

Understanding Mass and Weight

Adult Guidance with Question Prompts



Children build upon their understanding of 'heavy' and 'light' gained from firsthand experience. They are introduced to the terms 'weight' and 'mass' (at this level, the terms are interchangeable). Children begin by talking about mass as they hold objects. The terms 'heavier', 'heaviest', 'lighter', 'lightest' and 'equal to' are used to describe mass. Children learn how to use balance scales to compare mass. They begin to explore the misconception that larger objects are always heavier than smaller objects.

What do the balance scales tell us about the mass of the objects?

What does the lowest side of the scales show us?

What does the highest side of the scales show us?

What if both sides are the same?

Look at one set of balance scales at a time.

What can you tell me about the mass of each pair of objects?

Can you use these words to describe their mass? (heavier than, lighter than or equal to)

Does it matter what size the objects are?

Find two classroom objects that will fit in the balancing scales.

Which do you think is heavier/lighter?

Can you use the balance scales to check?

Can you find two objects that are equal in mass?

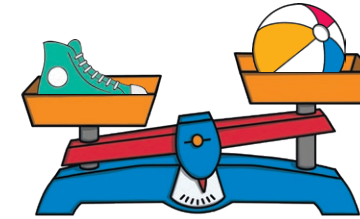
What will this look like on the balance scale?

Are objects that have the same mass always the same size?

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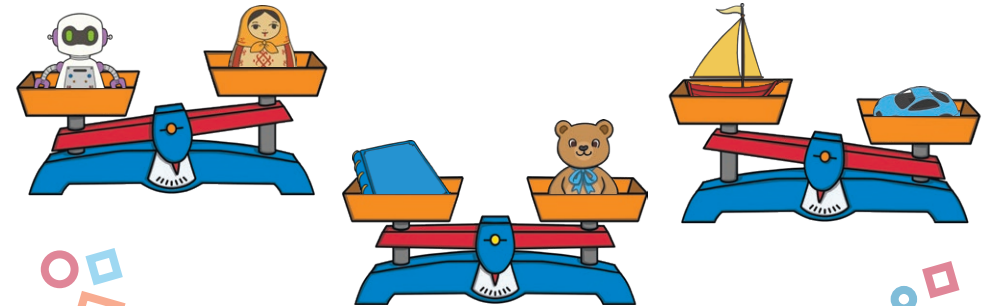


Complete the sentences.



The _____ is heavier than the _____.

The _____ is lighter than the _____.



Can you describe the mass of these objects using these words?

lighter than

equal to

heavier than

Choose 2 objects and compare their mass.

Can you find 2 objects that have the same mass?

Are they the same size?

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What can you tell me about the balance scales?

What do they tell us about the mass of the ball?

Which sentences are correct?

Can you explain why?

What does this tell us about the mass of the book and the cup?

Can you find an object that is lighter than one thing but heavier than another?

Find four objects.

Can you sort them from lightest to heaviest?

How can you use the balance scales to check?

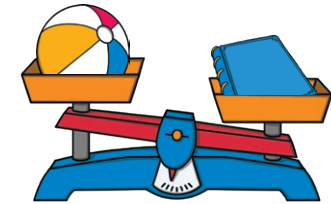
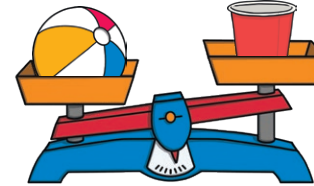
Is the smallest the lightest?

Is the biggest the heaviest?

Understanding Mass and Weight



True or false?



The ball is heavier than the cup.

The ball is heavier than the book.

The ball is lighter than the cup.

The ball is lighter than the book.

What can you say about the mass of the cup and the book?

Choose 4 objects.

Can you sort them from the lightest to the heaviest?

How can you use the balance scales to check?

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What object have you found that is heavier than a paintbrush but lighter than a book?

How can you check that you are right?

What can you tell me about your investigation?

Can you make a similar challenge for your friend?

Do you think the car or the paper would be heavier?

Can you explain why?

What would this look like on the balance scales?

How would they move?

Is Paulina correct? Can you explain why?

Can you find other examples where a smaller object would be heavier than a larger object?

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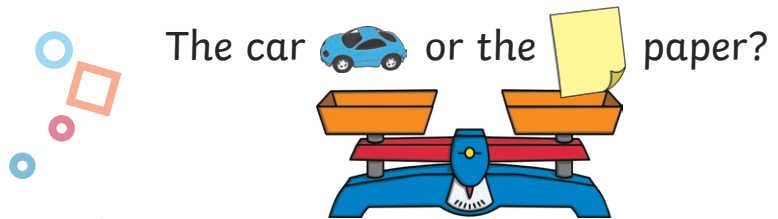


Can you find something that is heavier than a paintbrush but lighter than a book?

How can you check?



Which is heavier?



It is impossible for the car to be heavier than the paper because it is smaller.

Is Paulina correct?
How do you know?

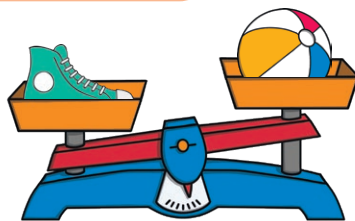


Pick 2 objects and write a sentence about them for a friend to prove as correct or incorrect.

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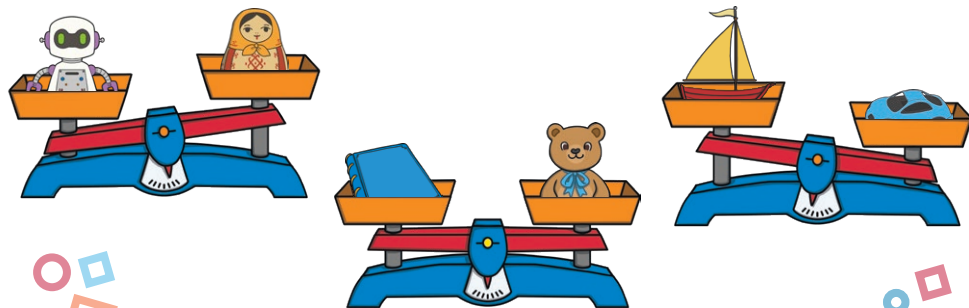


Complete the sentences.



The _____ is heavier than the _____.

The _____ is lighter than the _____.



Can you describe the mass of these objects using these words?

lighter than

equal to

heavier than

Choose 2 objects and compare their mass.

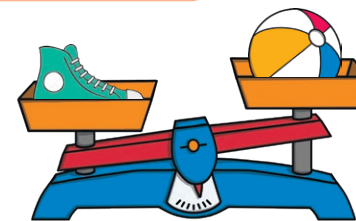
Can you find 2 objects that have the same mass?

Are they the same size?

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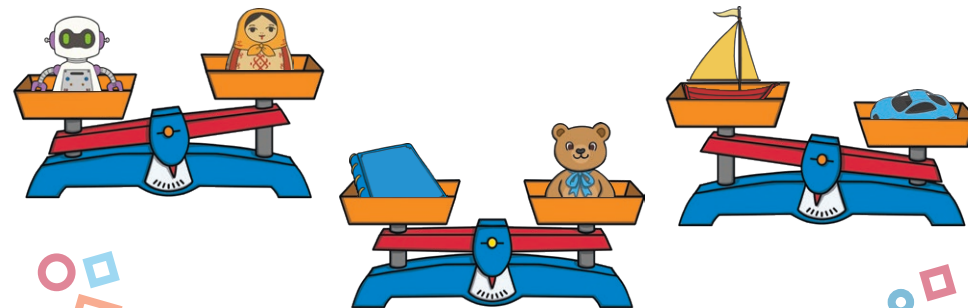


Complete the sentences.



The _____ is heavier than the _____.

The _____ is lighter than the _____.



Can you describe the mass of these objects using these words?

lighter than

equal to

heavier than

Choose 2 objects and compare their mass.

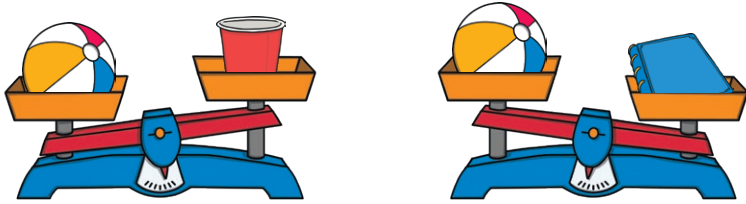
Can you find 2 objects that have the same mass?

Are they the same size?

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True or false?



The ball is heavier than the cup.

The ball is heavier than the book.

The ball is lighter than the cup.

The ball is lighter than the book.

What can you say about the mass of the cup and the book?

Choose 4 objects.

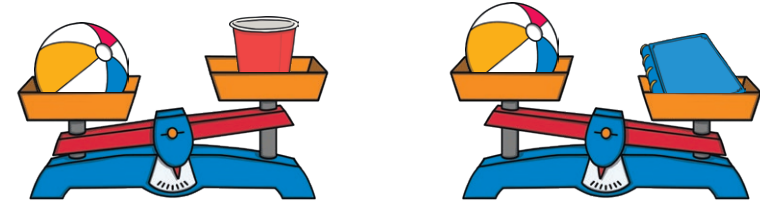
Can you sort them from the lightest to the heaviest?

How can you use the balance scales to check?

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True or false?



The ball is heavier than the cup.

The ball is heavier than the book.

The ball is lighter than the cup.

The ball is lighter than the book.

What can you say about the mass of the cup and the book?

Choose 4 objects.

Can you sort them from the lightest to the heaviest?

How can you use the balance scales to check?

Understanding Mass and Weight



Can you find something that is heavier than a paintbrush but lighter than a book?

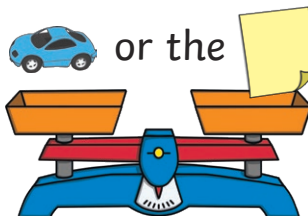
How can you check?



Which is heavier?



The car  or the  paper?



It is impossible for the car to be heavier than the paper because it is smaller.

Is Paulina correct?
How do you know?



Pick 2 objects and write a sentence about them for a friend to prove as correct or incorrect.

Understanding Mass and Weight



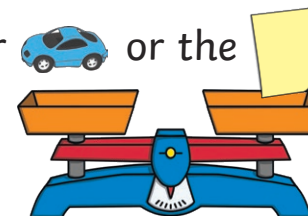
Can you find something that is heavier than a paintbrush but lighter than a book?

How can you check?



Which is heavier?

The car  or the  paper?



It is impossible for the car to be heavier than the paper because it is smaller.

Is Paulina correct?
How do you know?



Pick 2 objects and write a sentence about them for a friend to prove as correct or incorrect.



The shoe is heavier than the ball. The ball is lighter than the shoe.

The robot is heavier than the doll. The doll is lighter than the robot.

The mass of the book is equal to the mass of the bear.

The toy boat is lighter than the toy car. The car is heavier than the boat.

Children use vocabulary related to mass as they find and compare objects: heavier, lighter, heaviest, lightest, equal.

Children understand how to use the balance scales to check.



The ball is heavier than the cup. **True.**

The ball is heavier than the book. **False.**

The ball is lighter than the cup. **False.**

The ball is lighter than the book. **True.**

The balance scales tell us that the book is heavier than both the ball and the cup - it is the heaviest object. It tells us that the cup is lighter than the ball and the book - it is the lightest object.



This is a two-step challenge (in either order).

Children will check objects that are heavier than the paintbrush. Then they will check to see if they are also lighter than the book.

Children should recognise that the car would be heavier than a piece of paper.

Paulina is incorrect as smaller objects can have a heavier mass than larger objects. Children might prove this with other examples of objects from around the classroom.

Comparing Mass

To compare and describe the mass of objects.



Find 2 objects. Work out which one is lighter and which one is heavier.
Draw them in the table.

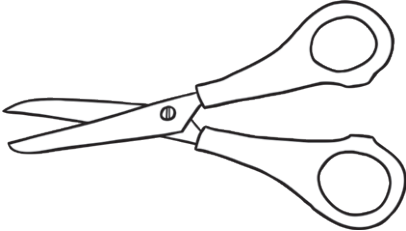
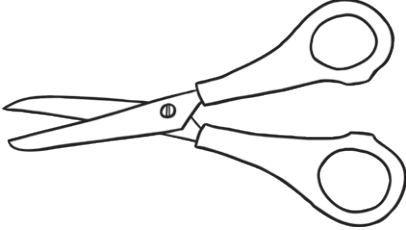
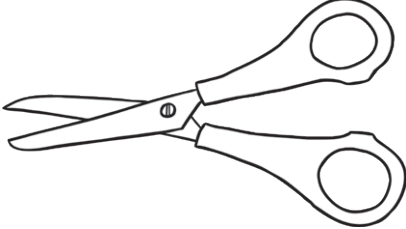
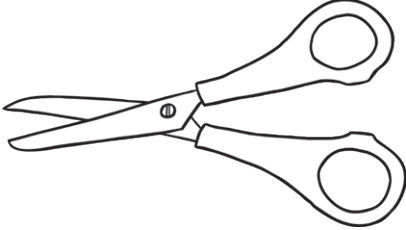
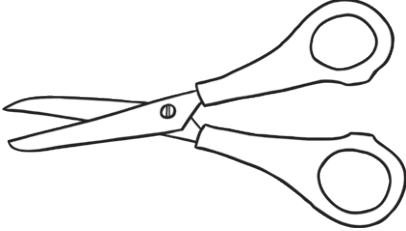
lighter	heavier

Comparing Mass

To compare and describe the mass of objects.



Find objects which are lighter and heavier than a pair of scissors.
Draw them in the table.


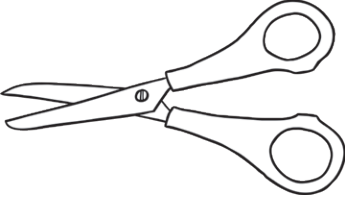
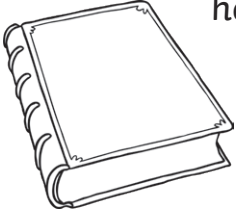
lighter		heavier
		
		
		
		
		

Comparing Mass

To compare and describe the mass of objects.



Find 3 objects. Put them in order from lightest to heaviest. Draw them in the spaces, then complete the sentence underneath to describe the weight of your objects.

lightest				heaviest
The _____ is heavier than the _____.				

lightest				heaviest
The _____ is heavier than the _____.				

lightest				heaviest
The _____ is lighter than the _____.				

lightest				heaviest
The _____ is lighter than the _____.				

Challenge!

Larger things are always heavier than smaller things.



Find 2 objects to prove that this statement is incorrect.

lightest	heaviest
The _____ is heavier than the _____.	

Now can you find 3 objects to prove that it is incorrect?

lightest		heaviest
The _____ is heavier than the _____.		