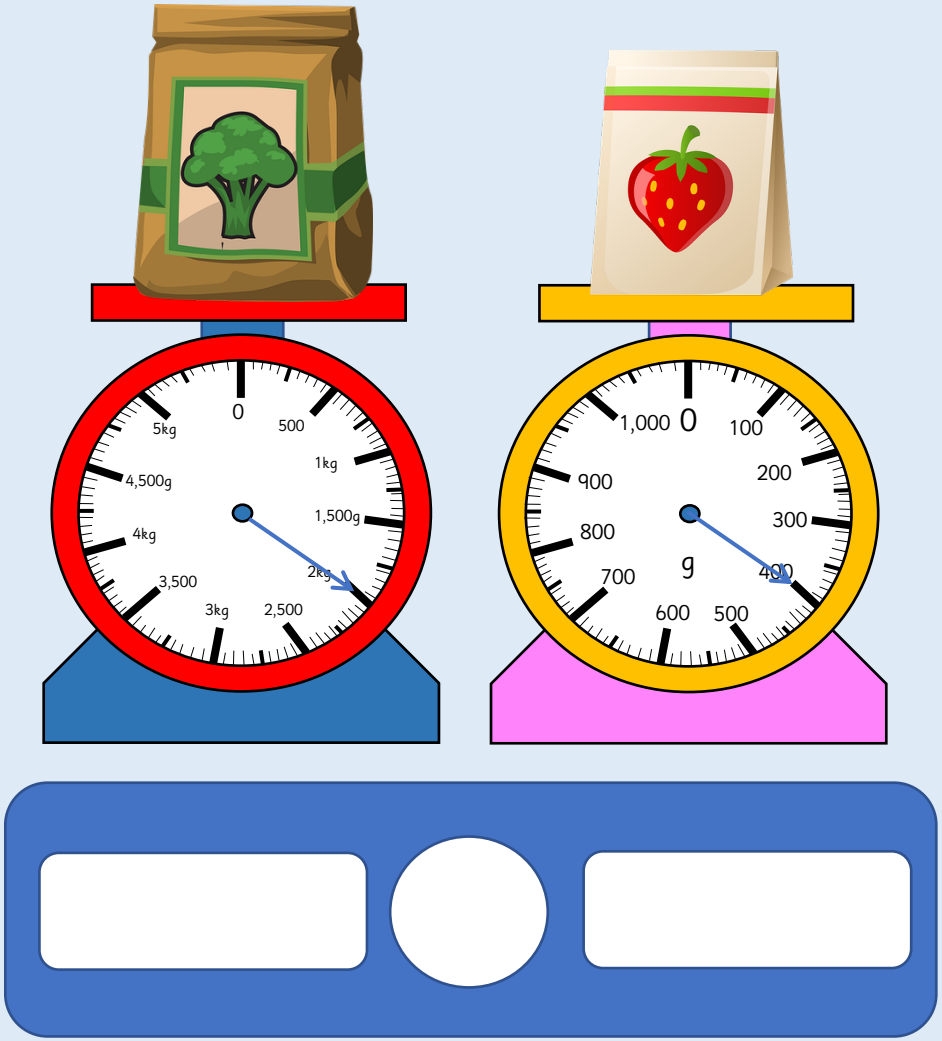


5 kg > 450 g



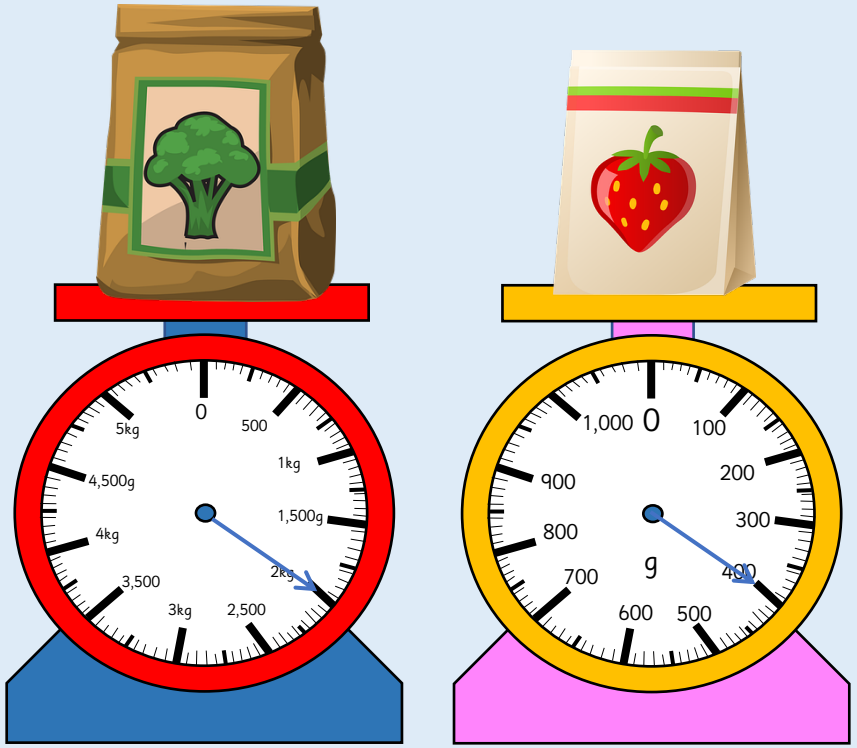
Activity 2 Compare Mass

Use <, > or = to compare the mass of each pair of objects.



Activity 2 Compare Mass

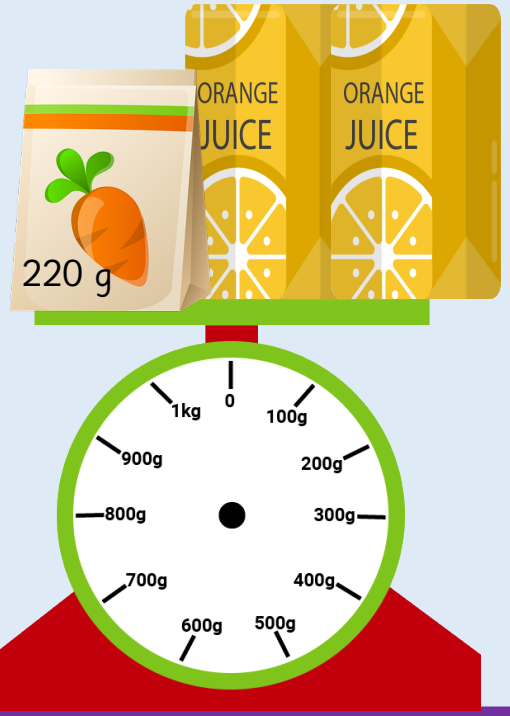
Use <, > or = to compare the mass of each pair of objects.



2 kg > 400 g

Activity 3 Compare Mass

A pack of carrots weighs 220 g.
Two cartons of orange juice weigh 140 g.
Draw an arrow to show the weight of the three items.



?

If I added an extra item, what would happen?

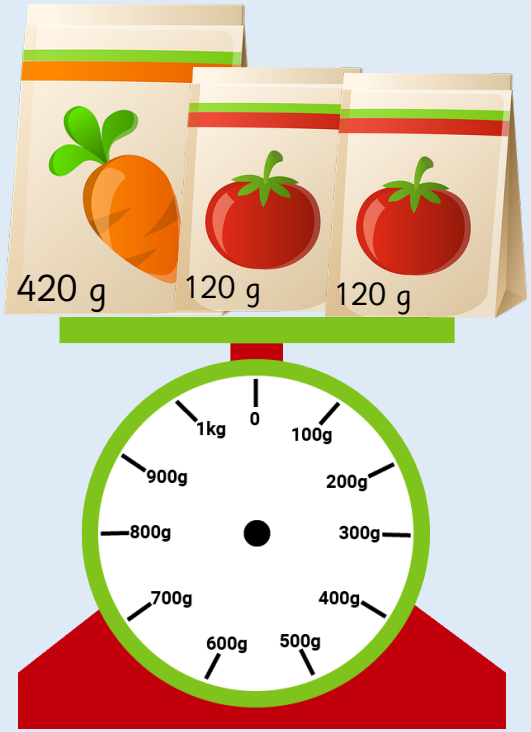
Activity 3 Compare Mass

A pack of carrots weighs 220 g.
Two cartons of orange juice weigh 140 g.
Draw an arrow to show the weight of the three items.

220 g + 140 g = 360 g

Activity 3 Compare Mass

A pack of carrots weighs 420 g.
Two packs of tomatoes weigh 120 g each.
Draw an arrow to show the weight of the three items.



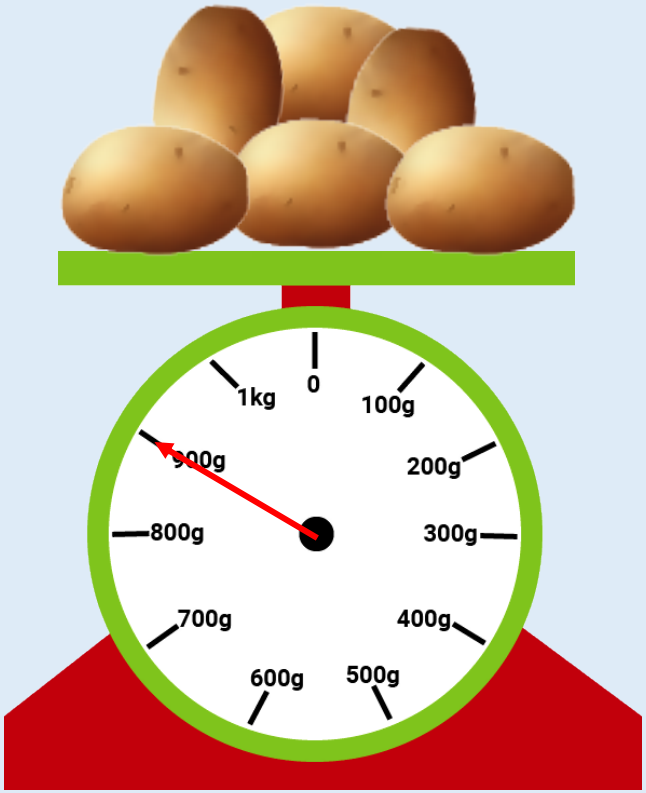
Activity 3 Compare Mass

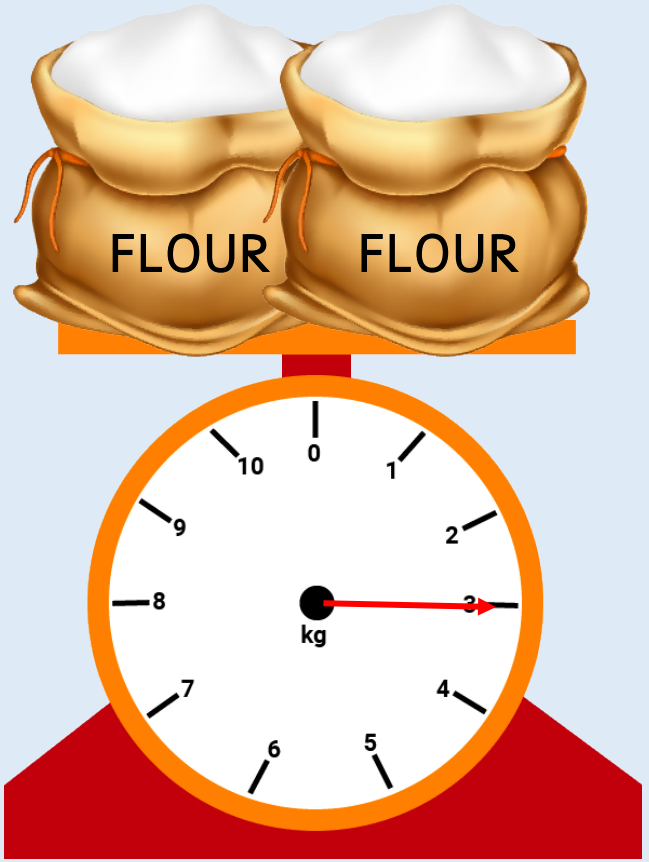
A pack of carrots weighs 420 g.
Two packs of tomatoes weigh 120 g each.
Draw an arrow to show the weight of the three items.

420 g + 120 g + 120 g = 660 g

Reasoning 1 Compare Mass

Three children are weighing potatoes and flour.





Reasoning 1 Compare Mass

Zach

The potatoes weigh more because the arrow is further than the arrow on the flour scale.

Malachi

The flour weighs less because 3 is less than 900.

Esin

The flour weighs more because 3 kg is more than 900 g.

Who do you agree with? Explain your answer.

Reasoning 1 Compare Mass

Zach

The potatoes weigh more because the arrow is further than the arrow on the flour scale.

Zach is wrong because the scales show different units of weight.

Malachi

The flour weighs less because 3 is less than 900.

Malachi is wrong because he hasn't noticed the flour is weighed in kg and the potatoes are weighed in g.

Esin

The flour weighs more because 3 kg is more than 900 g.

Esin is correct because 3 kg is the same as 3,000 g which is more than 700 g.

Reasoning 2 Compare Mass

Here are three masses.
Match each mass to the correct child.

15 kg and 500 g	40 kg and 500 g	30 kg

My mass weighs more than ½ of 80 kg.

Leanna

My mass is more than Tia's mass.

Rosie

My mass weighs more than 10 kg but less than 18 kg.

Tia

Reasoning 2 Compare Mass

Here are three masses.
Match each mass to the correct child.

15 kg and 500 g	40 kg and 500 g	30 kg

Leanna:
40 kg and 500 g

My mass weighs more than ½ of 80 kg.

Leanna

Rosie:
30 kg

My mass is more than Tia's mass.

Rosie

Tia:
15 kg and 500 g

My mass weighs more than 10 kg but less than 18 kg.

Tia

Discussion

Compare Mass

Which item is heavier or lighter? How do you know?

Using the symbols <, > or =, what can you tell me about each of the scales?

If I added an extra item, what would happen?

Can I work out how much one item weighs? Would this be more or less than the other item?

Add & Subtract Mass

3

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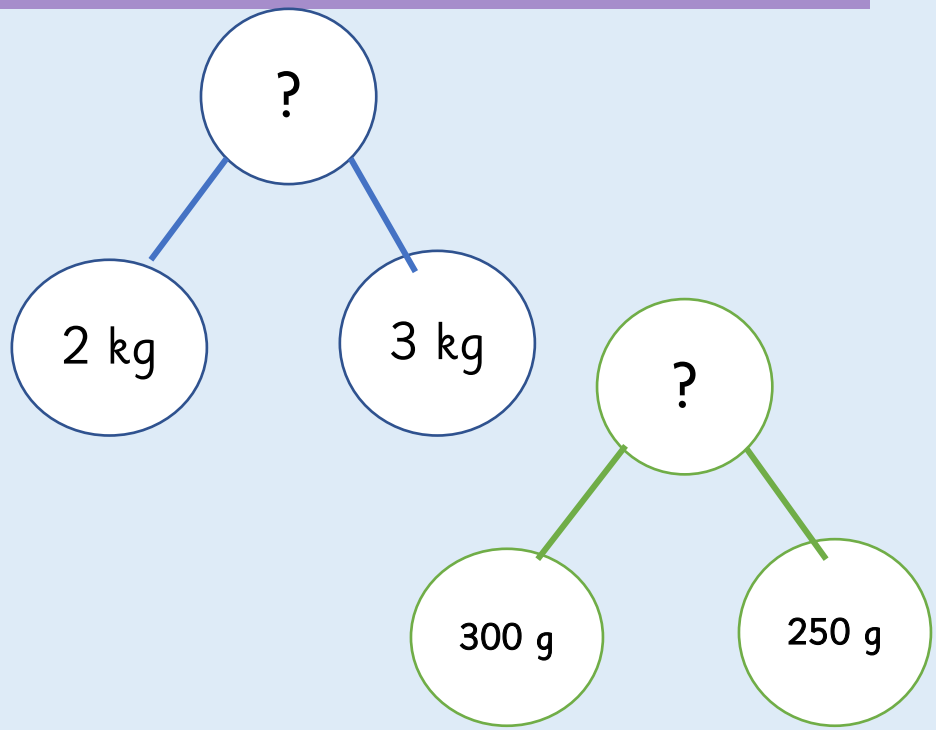
Activity 1 Add & Subtract Mass

Malachi uses a part-whole model to add 2 kg and 300 g to 3 kg and 250 g. He partitions each mass into kilograms and grams and calculates them separately.

Use Malachi's method to calculate:

3 kg and 450 g + 4 kg and 200 g
4 kg and 105 g + 2 kg and 300 g
4 kg and 400 g – 2 kg and 100 g
8 kg and 600 g – 1 kg and 550 g



?

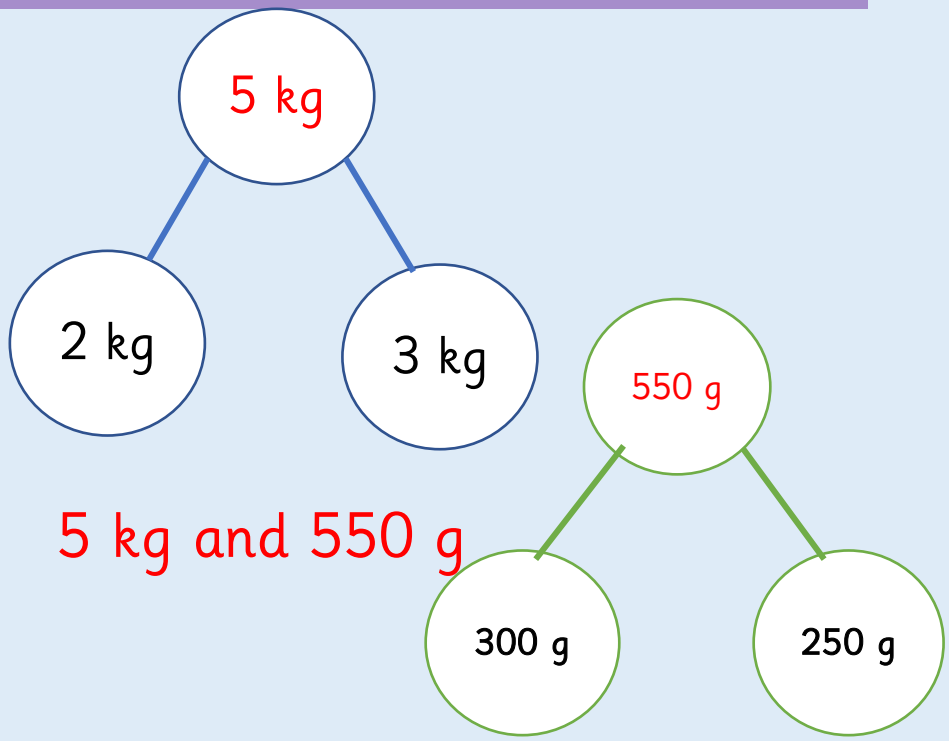
How many grams are in a kilogram?

Activity 1 Add & Subtract Mass

Malachi uses a part-whole model to add 2 kg and 300 g to 3 kg and 250 g. He partitions each mass into kilograms and grams and calculates them separately.

Use Malachi's method to calculate:

3 kg and 450 g + 4 kg and 200 g
4 kg and 105 g + 2 kg and 300 g
4 kg and 400 g – 2 kg and 100 g
8 kg and 600 g – 1 kg and 550 g

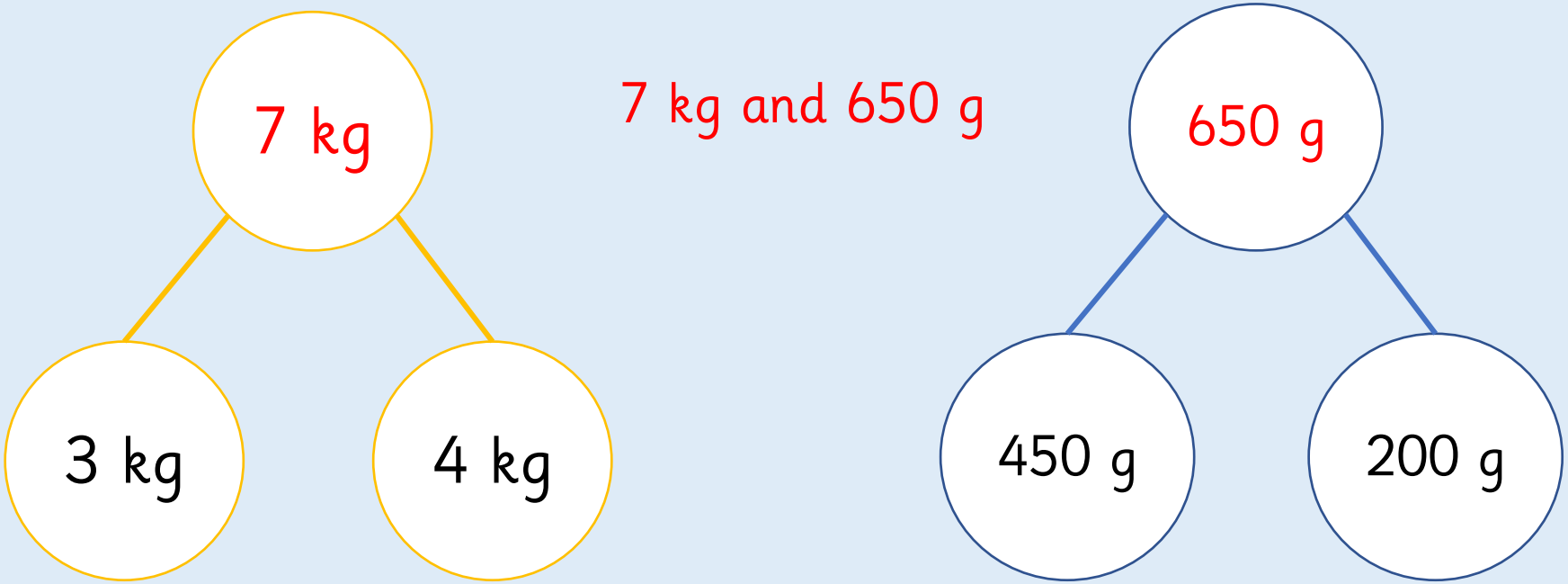


5 kg and 550 g

Activity 1 Add & Subtract Mass

Malachi uses a part-whole model to add 2 kg and 300 g to 3 kg and 250 g. He partitions each mass into kilograms and grams and calculates them separately.

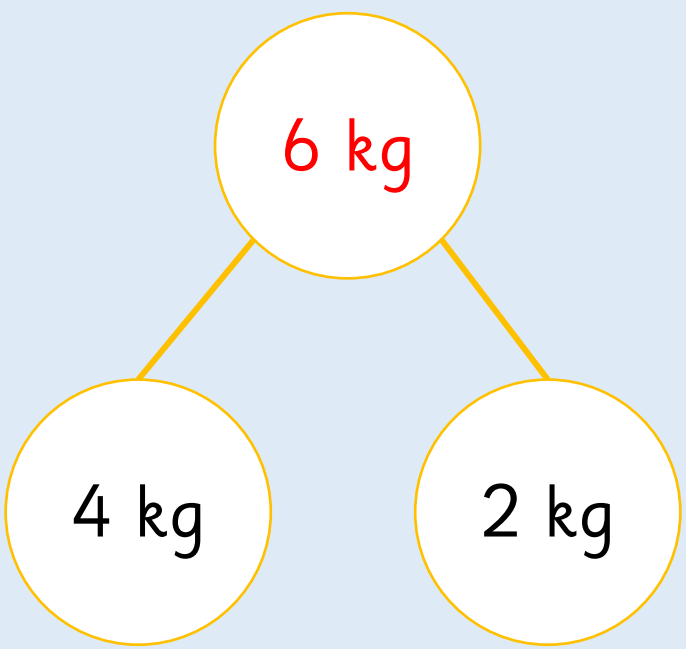
3 kg and 450 g + 4 kg and 200 g



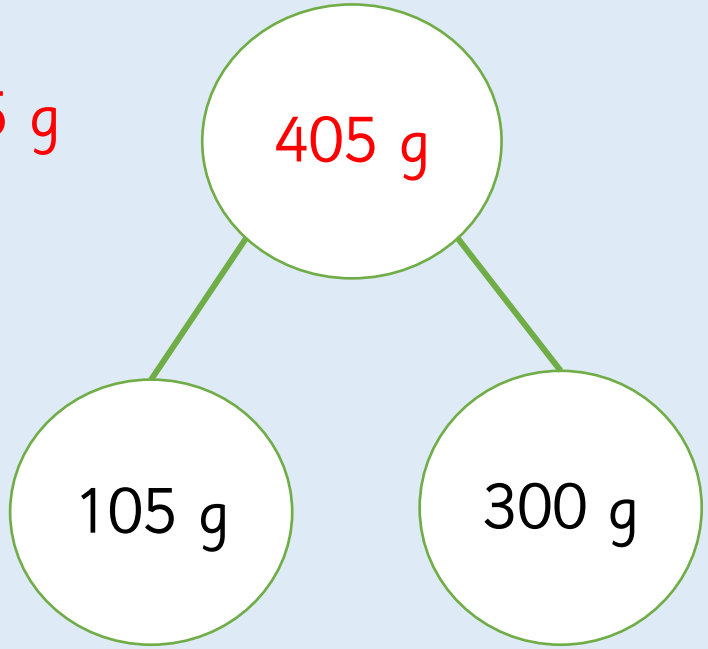
Activity 1 Add & Subtract Mass

Malachi uses a part-whole model to add 2 kg and 300 g to 3 kg and 250 g. He partitions each mass into kilograms and grams and calculates them separately.

4 kg and 105 g + 2 kg and 300 g



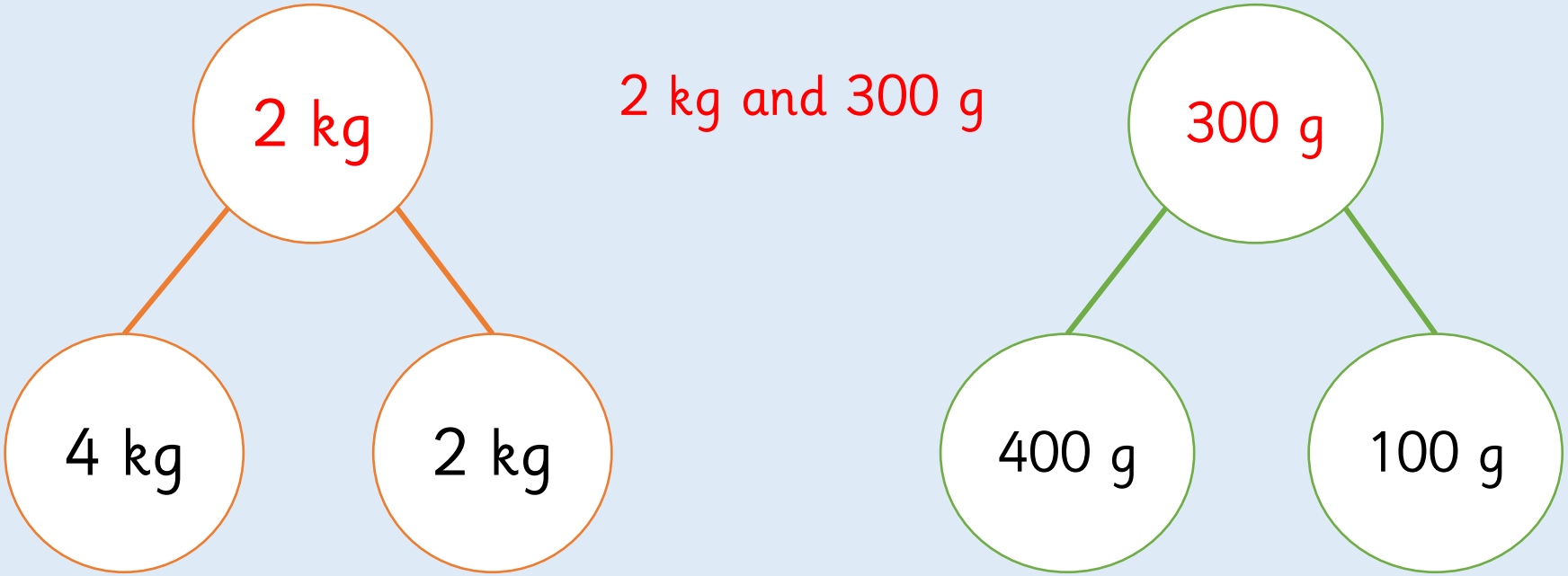
6 kg and 405 g



Activity 1 Add & Subtract Mass

Malachi uses a part-whole model to add 2 kg and 300 g to 3 kg and 250 g. He partitions each mass into kilograms and grams and calculates them separately.

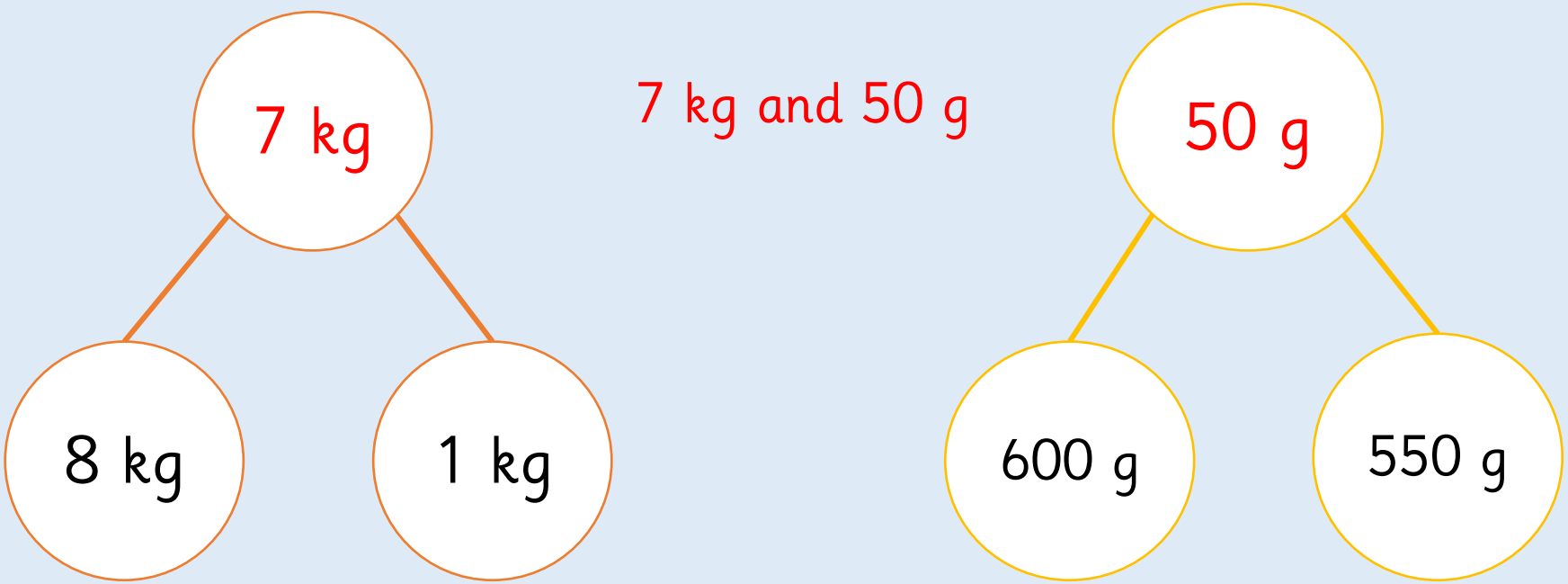
4 kg and 400 g – 2 kg and 100 g



Activity 1 Add & Subtract Mass

Malachi uses a part-whole model to add 2 kg and 300 g to 3 kg and 250 g. He partitions each mass into kilograms and grams and calculates them separately.

8 kg and 600 g – 1 kg and 550 g



Activity 2 Add & Subtract Mass

The jar of cookies has a mass of 800 g.
The empty jar has a mass of 350 g.
How much do the cookies weigh?

?

What do you about grams that can help you solve this question?

Activity 2 Add & Subtract Mass

The jar of cookies has a mass of 800 g. The empty jar has a mass of 350 g. How much do the cookies weigh?

800 g – 350 g = 450 g

The cookies weigh 450 g.

Activity 2 Add & Subtract Mass

The jar of sweets has a mass of 600 g. The empty jar has a mass of 225 g. How much do the cookies weigh?

Activity 2 Add & Subtract Mass

The jar of sweets has a mass of 600 g. The empty jar has a mass of 225 g. How much do the cookies weigh?

600 g – 225 g = 375 g

The sweets weigh 375 g.

Activity 3 Add & Subtract Mass

Choose an appropriate approach to solve:

7 kg − = 5 ½ kg

3 kg and 200 g + = 4 ½ kg

4 kg + − 1 ½ kg = 5 kg

?

How can you represent this problem with a bar model?

Activity 3 Add & Subtract Mass

Choose an appropriate approach to solve:

7 kg – 1 ½ kg = 5 ½ kg

3 kg and 200 g + 1 kg and 300 g = 4 ½ kg

4 kg + 2 ½ kg – 1 ½ kg = 5 kg

Activity 3 Add & Subtract Mass

Choose an appropriate approach to solve:

6 kg − ☐ = 4 ½ kg

9 ½ kg − ☐ = 8 ½ kg

3 kg and 300 g + ☐ = 6 ½ kg

4,000 g + ☐ − 1 ½ g = 5 kg

Activity 3 Add & Subtract Mass

Choose an appropriate approach to solve:

6 kg − 1 ½ kg = 4 ½ kg

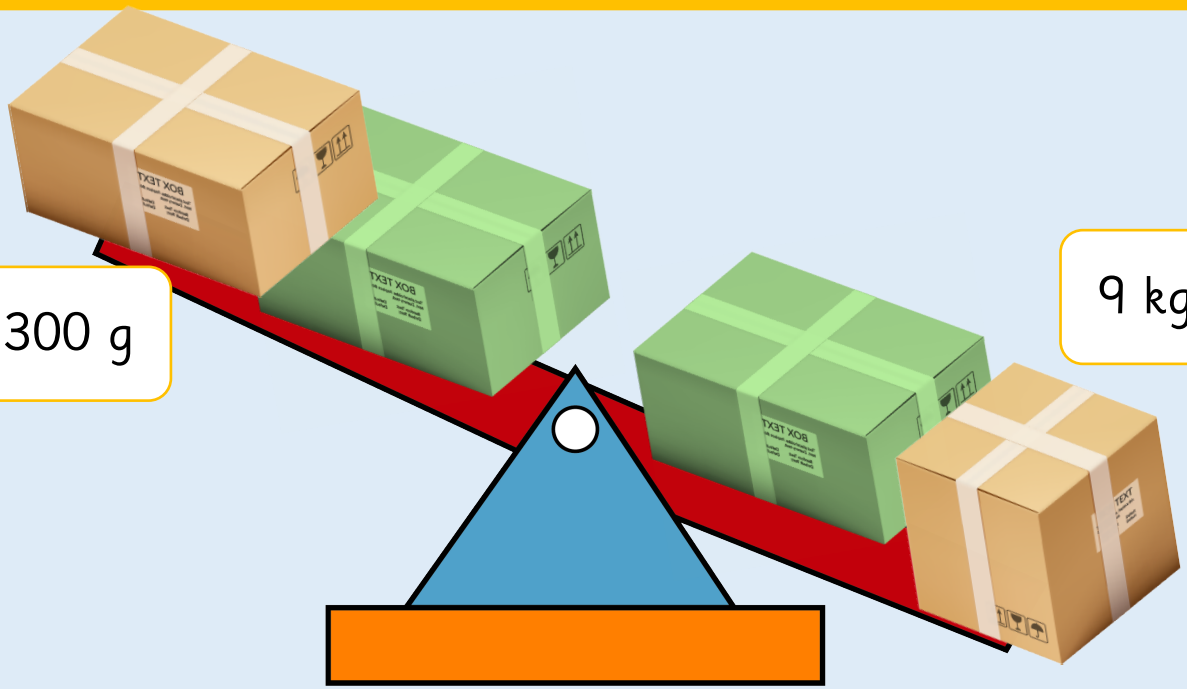
9 ½ kg − 1 kg = 8 ½ kg

3 kg and 300 g + 3 kg and 200 g = 6 ½ kg

4,000 g + 2 ½ kg − 1 ½ g = 5 kg

Reasoning 1 Add & Subtract Mass

The square parcel weighs 4 kg. Can you work out what the rectangular green and rectangular brown parcels weigh?



How much would the rectangular green and brown parcels weigh altogether?

Reasoning 1 Add & Subtract Mass

The square parcel weighs 4 kg. Can you work out what the rectangular green and rectangular brown parcels weigh?

Rectangular green parcel:
5 kg and 500 g

Rectangular brown parcel:
1 kg and 800 g

Square parcel:
4 kg

Add & Subtract Mass

Tia buys two pears and four peaches.

One pear weighs 70 g.

Four peaches weigh the same as two pears.

How much does one peach weigh?

Reasoning 2 Add & Subtract Mass

Tia buys two pears and four peaches.

One pear weighs 70 g.

Four peaches weigh the same as two pears.

Each peach weighs 35 g.

Discussion

Add & Subtract Mass

How many grams are there in a kilogram? How could I represent this using concrete resources?

What do you know about kilograms or grams that can help you solve this question?

How can you represent this problem with a bar model?

Measure Capacity (1)

3

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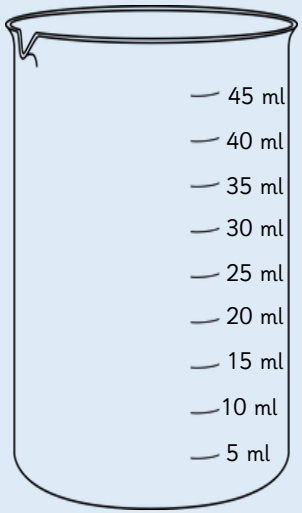
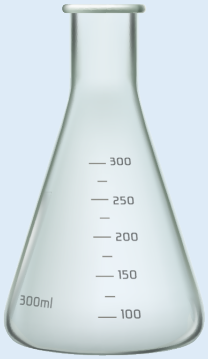
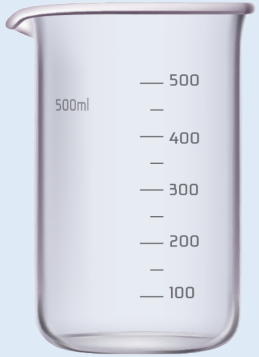
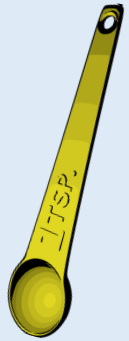
Lesson 1 Measure Capacity (1)

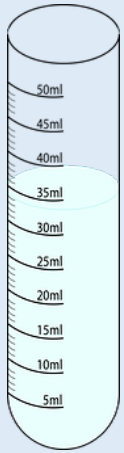
What do you remember about capacity and volume?









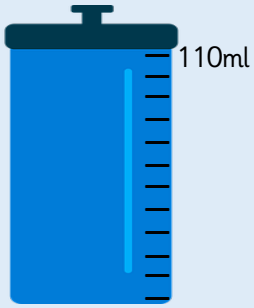


Remember, capacity is the amount of liquid a container can hold and volume is how much liquid is in the container.

Measure Capacity (1)

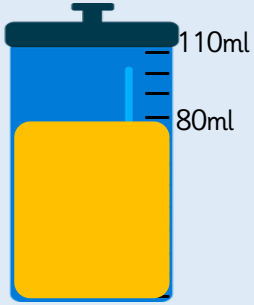
Capacity and Volume

Capacity is the amount of liquid a container can hold.



The capacity of this bottle is 110 ml.

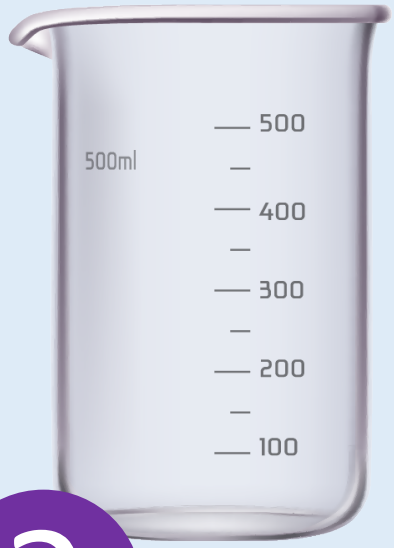
Volume is how much liquid is in the container.

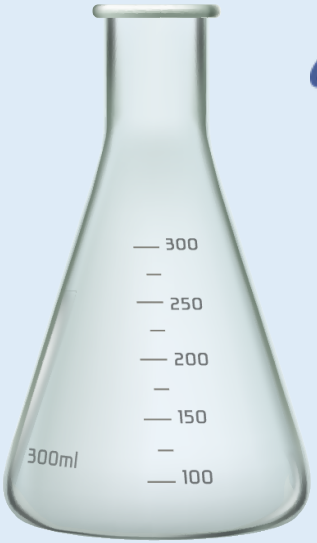


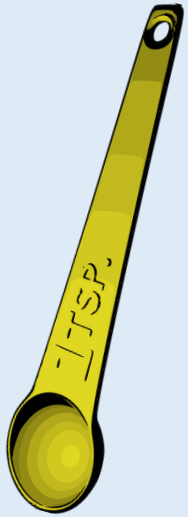
The volume of this liquid is 80 ml.

Activity 1 Measure Capacity (1)

Use a variety of scales, discuss what's the same, what's different about the scales. Using different containers explore which measurement (litres or millilitres) would be used to measure the liquid inside. Discuss what things would be measured in litres and in millilitres.







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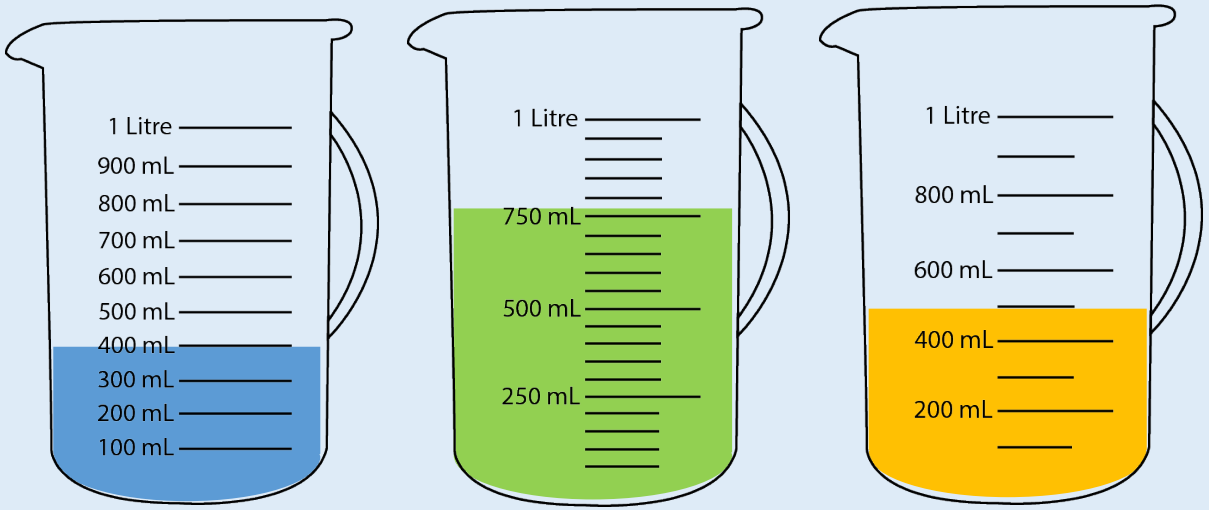
What's the same and what's different about capacity and volume?

Activity 2 Measure Capacity (1)

Use the sentence stem to describe the capacity and volume of each container.



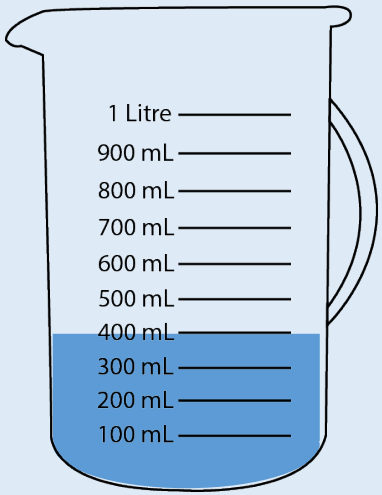
The volume of liquid is _____. The capacity of the container is _____.

?

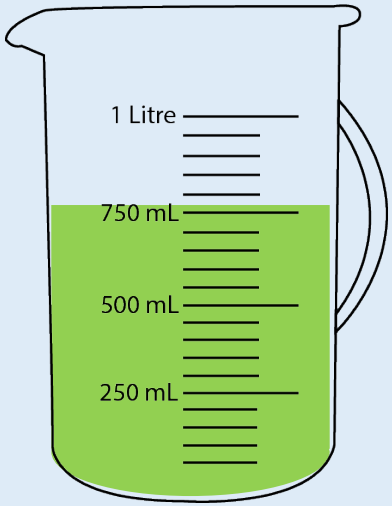
What units of measurement do we use for capacity and volume?

Activity 2 Measure Capacity (1)

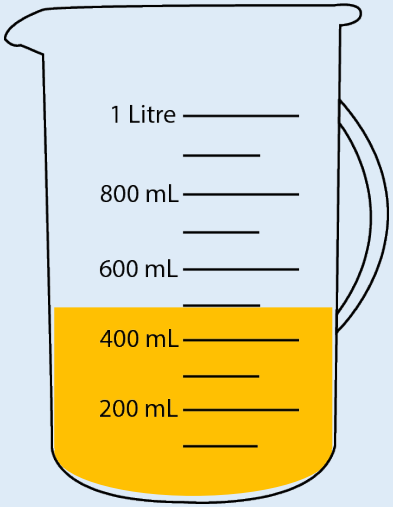
Use the sentence stem to describe the capacity and volume of each container.



The volume of liquid is 400 ml. The capacity of the container is 1 L.



The volume of liquid is 750 ml. The capacity of the container is 1 L.

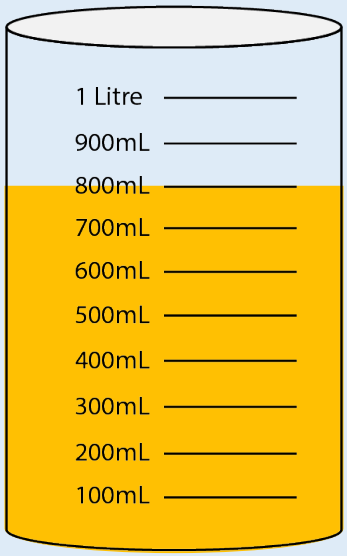


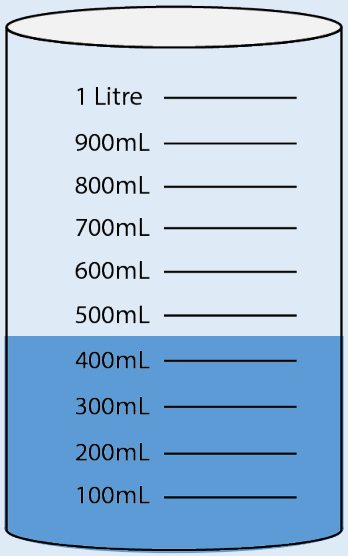
The volume of liquid is 500 ml. The capacity of the container is 1 L.

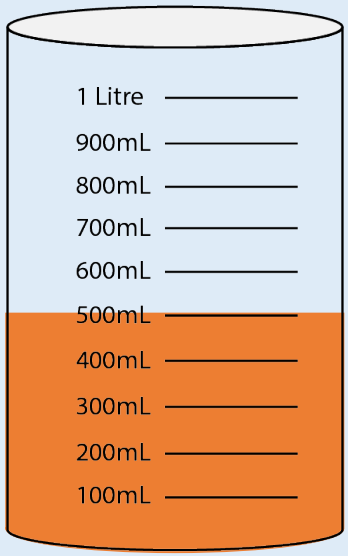
Activity 2

Measure Capacity (1)

Use the sentence stem to describe the capacity and volume of each container.



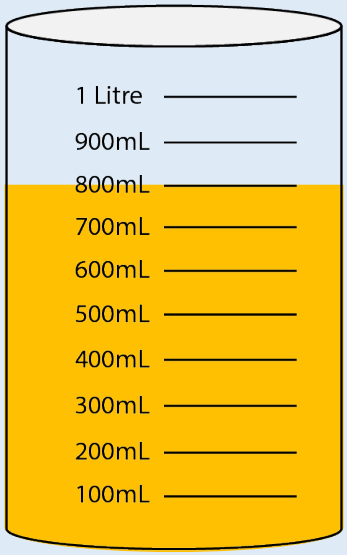




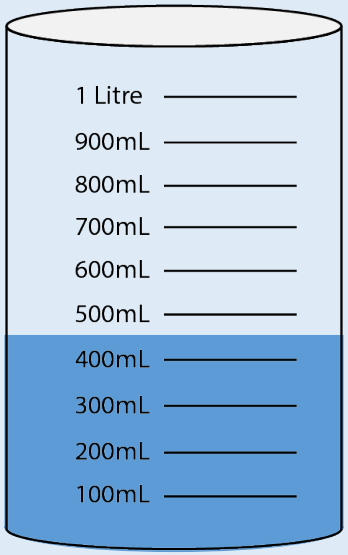
The volume of liquid is _____.
The capacity of the container is _____.

Activity 2 Measure Capacity (1)

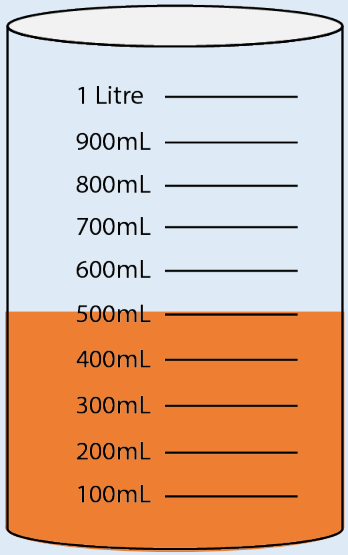
Use the sentence stem to describe the capacity and volume of each container.



The volume of liquid is 800 ml. The capacity of the container is 1 L.



The volume of liquid is 450 ml. The capacity of the container is 1 L.

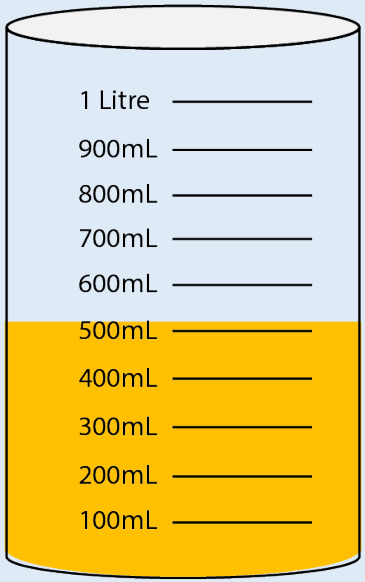


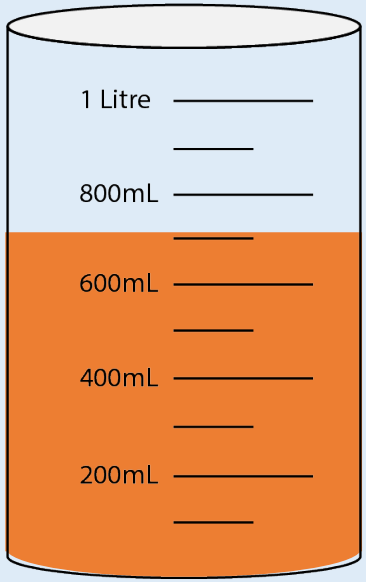
The volume of liquid is 500 ml. The capacity of the container is 1 L.

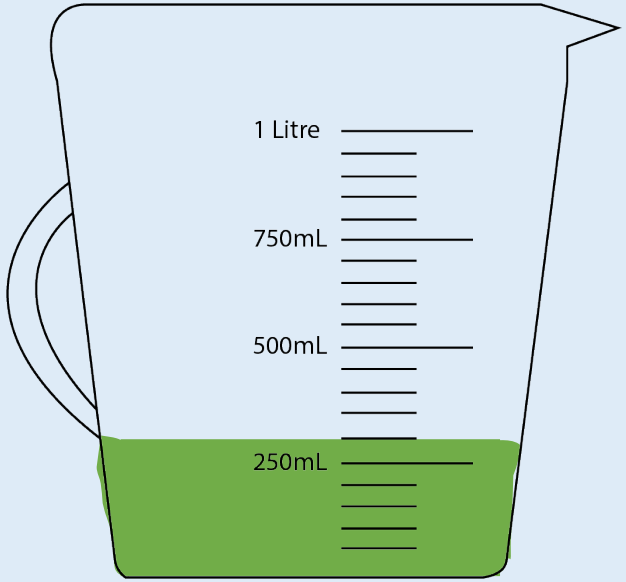
Activity 3

Measure Capacity (1)

Identify what the scale is going up in to find out the volume in each container. Use the stem sentence.







The increments are in _____. The volume is _____.

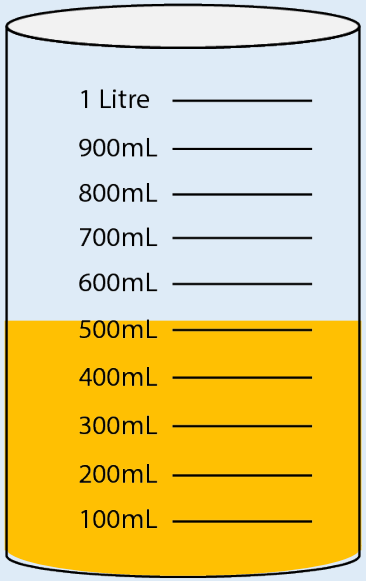
?

How much liquid is in the container?

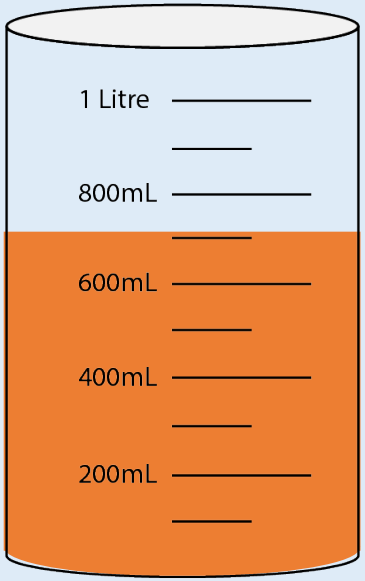
Activity 3

Measure Capacity (1)

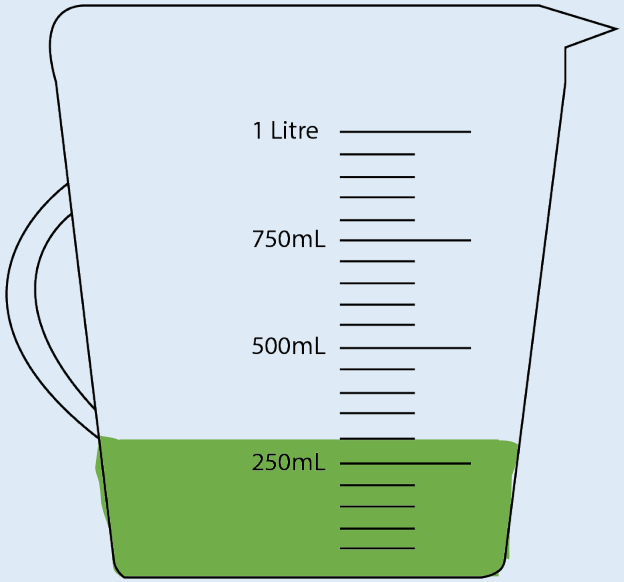
Identify what the scale is going up in to find out the volume in each container. Use the stem sentence.



The increments are in 100 ml. The volume is 500 ml.



The increments are in 100 ml. The volume is 700 ml.

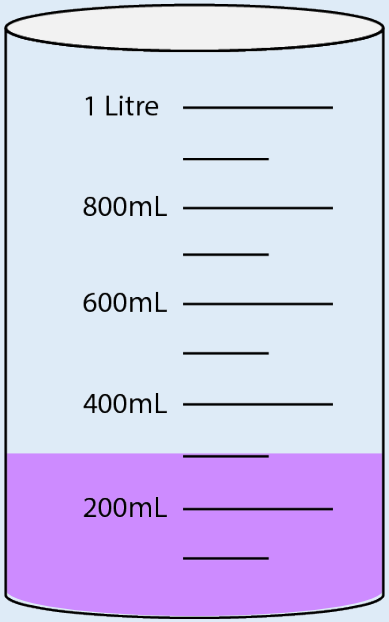


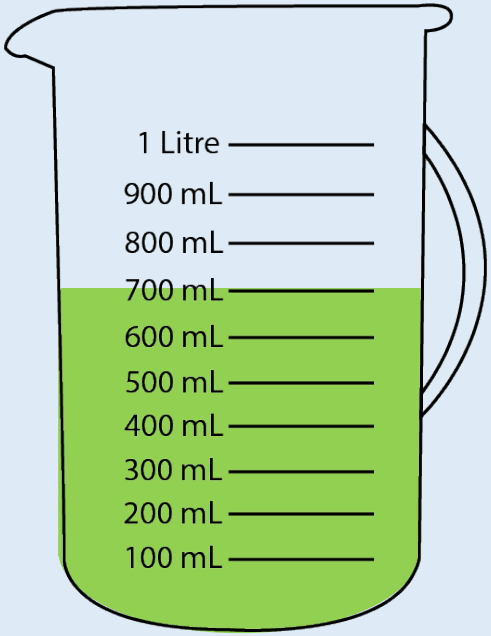
The increments are in 50 ml. The volume is 300 ml.

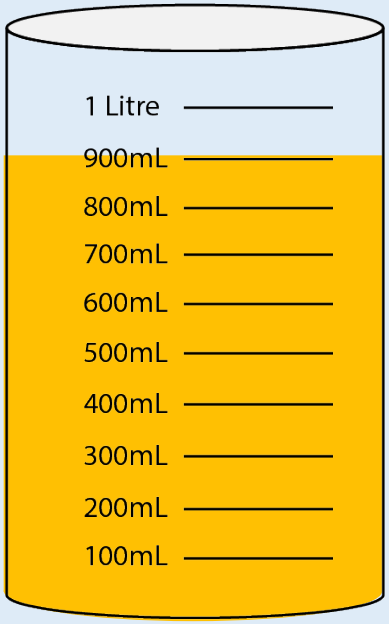
Activity 3

Measure Capacity (1)

Identify what the scale is going up in to find out the volume in each container. Use the stem sentence.





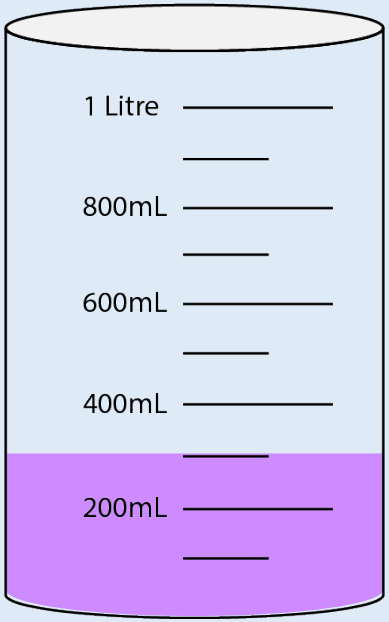


The increments are in _____. The volume is _____.

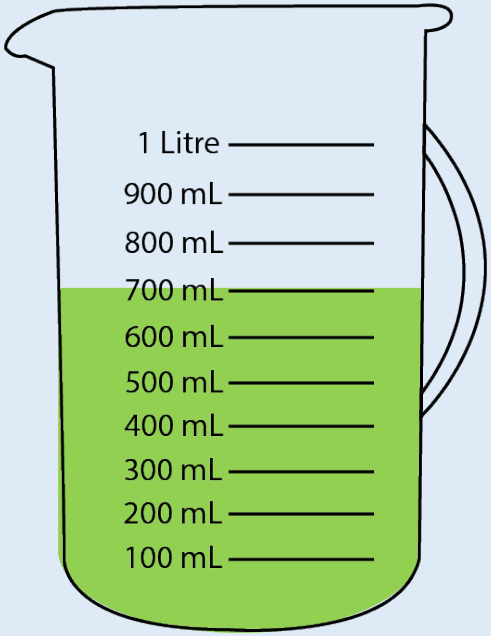
Activity 3

Measure Capacity (1)

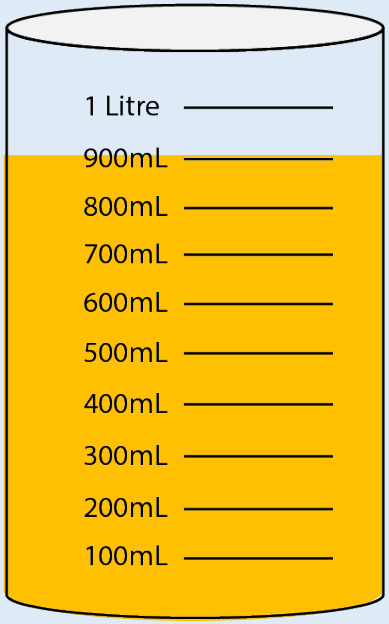
Identify what the scale is going up in to find out the volume in each container. Use the stem sentence.



The increments are in 100 ml. The volume is 300 ml.



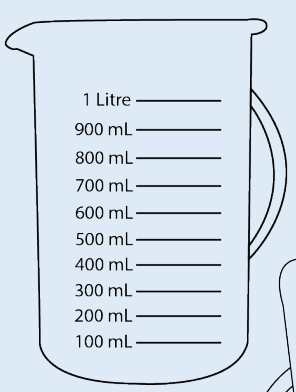
The increments are in 100 ml. The volume is 700ml.

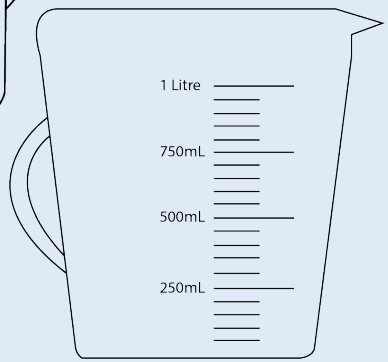


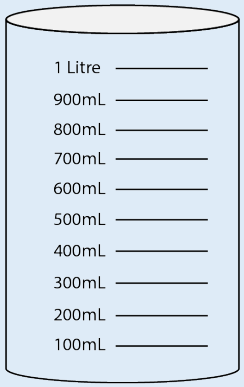
The increments are in 100 ml. The volume is 900ml.

Reasoning 1 Measure Capacity (1)

Use a variety of containers. Can you estimate how much liquid they hold?





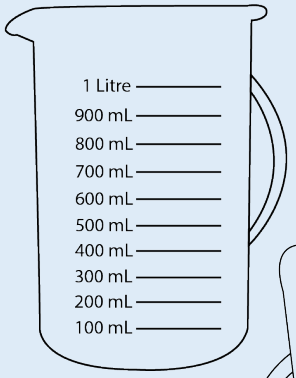


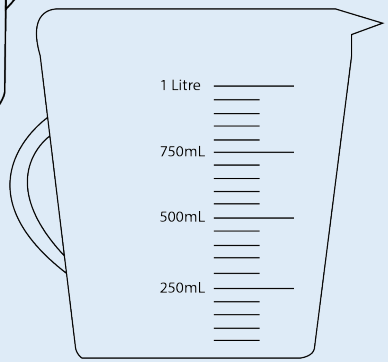
Check your estimates using measuring jugs and cylinders to see how accurate you were.

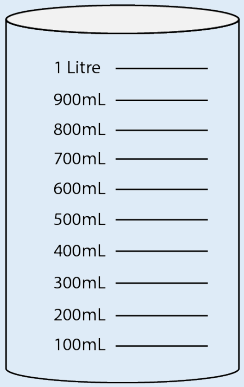
Reasoning 1

Measure Capacity (1)

Use a variety of containers. Can you estimate how much liquid they hold?





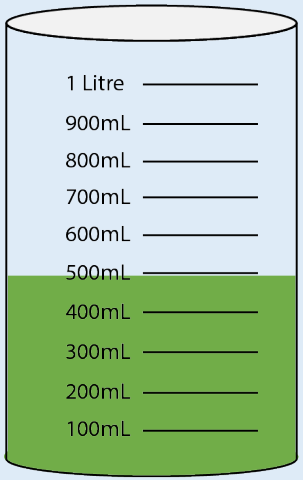


Children will use a variety of containers and gather a range of measurements. Encourage children to record their results in a table.

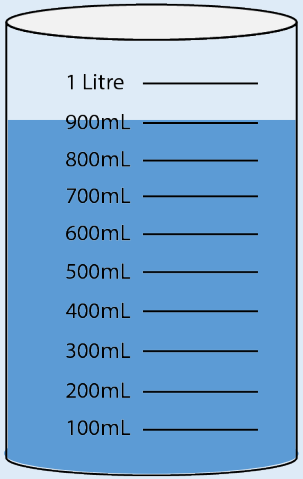
Reasoning 2

Measure Capacity (1)

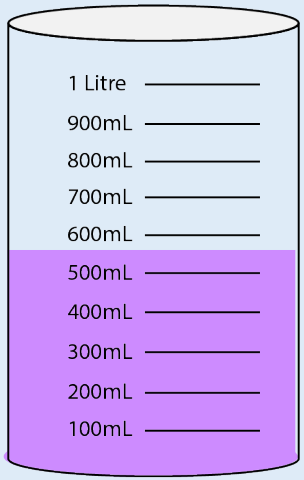
Use the clues to work out who has which container.



A



B

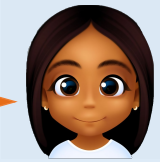


C

I have half a litre.

Zach

I have 900 ml.



Rosie

I have more than 500 ml but less than 600 ml.

Tia

Reasoning 2 Measure Capacity (1)

Use the clues to work out who has which container.

I have half a litre.

Zach

I have 900 ml.

Rosie

I have more than 500 ml but less than 600 ml.

Tia

Zach has container A.

Rosie has container B.

Tia has container C.

Discussion

Measure Capacity (1)

What's the same and what's different about capacity and volume?

What does capacity mean? What does volume mean?

What units of measurement do we use for capacity and volume?

What unit of measurement (ml or l) would we use to measure _____?

How much liquid is in the container?

Identify the scale divisions/increments.

Measure Capacity (2)

3

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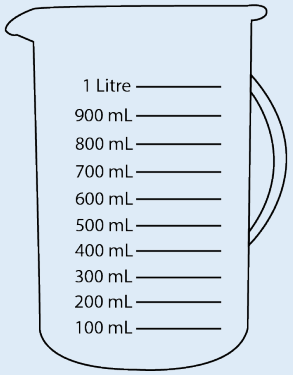
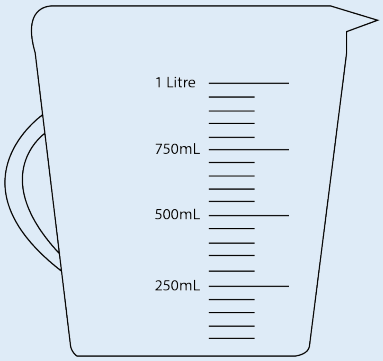
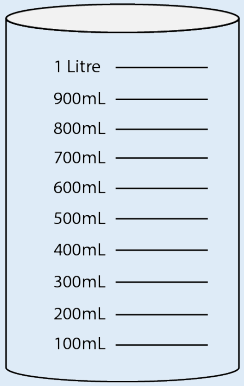
Activity 1 Measure Capacity (2)

Use equipment and liquid to count in increments of 100 ml. Discuss what happens when you reach 1,000 ml. Explore other connections linked to this. For example, 2 L = 2,000 ml.





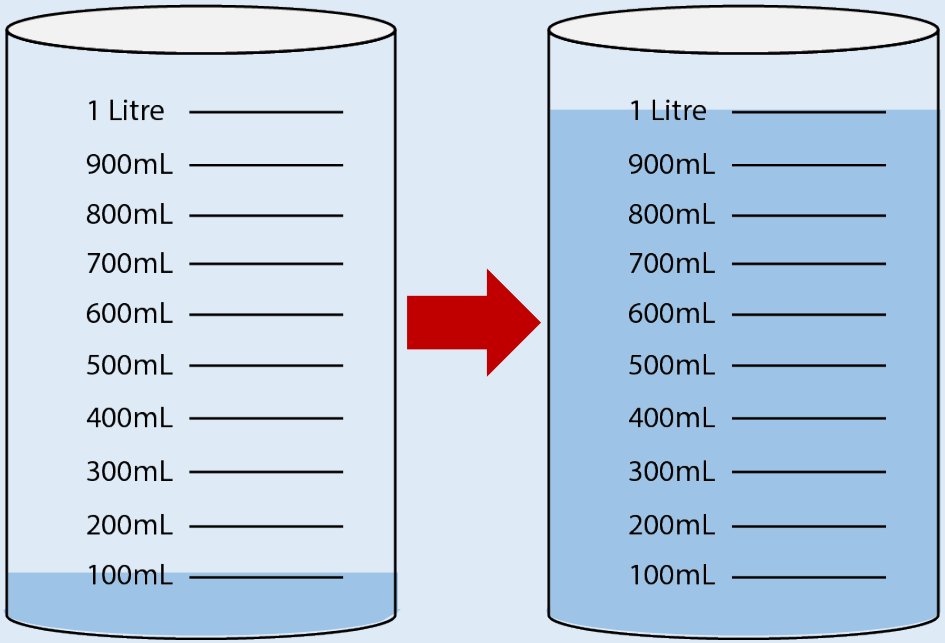


?

How many millilitres are in 1 litre?

Activity 1 Measure Capacity (2)

Use equipment and liquid to count in increments of 100 ml. Discuss what happens when you reach 1,000 ml. Explore other connections linked to this. For example, 2 L = 2,000 ml.

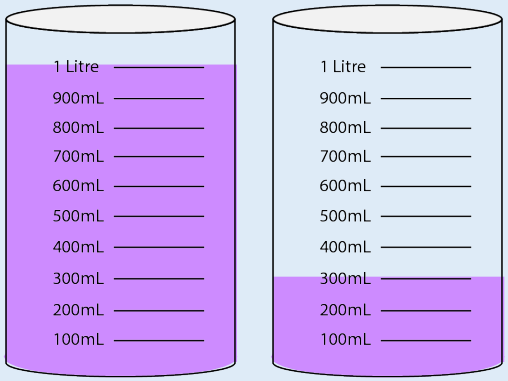


From 100 ml, the liquid increases by 100 ml at a time until it reaches 1,000 ml. 1,000 ml is the capacity of the container.
1,000 ml = 1 L

Activity 2 Measure Capacity (2)

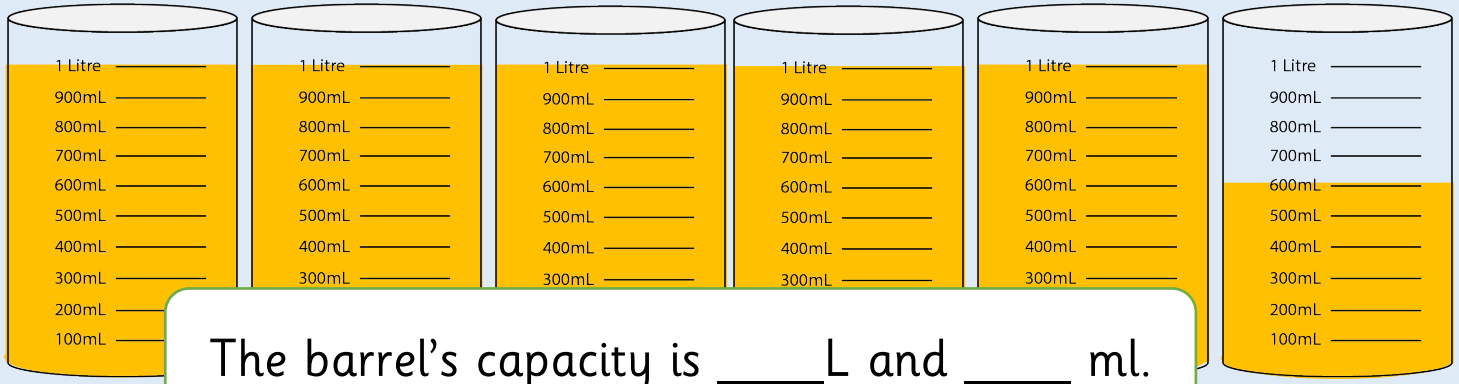
Complete the missing information.

=



The pot's capacity is _____L and _____ ml.

=



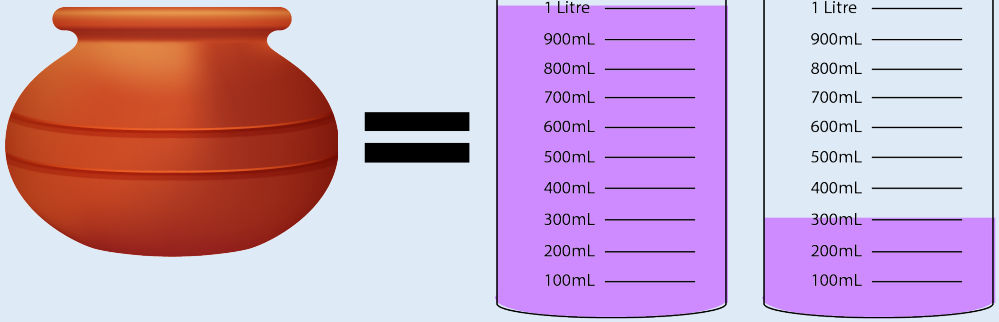
The barrel's capacity is ____L and ____ ml.

?

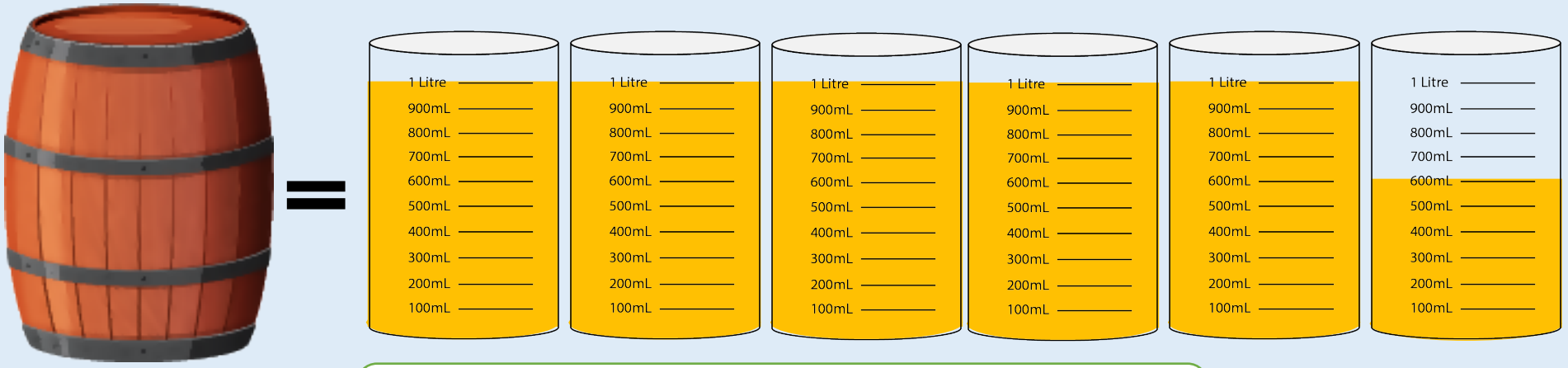
Look at the scale, show me where ____ would be.

Activity 2 Measure Capacity (2)

Complete the missing information.



The pot's capacity is 1 L and 300 ml.



The barrel's capacity is 5 L and 600 ml.

Activity 3

Measure Capacity (2)

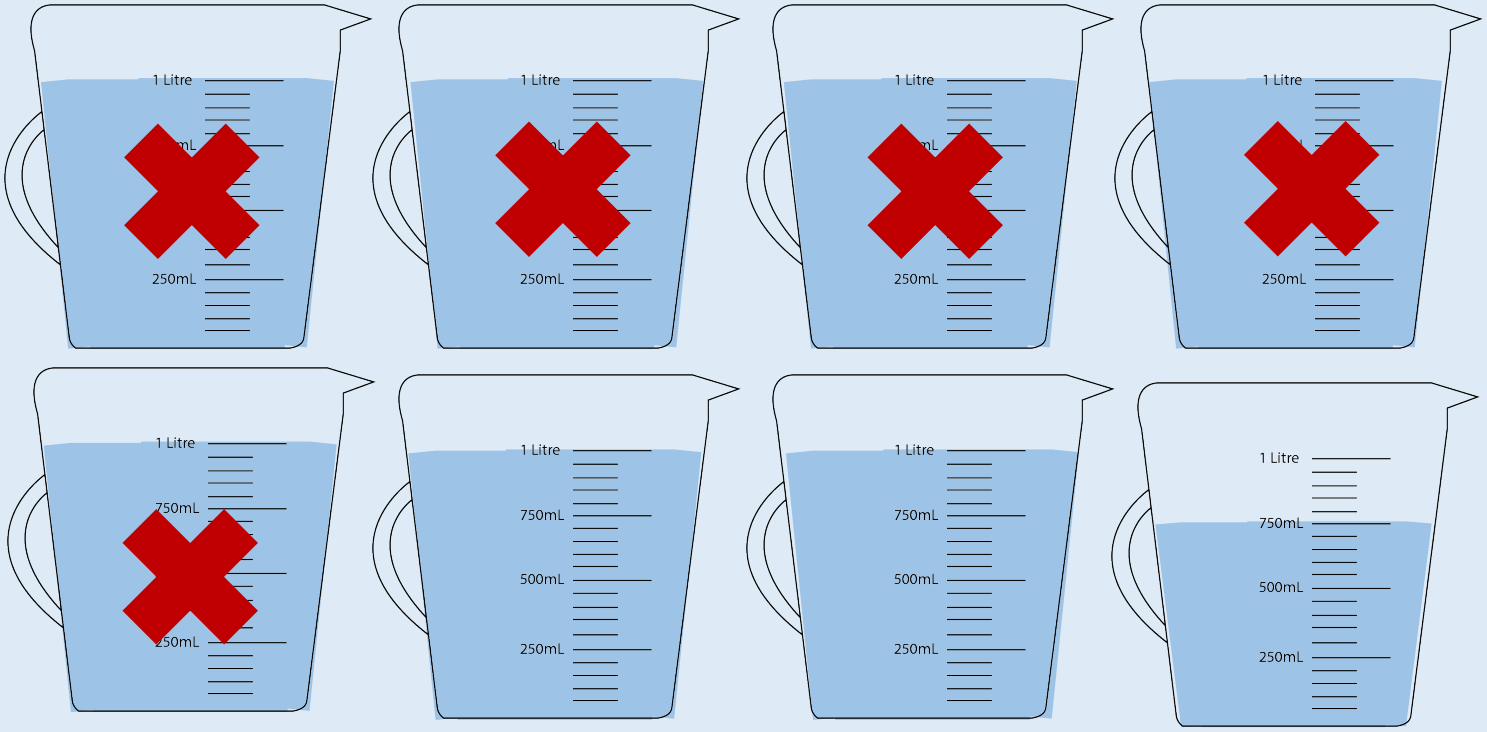
The capacity of the full fishbowl is 8 L and 750 ml. Leanna pours 5 L of water out of the bowl. Show how much water is left by using the measuring jugs.

How would I show on the scale how much water is left?

Activity 3

Measure Capacity (2)

The capacity of the full fishbowl is 8 L and 750 ml. Leanna pours 5 L of water out of the bowl. Show how much water is left by using the measuring jugs.

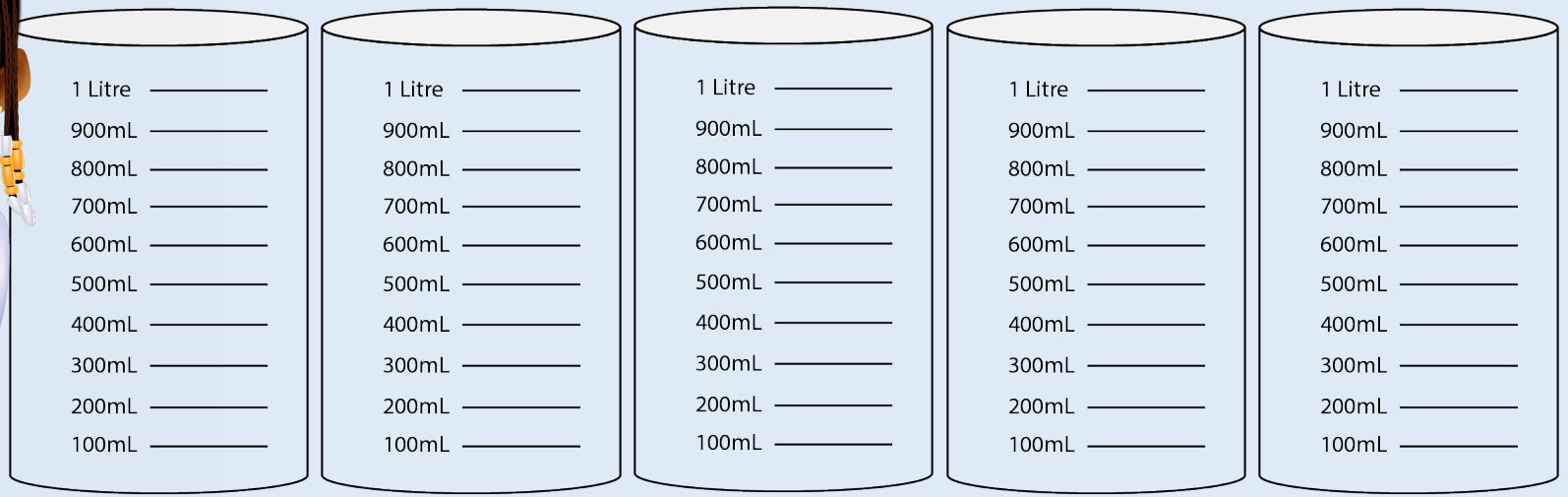


2 L and 750 ml of water is left in the fishbowl.

Activity 3

Measure Capacity (2)

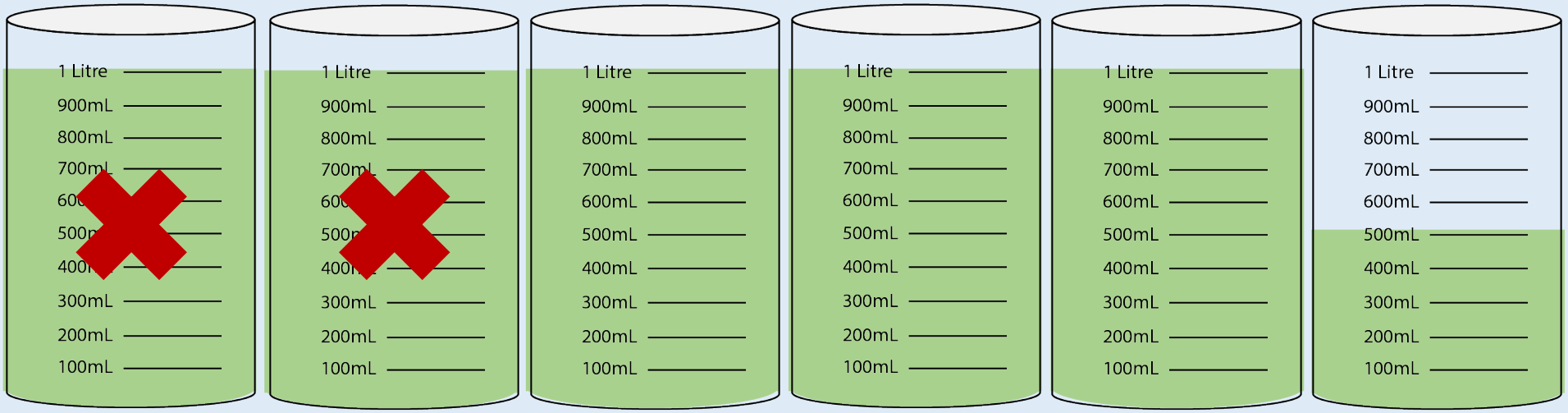
The capacity of the full pot is 5 L and 500 ml. Tia pours 2 L of water out of the pot. Show how much water is left by using the measuring jugs.



Activity 3

Measure Capacity (2)

The capacity of the full pot is 5 L and 500 ml. Tia pours 2 L of water out of the pot. Show how much water is left by using the measuring jugs.



3 L and 500 ml of water is left in the pot.

Reasoning 1

Measure Capacity (2)

Malachi and Esin work out the capacity of the fishbowl by filling it with water, then pouring the water into the measuring cylinders.

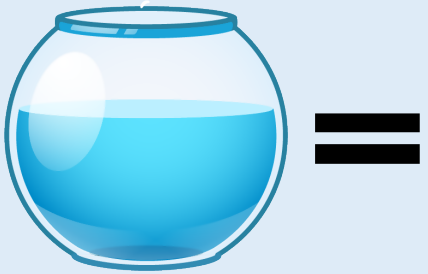
Malachi

The capacity of the fish bowl is 205 ml.

Esin

The capacity of the fish bowl is 2 L and 500 ml.

Who do you agree with? Explain why.



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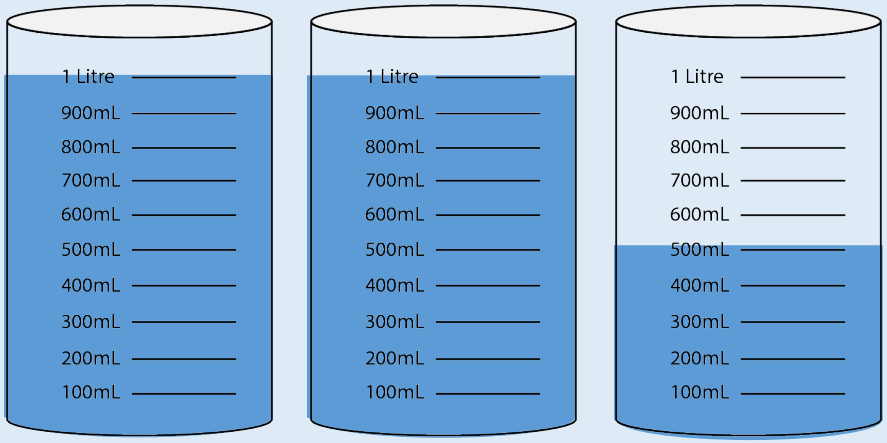

Reasoning 1 Measure Capacity (2)

Malachi and Esin work out the capacity of the fishbowl by filling it with water, then pouring the water into the measuring cylinders.

Malachi 

The capacity of the fish bowl is 205 ml.

Esin 

The capacity of the fish bowl is 2 L and 500ml.

Esin is correct because there are 2 full litres and 500 millilitres in the third cylinder.

Measure Capacity (2)

True or False?

The tallest container has the largest capacity.

Use containers to decide whether the statement is true or false.

Record the capacity of the different containers in a table.

Measure Capacity (2)

True or False?

The tallest container has the largest capacity.

Children will collect different measurements of capacities from different containers. Children will hopefully find that as well as height, the capacity of the container also depends on its width.

Discussion

Measure Capacity (2)

How many millilitres are there in 1 litre? If we know this, what else do we know?

Look at the scale, show me where ____ would be.

What is the capacity of the ____? How can we record this as L and ml?

How would I show on the scale how much water is left?

Compare Capacities

3

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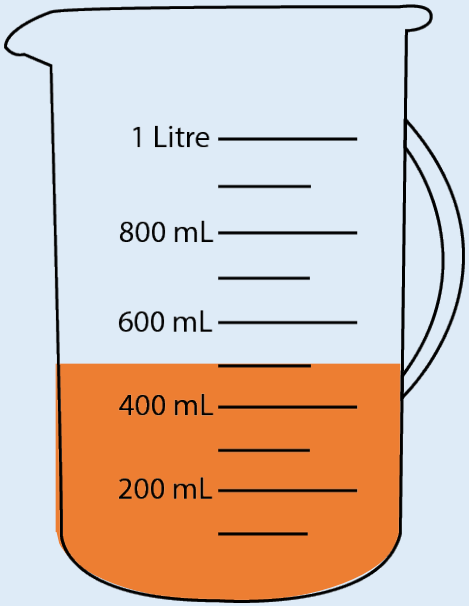
Activity 1 Compare Capacities

Complete the sentences.



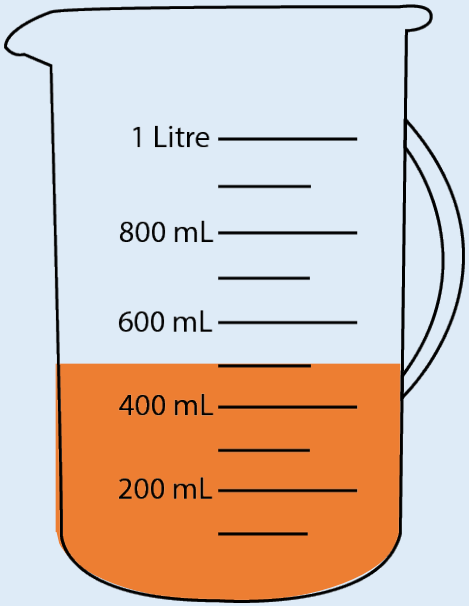
_____ cans are equal to _____ of orange juice.

1 can is equal to _____ of orange juice.

What does the liquid measure?

Activity 1 Compare Capacities

Complete the sentences.

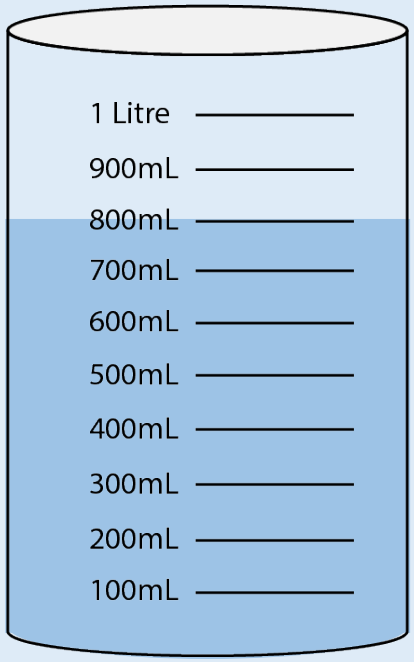


2 cans are equal to 450 ml of orange juice.

1 can is equal to 225 ml of orange juice.

Activity 1 Compare Capacities

Complete the sentences.

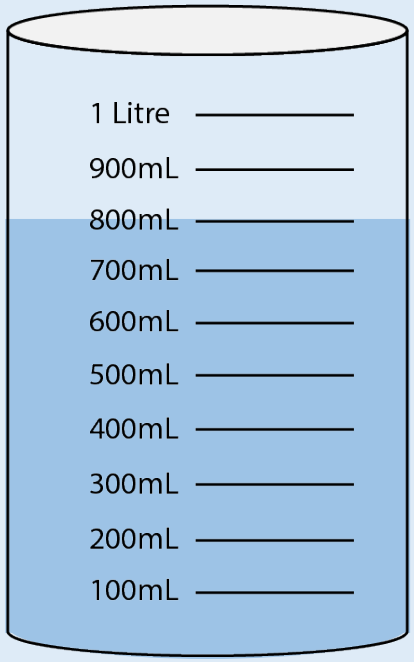


___ cans are equal to _____ of water.

1 can is equal to _____ of water.

Activity 1 Compare Capacities

Complete the sentences.

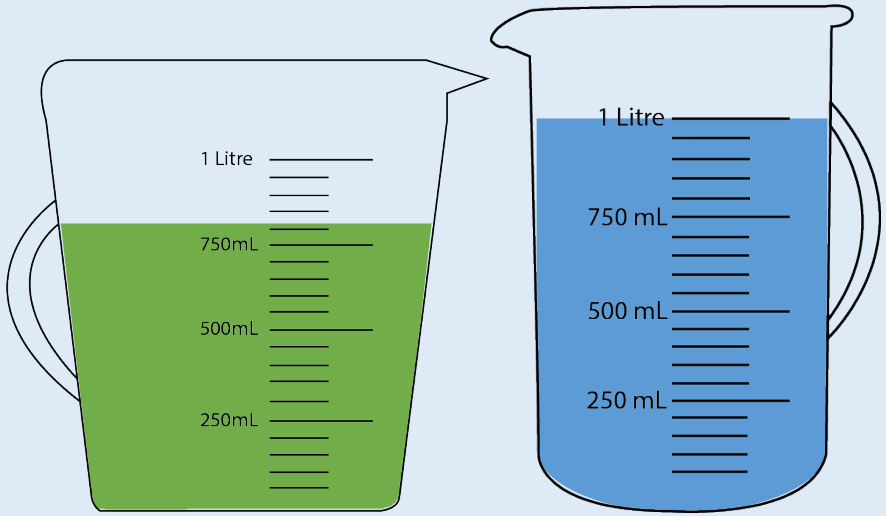


2 cans are equal to 800 ml of water.

1 can is equal to 400 ml of water.

Activity 2 Compare Capacities

Use <, > or = to compare the volume of liquid in each pair of containers.



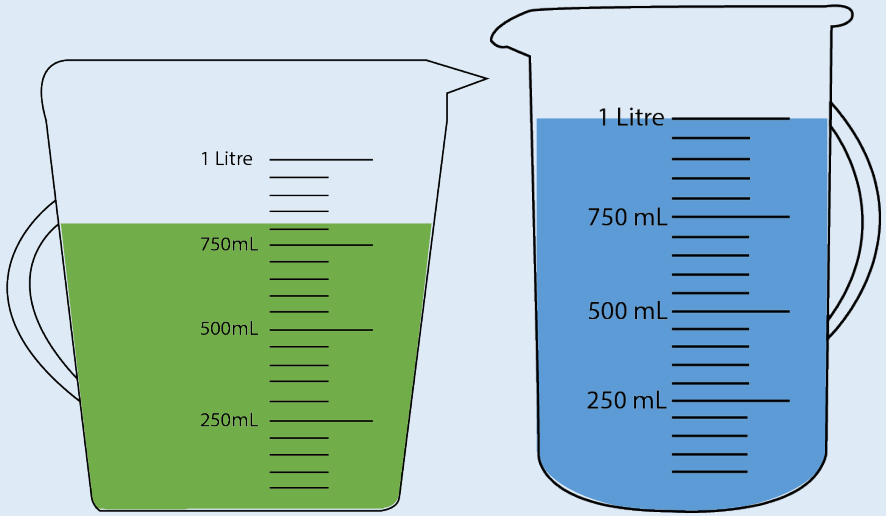
800 ml ◯ 1 L

?

Which container is the most full? Which container is the least full?

Activity 2 Compare Capacities

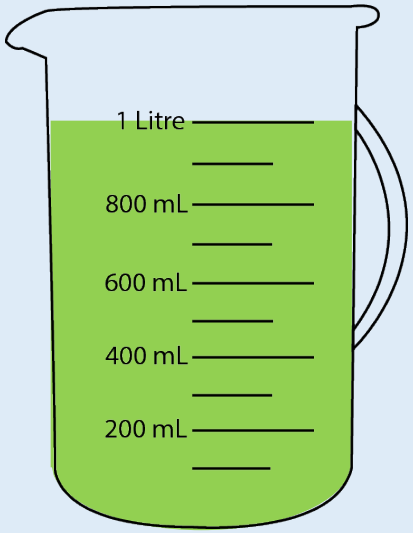
Use <, > or = to compare the volume of liquid in each pair of containers.

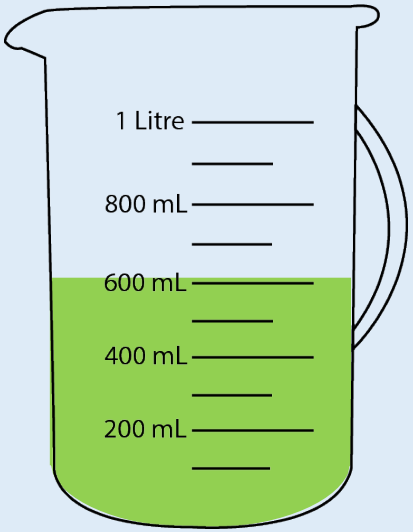


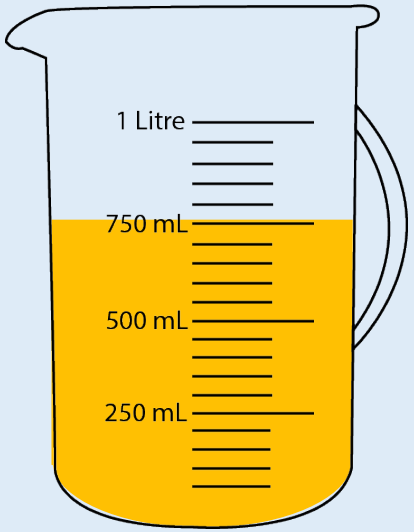
800 ml < 1 L

Activity 2 Compare Capacities

Use <, > or = to compare the volume of liquid in each pair of containers.



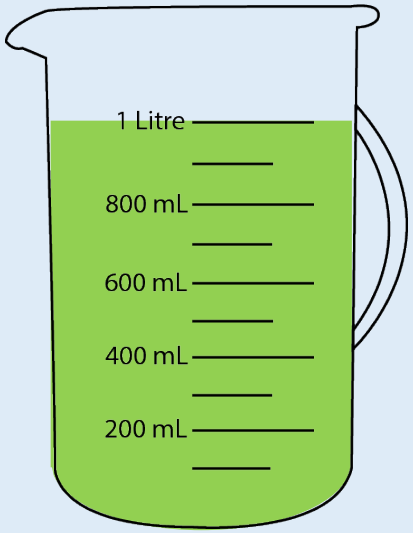


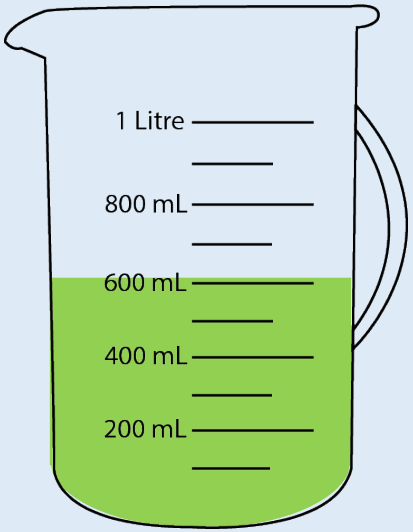


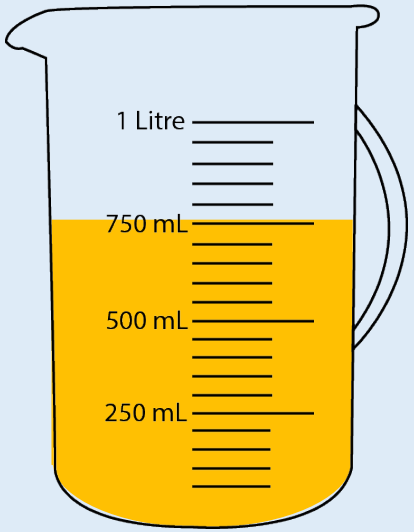
____ L and ____ ml ◯ 750 ml

Activity 2 Compare Capacities

Use <, > or = to compare the volume of liquid in each pair of containers.



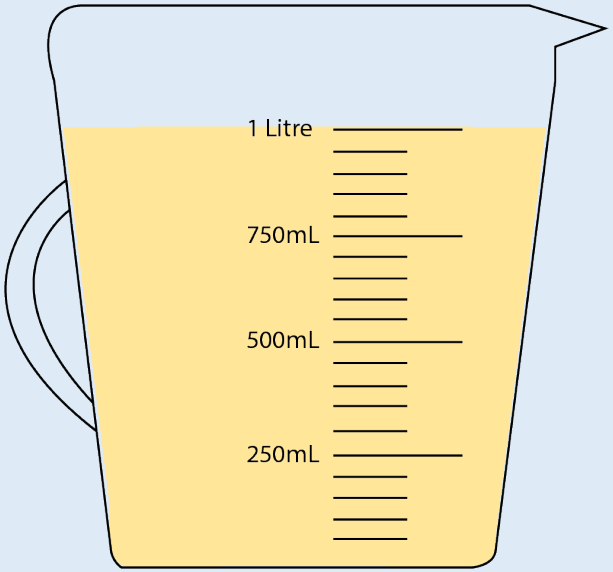


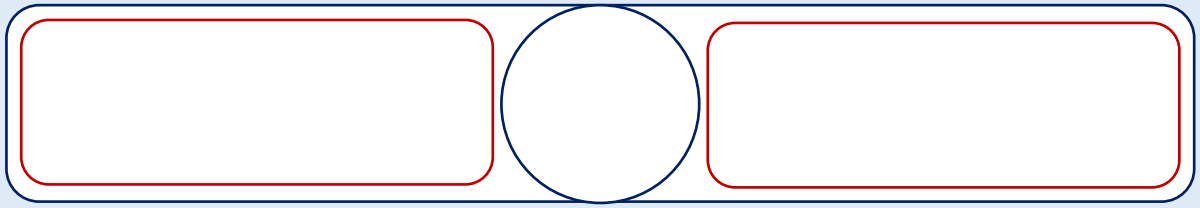


1 L and 600 ml > 750 ml

Activity 2 Compare Capacities

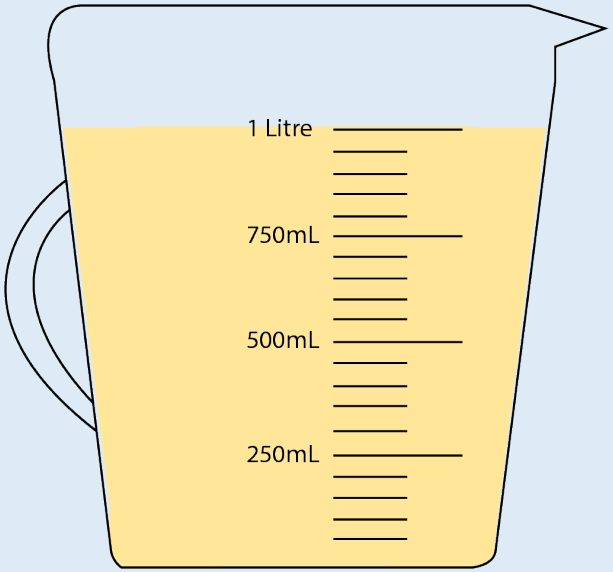
Use <, > or = to compare the volume of liquid in each pair of containers.





Activity 2 Compare Capacities

Use <, > or = to compare the volume of liquid in each pair of containers.

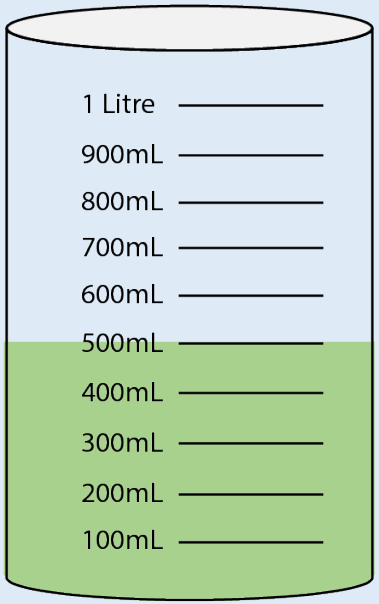


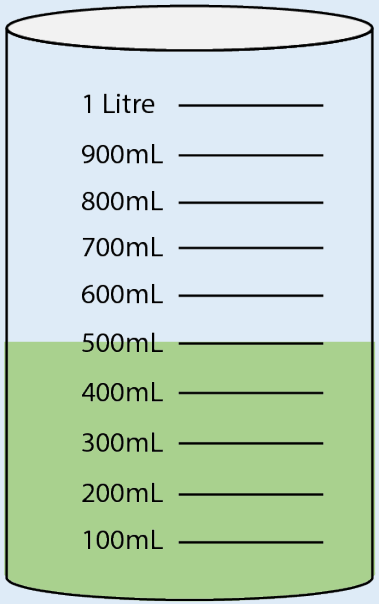
1 litre	<	2 litres

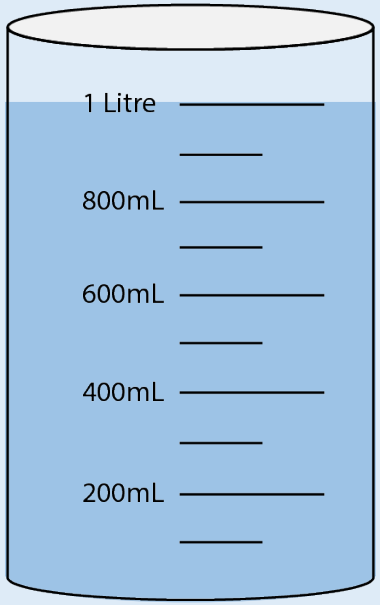
Activity 2

Compare Capacities

Use <, > or = to compare the volume of liquid in each pair of containers.



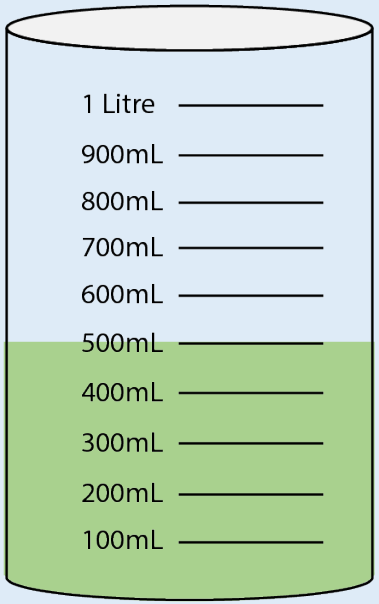


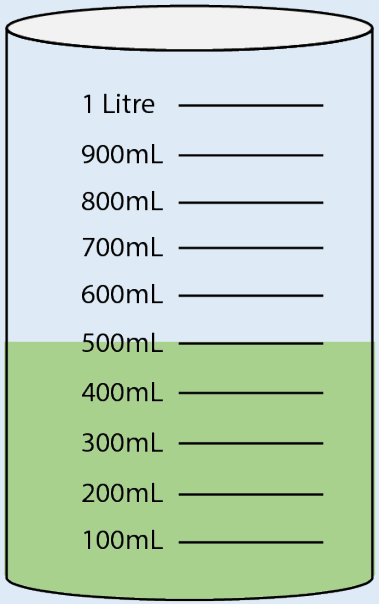


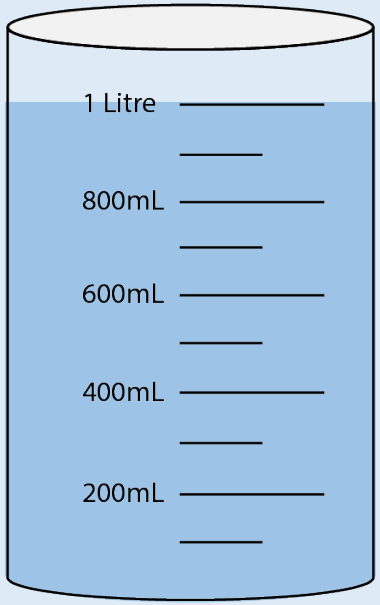
1,000 ml ◯ 1 L

Activity 2 Compare Capacities

Use <, > or = to compare the volume of liquid in each pair of containers.





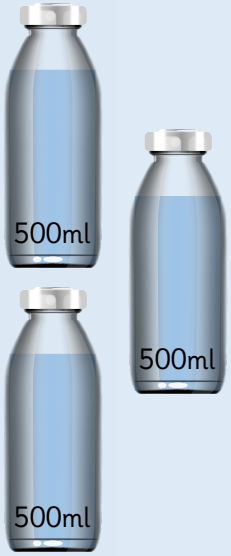


1,000 ml = 1 L

Activity 3 Compare Capacities

Tia has three bottles of water with 500 ml in each. Esin has one bottle of water with 1 and a half litres in it. Who has the most? Can you prove it?

Tia



Esin

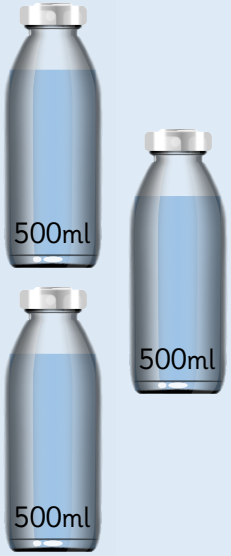
?

Which has the most liquid in it?

Activity 3 Compare Capacities

Tia has three bottles of water with 500 ml in each. Esin has one bottle of water with 1 and a half litres in it. Who has the most? Can you prove it?

Tia



Esin

Tia and Esin have the same amount of water. Three 500 ml bottles is equal to 1 and ½ litres.

Reasoning 1 Compare Capacities

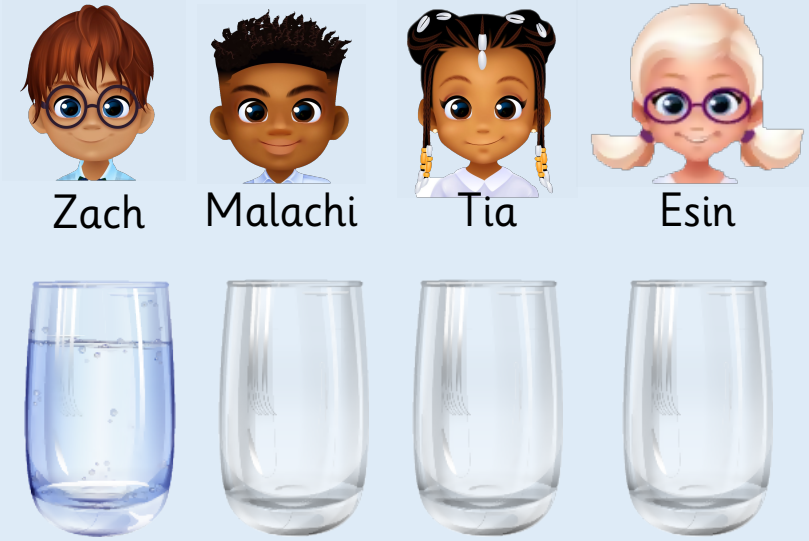
Zach has a litre bottle of water. He pours a drink for himself and three friends. Their glasses can hold up to 200 ml.

Malachi has more than Tia. Esin has 20 ml less than Zach. Zach has the most.

How much could each child have in their glass? How much would be left in the bottle?

Reasoning 1 Compare Capacities

Zach has a litre bottle of water. He pours a drink for himself and three friends. Their glasses can hold up to 200 ml.

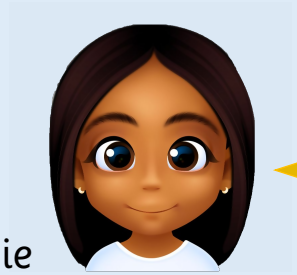


Possible answer:
Zach: 200 ml
Malachi: 170 ml
Tia: 150 ml
Esin: 180 ml
There is 300 ml left in the bottle.

There are a range of possible answers children could find. Zach should have the most and Tia should have the least.

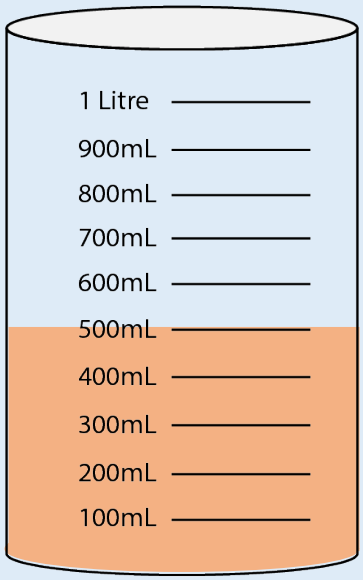
Reasoning 2 Compare Capacities

Rosie

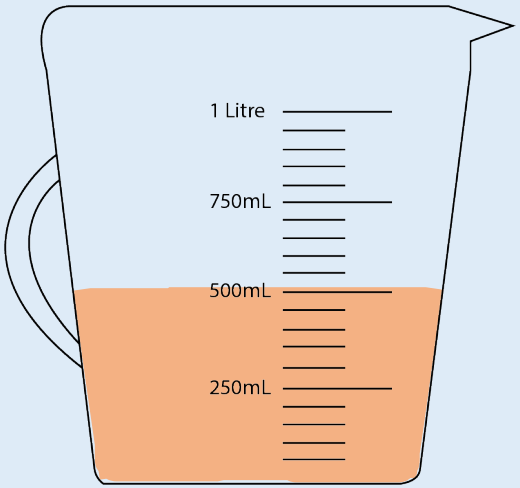


I know Container 1 has more in it than Container 2 because the water goes further up the side.

Container 1



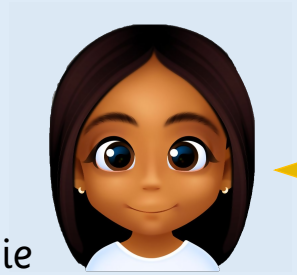
Container 2



Is Rosie correct? Explain your answer.

Reasoning 2 Compare Capacities

Rosie



I know Container 1 has more in it than Container 2 because the water goes further up the side.

Rosie is not correct. The measurements show that both containers have 500 ml in them. Container 2 is wider than Container 1 which is why it looks like it has less in it.

Discussion

Compare Capacities

Which container is the most full?
Which container is the least full?

Which has the most liquid in it?
What does the liquid measure?

Which has the least liquid in it?
What does the liquid measure?

Add & Subtract Capacity

3

Fluency & Reasoning Teaching Slides

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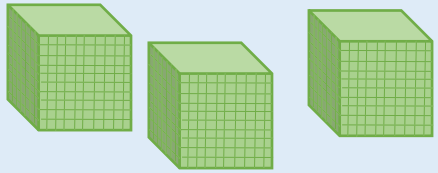
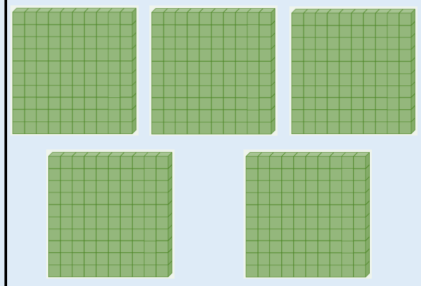
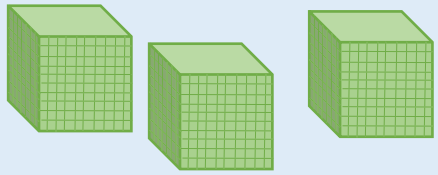
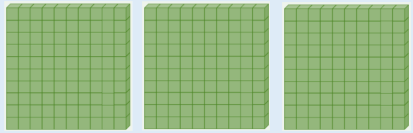
Activity 1 Add & Subtract Capacity

Zach uses Base Ten and a place value chart to add 3 L and 500 ml to 3 L and 300 ml.

L	ml
	
	
6 L	800 ml

Use the same approach to calculate:

- 4 L and 600 ml + 2 L and 100 ml
- 6 L and 300 ml + 1 L and 200 ml
- 3 L and 950 ml – 3 L and 50 ml
- 800 ml – 375 ml

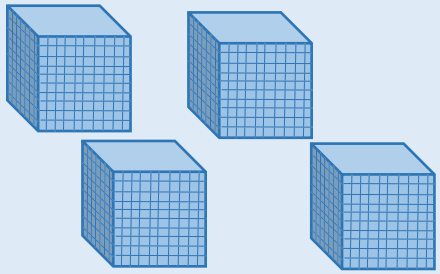
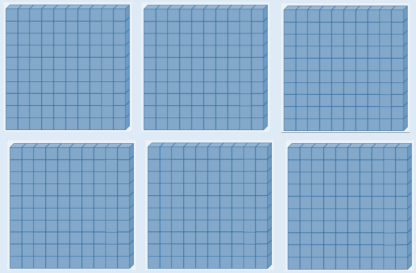
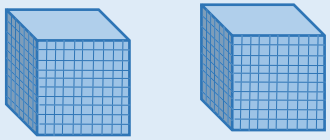
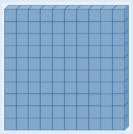
?

How many litres are there in total?

Activity 1 Add & Subtract Capacity

Zach uses Base Ten and a place value chart to add 3 L and 500 ml to 3 L and 300 ml.

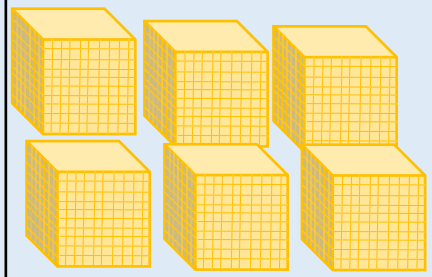
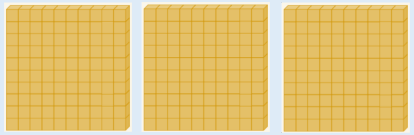
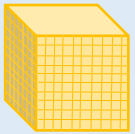
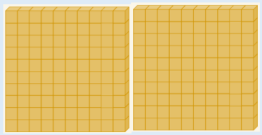
4 L and 600 ml + 2 L and 100 ml

L	ml
	
	
6 L	700 ml

Activity 1 Add & Subtract Capacity

Zach uses Base Ten and a place value chart to add 3 L and 500 ml to 3 L and 300 ml.

6 L and 300 ml + 1 L and 200 ml

L	ml
	
	
7 L	500 ml

Activity 2 Add & Subtract Capacity

To make Summer Punch for two people:
300 ml of pineapple juice, 250 ml of orange juice,
500 ml of lemonade.

- How much liquid is used in total to make Summer Punch for two people?
- How much orange juice would be needed to make enough for four people?
- Would 2 x 500 ml bottles of lemonade be enough to make drinks for four people?

?

What methods can we used to add volumes?

Activity 2 Add & Subtract Capacity

To make Summer Punch for two people:
300 ml of pineapple juice, 250 ml of orange juice,
500 ml of lemonade.

- How much liquid is used in total to make Summer Punch for two people? 1,050 ml
- How much orange juice would be needed to make enough for four people? 500 ml
- Would 2 x 500 ml bottles of lemonade be enough to make drinks for four people?
  Yes. 1 lot of 500 ml is enough for two, so 2 lots is enough for four people.

?

What methods can we used to add volumes?

Activity 3 Add & Subtract Capacity

Tia has a record of how much milk she has in her café.
Work out how much milk is used for each order.

Amount of milk to start	Amount of milk used	Amount of milk left
1 L and 430 ml		1 L and 100 ml
1 L and 100 ml		890 ml
890 ml		545 ml

?

What methods can we used to subtract volumes?

Activity 3 Add & Subtract Capacity

Tia has a record of how much milk she has in her café.
Work out how much milk is used for each order.

Amount of milk to start	Amount of milk used	Amount of milk left
1 L and 430 ml	330 ml	1 L and 100 ml
1 L and 100 ml	210 ml	890 ml
890 ml	345 ml	545 ml

Activity 3 Add & Subtract Capacity

Leanna has a record of how much milk she has in her café. Work out how much milk is used for each order.

Amount of milk to start	Amount of milk used	Amount of milk left
1 L and 330 ml		1 L and 300 ml
1 L and 300 ml		1 L and 20 ml
1 L and 20 ml		1 L
1 L		600 ml

Activity 3 Add & Subtract Capacity

Leanna has a record of how much milk she has in her café. Work out how much milk is used for each order.

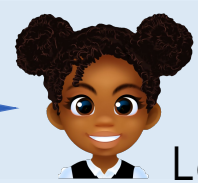
Amount of milk to start	Amount of milk used	Amount of milk left
1 L and 330 ml	30 ml	1 L and 300 ml
1 L and 300 ml	280 ml	1 L and 20 ml
1 L and 20 ml	20 ml	1 L
1 L	400 ml	600 ml

Reasoning 1

Add & Subtract Capacity

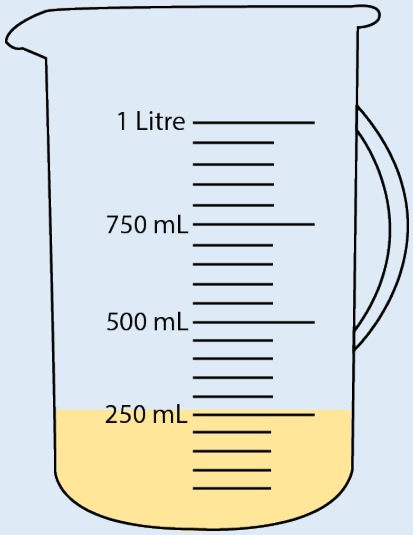
Leanna is pouring drinks using these jugs. A drink is 150 ml.

If I pour two more drinks using Jug 2, both jugs will contain the same amount of juice.

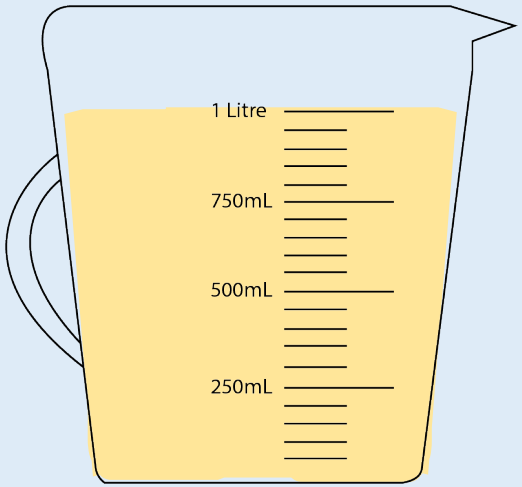


Leanna

Is Leanna correct? If not, how much juice will be left in Jug 2?



Jug 1



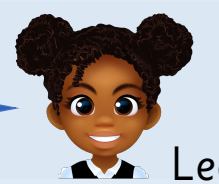
Jug 2

Reasoning 1

Add & Subtract Capacity

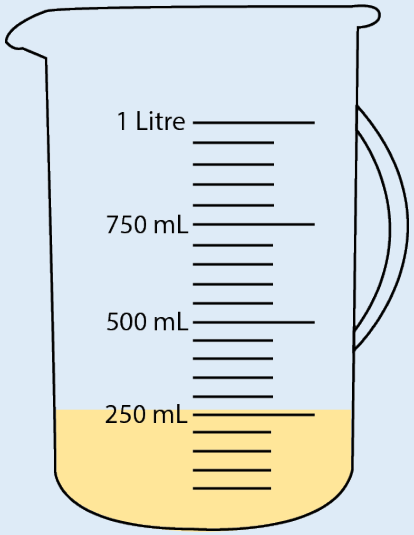
Leanna is pouring drinks using these jugs. A drink is 150 ml.

If I pour two more drinks using Jug 2, both jugs will contain the same amount of juice.

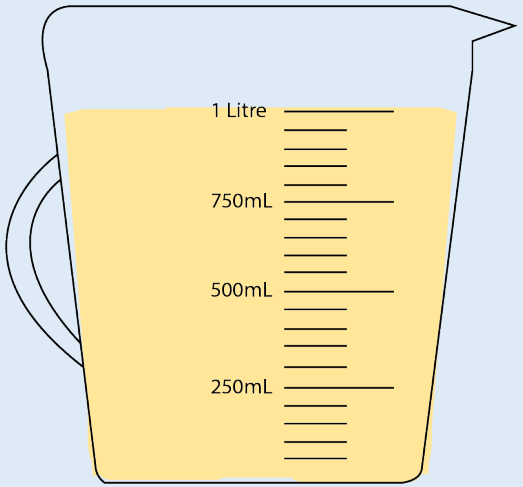


Leanna

Leanna is not correct. If Leanna makes two more drinks she will use 300 ml of juice.
1 L – 300 ml = 700 ml



Jug 1

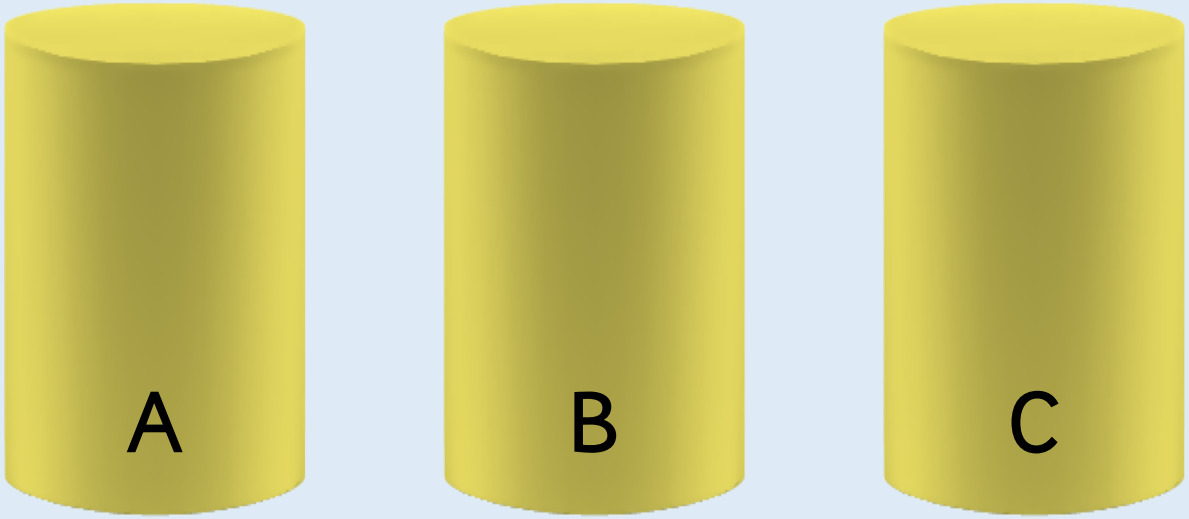


Jug 2

Reasoning 2 Add & Subtract Capacity

Here are some measuring cylinders. The total liquid in all three cylinders is 600 ml.

Cylinder A has half of the total amount in it.
Cylinder B has 50 ml less than Cylinder A.

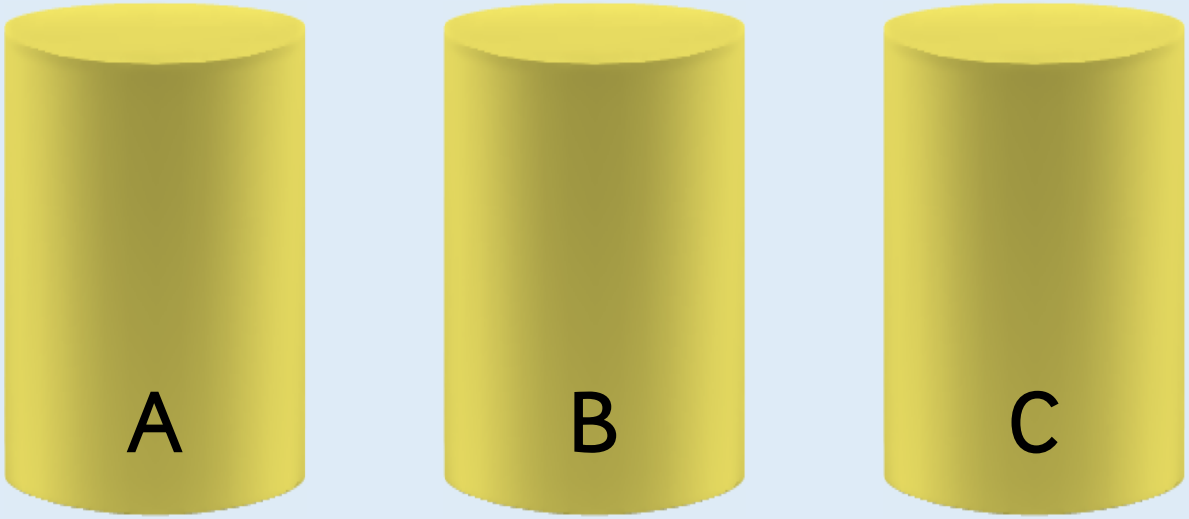


How much liquid does each cylinder contain?

Add & Subtract Capacity

Here are some measuring cylinders. The total liquid in all three cylinders is 600 ml.

Cylinder A has half of the total amount in it.
Cylinder B has 50 ml less than Cylinder A.



A: 300 ml
B: 250 ml
C: 50 ml

Discussion

Add & Subtract Capacity

How many millilitres are in one litre? How could I show this using concrete resources?

How many litres are there in total?
How many millilitres are there in total?

What methods can we use to add volumes and capacities?
What methods can we use to subtract volumes and capacities?