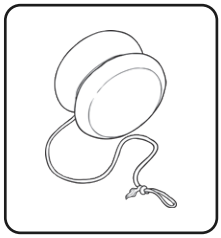
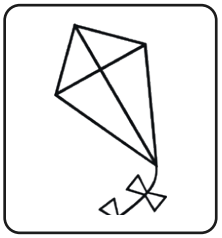
Mass Problem Solving

To solve mass problems.

Toy	Number of Cubes
kite	_____
ball	9
yo-yo	7

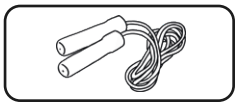
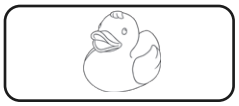
Find the mass of the kite.

lightest ⟶ heaviest

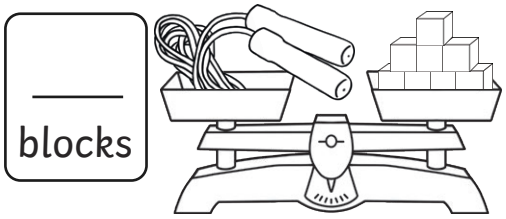
Which toys are missing? Draw arrows to show where they go.

Toy	cup and ball	rubber duck	skipping rope	bubbles
Number of Blocks	6	3	8	4

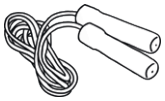



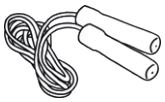
heaviest ⟶ lightest

Write the mass of the skipping rope. Then write the pairs of toys that match the same mass as the skipping rope.



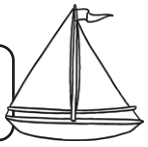
_____ blocks

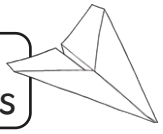
_____ + _____ = 

_____ + _____ = 

3 blocks

6 blocks

5 blocks 

2 blocks 

a) rubber duck b) cup and ball c) toy boat d) paper plane

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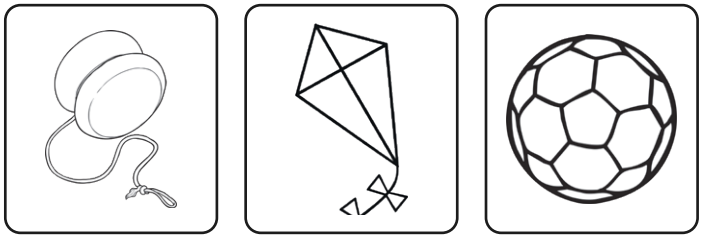
Mass Problem Solving **Answers**

To solve mass problems.

Toy	Number of Cubes
kite	**8**
ball	9
yo-yo	7

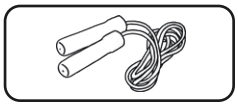
Find the mass of the kite.

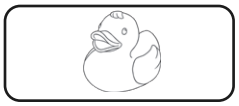


lightest → heaviest

Which toys are missing? Draw arrows to show where they go.

Toy	cup and ball	rubber duck	skipping rope	bubbles
Number of Blocks	6	3	8	4

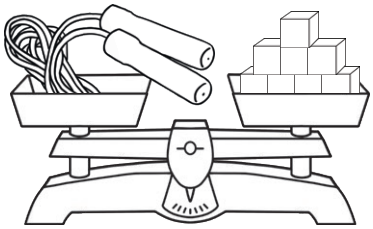


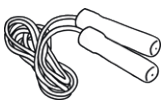


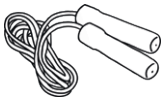
heaviest → lightest

Write the mass of the skipping rope. Then write the pairs of toys that match the same mass as the skipping rope.

8 blocks



a) rubber duck + **c) toy boat** = 

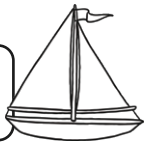
b) cup and ball + **d) paper plane** = 

3 blocks

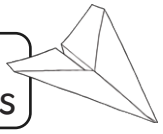
a) rubber duck

6 blocks

b) cup and ball

5 blocks 

c) toy boat

2 blocks 

d) paper plane

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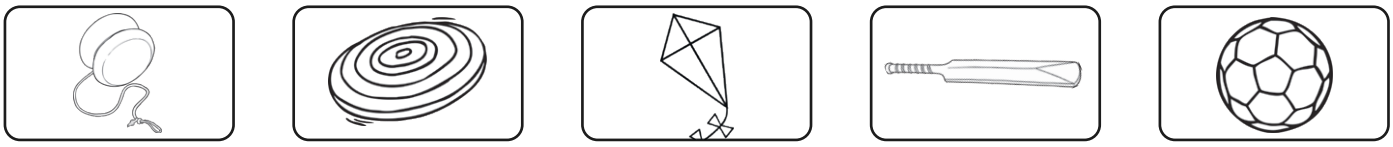
Mass Problem Solving

To solve mass problems.

Find the mass of the bat and frisbee.

Toy	kite	ball	yo-yo	bat	frisbee
Cubes	7	9	5	_____	_____



lightest → heaviest

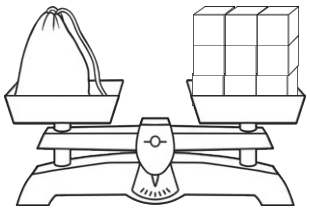
Which toys are missing? Draw arrows to show where they go.

Toy	cup and ball	rubber duck	skipping rope	bubbles	paper plane	toy boat
Number of Blocks	6	3	7	4	2	5

heaviest → lightest

Write the mass of the bag. Then write the pairs of toys that match the same mass as the bag.

_____ blocks

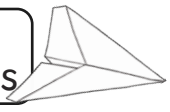


_____ + _____ =

_____ + _____ =

_____ + _____ =

a) 6 blocks

c) 2 blocks 

b) 5 blocks

d) 4 blocks

e) 3 blocks

f) 7 blocks

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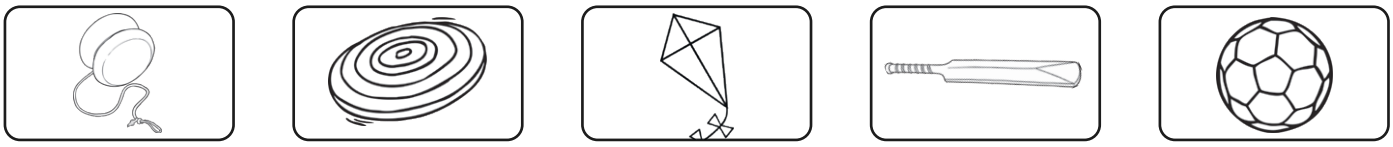
Mass Problem Solving **Answers**

To solve mass problems.

Find the mass of the bat and frisbee.

Toy	kite	ball	yo-yo	bat	frisbee
Cubes	7	9	5	**8**	**6**



lightest → heaviest

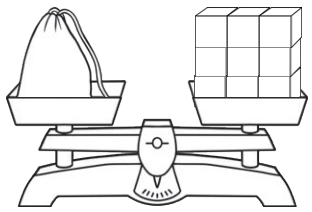
Which toys are missing? Draw arrows to show where they go.

Toy	cup and ball	rubber duck	skipping rope	bubbles	paper plane	toy boat
Number of Blocks	6	3	7	4	2	5

heaviest → lightest

Write the mass of the bag. Then write the pairs of toys that match the same mass as the bag.

9 blocks

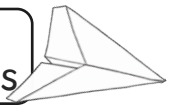


a + e =

b + d =

c + f =

a) 6 blocks

c) 2 blocks 

b) 5 blocks

d) 4 blocks

e) 3 blocks

f) 7 blocks

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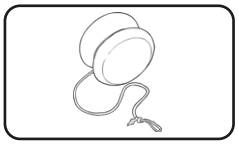
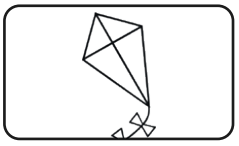
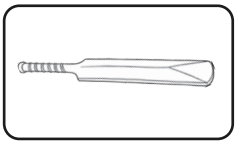
Mass Problem Solving

To solve mass problems.

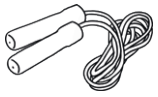
What are the hidden numbers and toys?

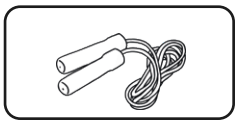
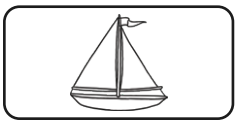
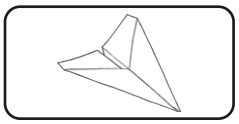
Toy	kite	_____	_____	bat	frisbee
Cubes	7	9	5	_____	_____

lightest → heaviest

Which toys are missing? Draw arrows to show where they go.

Toy	cup and ball	rubber duck	skipping rope 	bubbles	paper plane	toy boat
Number of Blocks	7	3	9	4	1	6

heaviest → lightest

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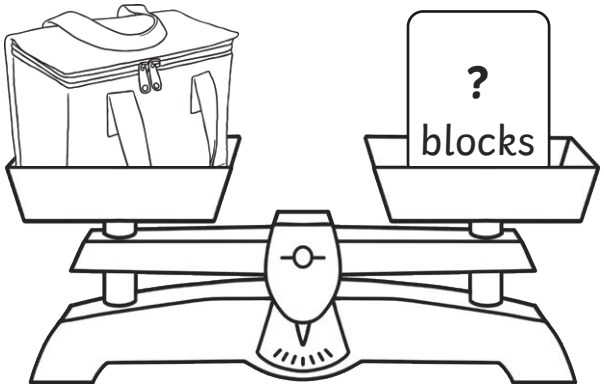
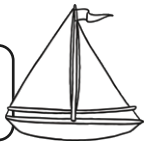
The lunch bag has the same mass as 2 of the toys.

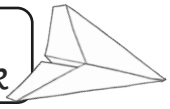
What is the mass of the lunch bag?

Can you find all the possibilities?



a) 7 blocks

b) 6 blocks 

c) 1 block 

d) 4 blocks

e) 9 blocks

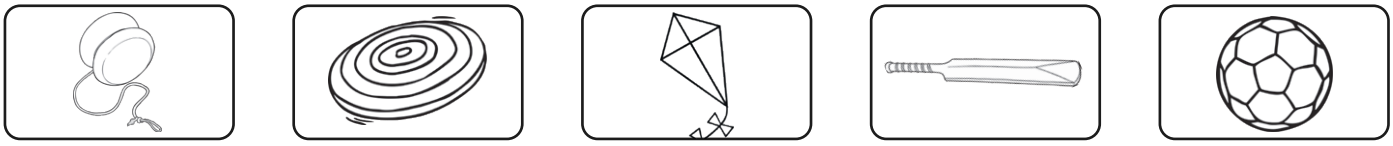
f) 3 blocks

Mass Problem Solving **Answers**

To solve mass problems.

What are the hidden numbers and toys?

Toy	kite	ball	yo-yo	bat	frisbee
Cubes	7	9	5	**8**	**6**



lightest → heaviest

Which toys are missing? Draw arrows to show where they go.

Toy	cup and ball	rubber duck	skipping rope	bubbles	paper plane	toy boat
Number of Blocks	7	3	9	4	1	6

heaviest → lightest

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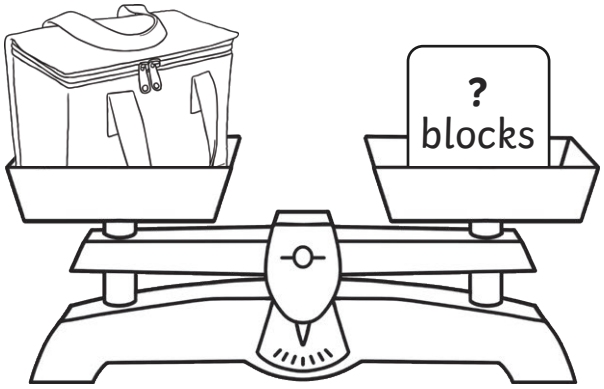
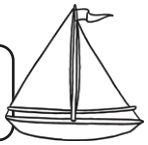
The lunch bag has the same mass as 2 of the toys.

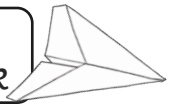
What is the mass of the lunch bag?

Can you find all the possibilities?



a) 7 blocks

b) 6 blocks 

c) 1 block 

d) 4 blocks

e) 9 blocks

f) 3 blocks

All possible answers:

7 blocks + 6 blocks = 13 blocks (a + b)
7 blocks + 1 block = 8 blocks (a + c)
7 blocks + 4 blocks = 11 blocks (a + d)
7 blocks + 9 blocks = 16 blocks (a + e)
7 blocks + 3 blocks = 10 blocks (a + f)

6 blocks + 1 block = 7 blocks (b + c)
6 blocks + 4 blocks = 10 blocks (b + d)
6 blocks + 9 blocks = 15 blocks (b + e)
6 blocks + 6 blocks = 12 blocks (b + f)

1 block + 4 blocks = 5 blocks (c + d)
1 block + 9 blocks = 10 blocks (c + e)
1 block + 3 blocks = 4 blocks (c + f)

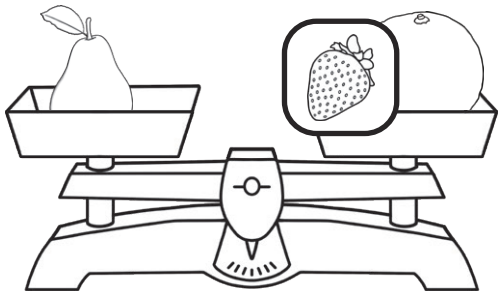
4 blocks + 9 blocks = 13 blocks (d + e)
4 blocks + 3 blocks = 7 blocks (d + f)

9 blocks + 3 blocks = 12 blocks (e + f)

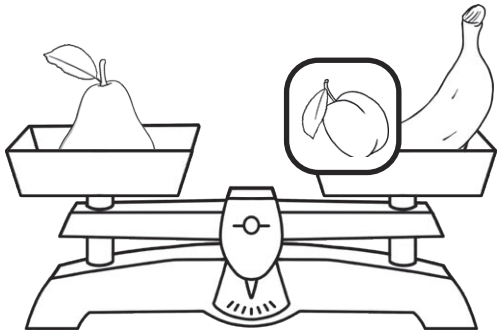
Children may have worked in a different order to find every possible answer, which can prompt further discussion.

Mass Problem Solving **Answers**

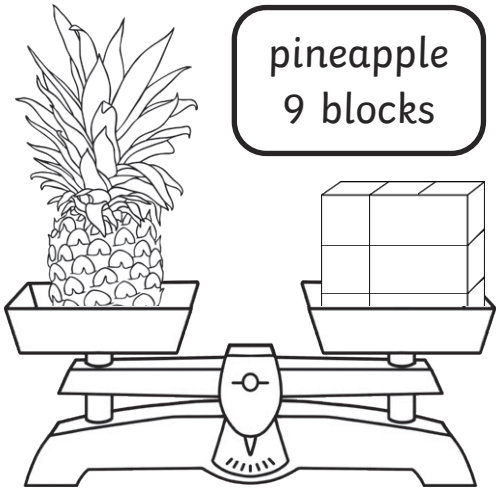
Which fruit would you add to the scales make the same mass as the pear?



fruit	pear	orange	banana	plum	strawberry
blocks	7	5	4	3	2



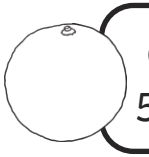
Draw lines to match the fruits that make the same mass as the pineapple.



pineapple
9 blocks

pear
7 blocks

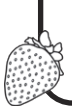
apple
8 blocks



orange
5 blocks

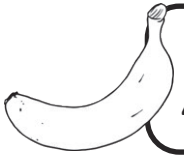
peach
6 blocks

grape
1 block



strawberry
2 blocks

plum
3 blocks



banana
4 blocks

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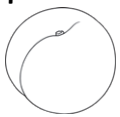
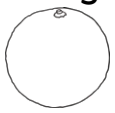
Mass Problem Solving **Answers**

Use the clues to order the fruit.

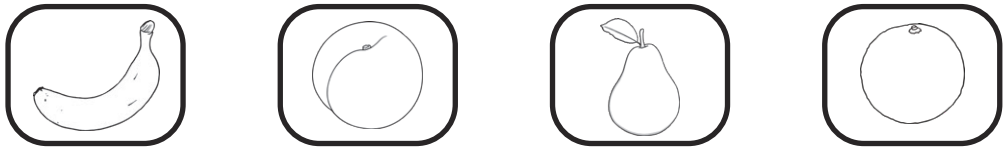
peach pear orange banana





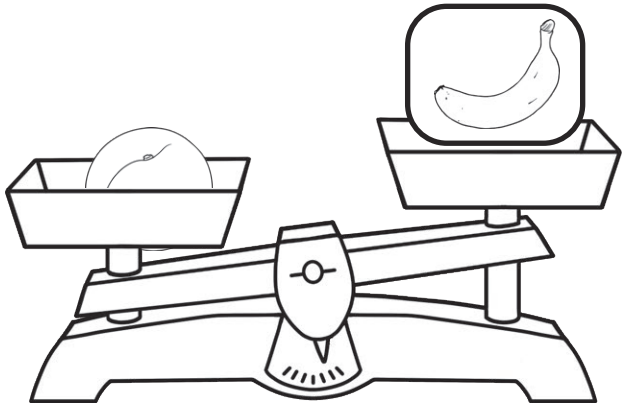
The peach is **lighter** than the pear and **heavier** than the banana.

The pear is **heavier** than the peach and **lighter** than the orange.



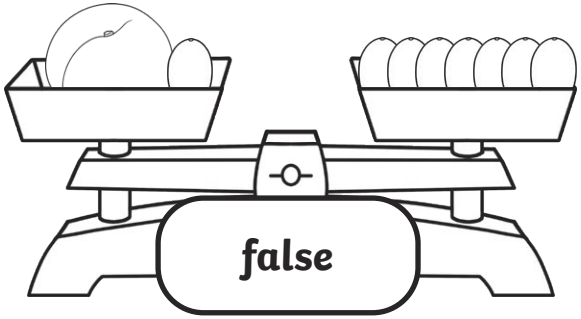
lightest → heaviest

Use your answer to find which fruit is missing from the scales.

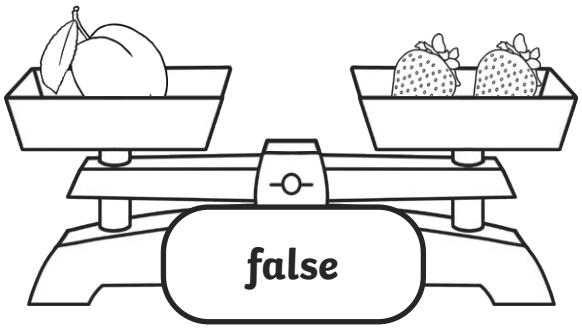


True or false? How do you know?

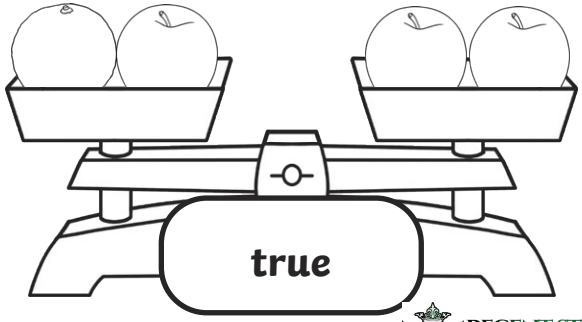
The peach has the same mass as 7 grapes.



1 plum is heavier than 2 strawberries.



1 orange has the same mass as 1 apple.



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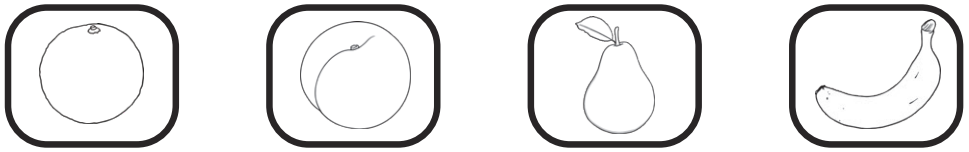
Mass Problem Solving **Answers**

Use the clues to order the fruit.

peach pear orange banana

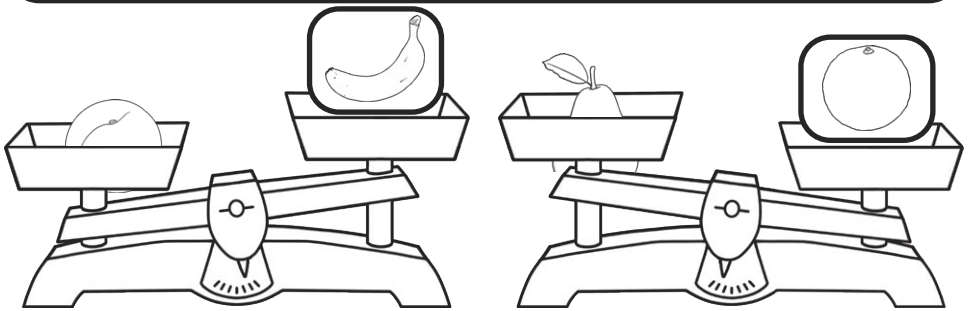
The peach is **lighter** than the pear and **heavier** than the banana.

The pear is **heavier** than the peach and **lighter** than the orange.



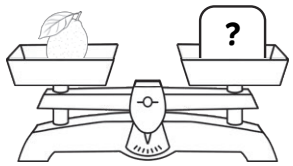
lightest → heaviest

Use your answers to find which fruits are missing from the scales.

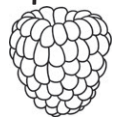
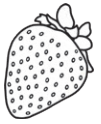


How many ways can you make the same mass as the lemon?

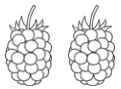
lemon
8 blocks



You can use the fruits more than once.
You can use any number of fruits.

fruit	blueberry	raspberry 	blackberry
blocks	2	3	4
fruit	cherry	strawberry 	
blocks	5	6	

6 + 2 = 8



4 + 4 = 8

3 + 3 + 2 = 8

5 + 3 = 8

4 + 2 + 2 = 8

2 + 2 + 2 + 2 = 8

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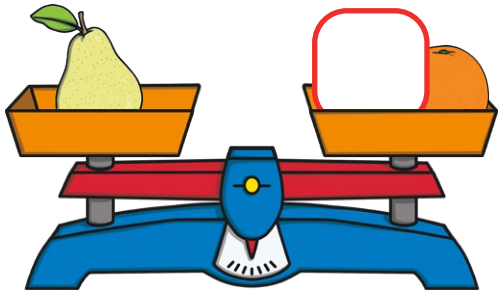
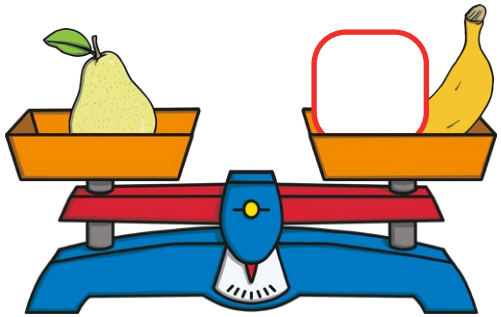
Mass Problem Solving

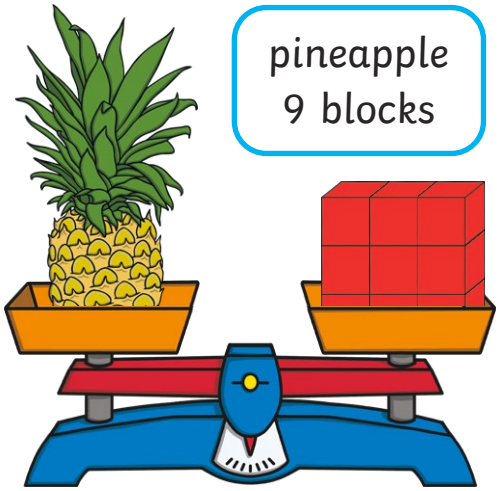
Which fruit would you add to the scales make the same mass as the pear?



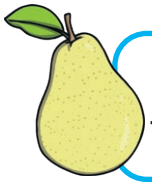
fruit	pear	orange	banana	plum	strawberry
blocks	7	5	4	3	2



Draw lines to match the fruits that make the same mass as the pineapple.

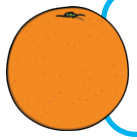


pineapple
9 blocks

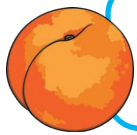


pear
7 blocks

apple
8 blocks



orange
5 blocks

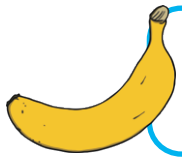


peach
6 blocks

grape
1 block

strawberry
2 blocks

plum
3 blocks



banana
4 blocks

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Mass Problem Solving

Use the clues to order the fruit.

peach

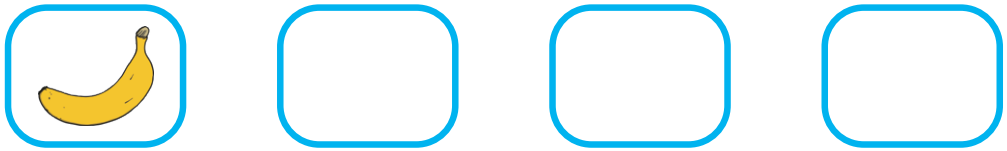
pear

orange

banana

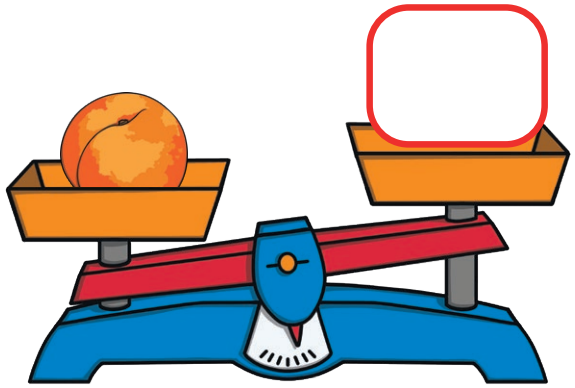
The peach is **lighter** than the pear and **heavier** than the banana.

The pear is **heavier** than the peach and **lighter** than the orange.



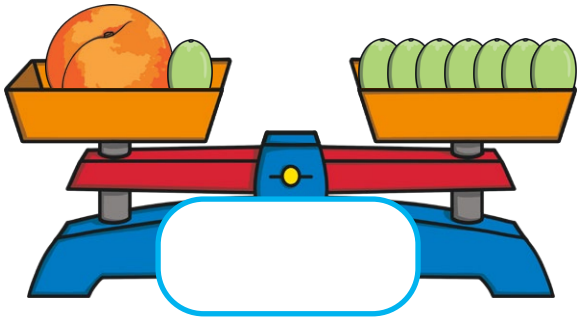
lightest → heaviest

Use your answer to find which fruit is missing from the scales.

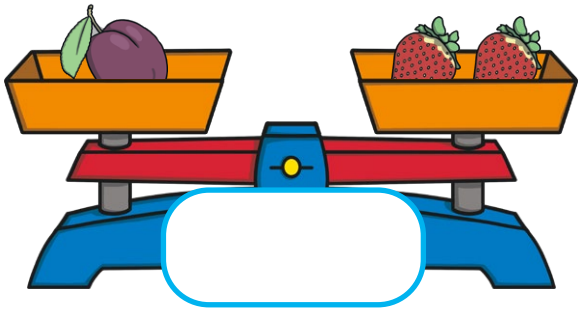


True or false? How do you know?

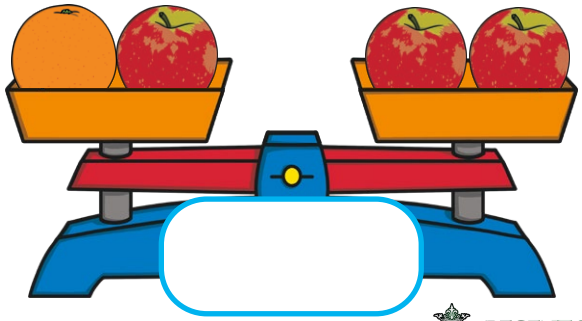
The peach has the same mass as 7 grapes.



1 plum is heavier than 2 strawberries.



1 orange has the same mass as 1 apple.



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Mass Problem Solving

Use the clues to order the fruit.

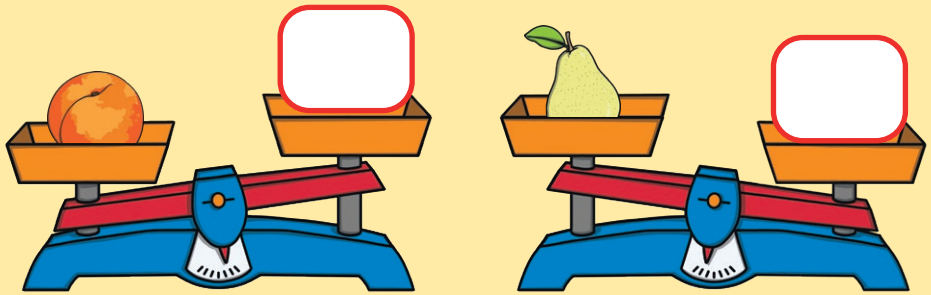
peach pear orange banana

The peach is **lighter** than the pear and **heavier** than the banana.

The pear is **heavier** than the peach and **lighter** than the orange.

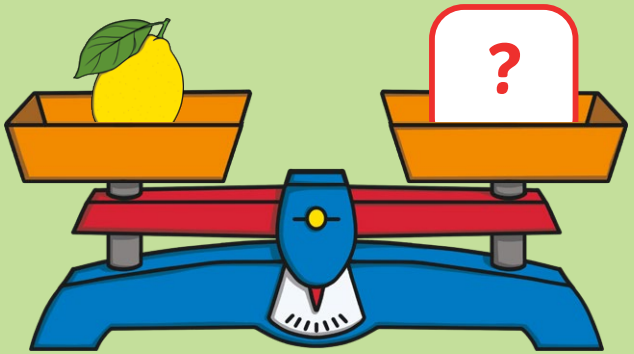
heaviest → lightest

Use your answers to find which fruits are missing from the scales.



How many ways can you make the same mass as the lemon?

lemon
8 blocks



You can use the fruits more than once.
You can use any number of fruits.

fruit	blueberry	raspberry	blackberry
blocks	2	3	4
fruit	cherry	strawberry	
blocks	5	6	

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Compare Mass

Adult Guidance with Question Prompts

Five fruits are presented in a table showing their mass measured in blocks. Alongside this are balance scales holding a pear on one side and another fruit on the other. Children work out which fruit they would add to make the same mass as the pear. A pineapple is shown balanced with nine blocks. Children draw lines to match pairs of labelled fruits to make the same mass.

As an additional challenge, children could find the mass of one object, then find two objects that make the same mass. Children will need balance scales, and a selection of classroom objects (no heavier than the mass of ten cubes).

Can you use the table to tell me the mass of each fruit?
What can you tell me about the first set of balance scales?
What is the mass of the pear?
What is the mass of the orange?
What would happen if there wasn't another fruit with the orange? Can you explain why?
What would happen if I put a banana with the with the orange? Why?
Which fruit could I add to the orange to make the same mass as the pear?

Repeat for the banana.

What is the mass of the pineapple?
Which two fruits go together to make the same mass?
How many possibilities can you find?

Use balance scales and blocks to find the mass of an object.
Can you find two objects to make the same mass?
What can you do to check?

Compare Mass

Adult Guidance with Question Prompts

Children read clues about the mass of fruit and order them from the lightest to the heaviest. They use this to work out which fruit is missing from the balance scales. Children then apply their reasoning skills to investigate true or false challenges.

As an additional challenge, children could create their own true or false challenges for friends to investigate. Children will need balance scales and a selection of classroom objects (no heavier than the mass of ten cubes).

What do you know about the pear?
Where would it go in the sequence from lightest to heaviest?
Where would the orange and banana go?

How do you know?

What are the balance scales telling you about the mass of the pear compared to the other fruit?
Which fruit could be in the other side of the balance scales? Can you prove it?

True or false?

What can you tell me about the mass of the peach?
Does it have the same mass as 7 grapes? Why? Why not?

Is one plum heavier than 2 strawberries? How do you know?

What can you tell me about the mass of the orange?
Does it have the same mass as an apple? Can you explain why? Why not?

Use balance scales and classroom objects to make a 'true or false?' challenge for a friend to solve.

Compare Mass

Adult Guidance with Question Prompts

Children read clues about the mass of fruits and order them from the heaviest to the lightest. They use this to work out which fruits are missing from the balance scales. Children then apply their problem-solving skills to investigate a 'find all possibilities' challenge where they find different ways to reach a total mass. Any number of items can be used and the same item can be used more than once.

As an additional challenge, children could create their own 'match the mass' challenges for friends to investigate. Children will need balance scales and a selection of classroom objects (no heavier than the mass of ten cubes).

What do you know about the peach? What about the pear?
Where would you place each fruit from heaviest to lightest? Can you explain why?

What are the balance scales telling you about the mass of the peach compared to the other fruit?

Which fruit could be in the other side of the balance scales? How do you know?

Repeat for the pear.

What can you tell me about the mass of the lemon?
Would one of the berries balance the lemon? How do you know?
What will you need to do to balance the lemon?

Can you use a berry more than once? How many berries can you use?
What would happen if you put two cherries in the balance scales? Can you explain why?
What if you put three blueberries in the balance scales?
How many ways can you find to make the same mass?
How can you make sure that you have found all of the possibilities?
Use balance scales to make your own 'match the mass' challenge.

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