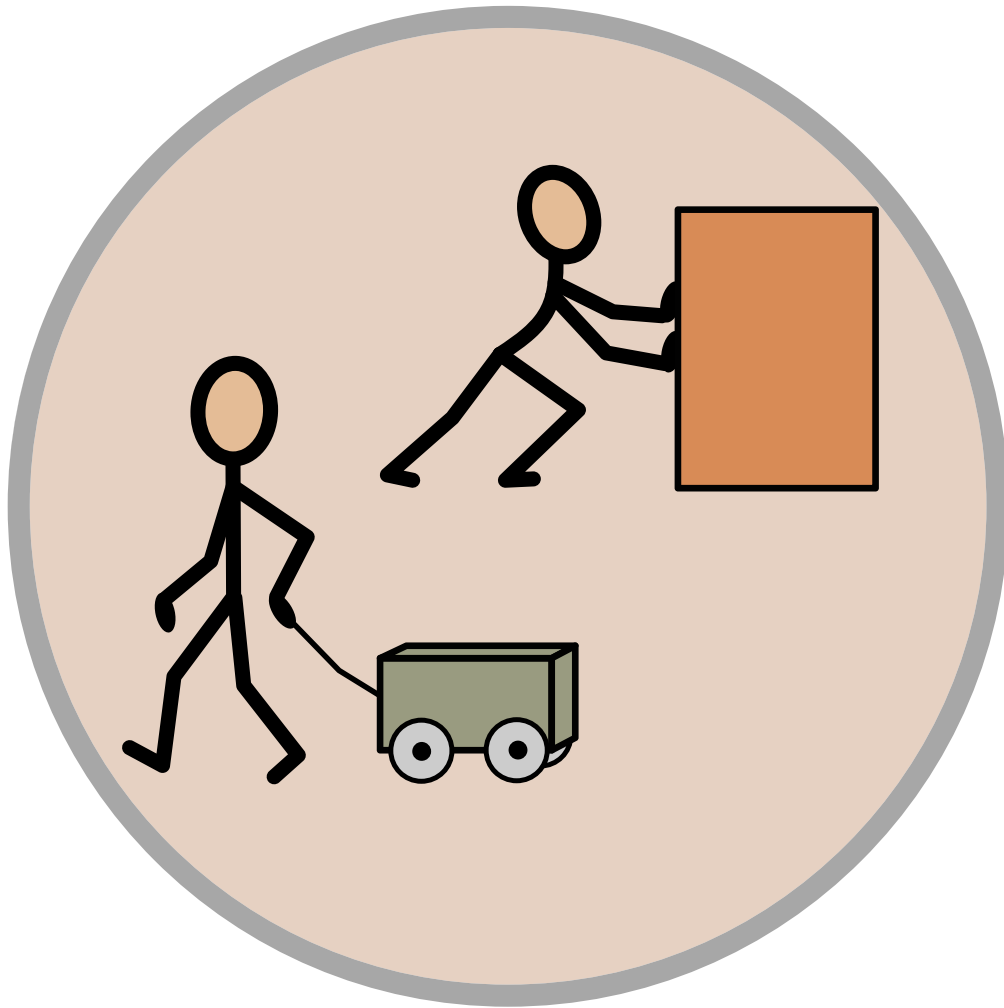


Force and Mass in Motion

Level H/I



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Illustrated by Amanda Noss

A **force** is a push or pull. A force can get things moving. Force can speed it up or slow it down. Imagine that you are pushing a cart in the grocery store.

You are walking at a slow speed so you can see

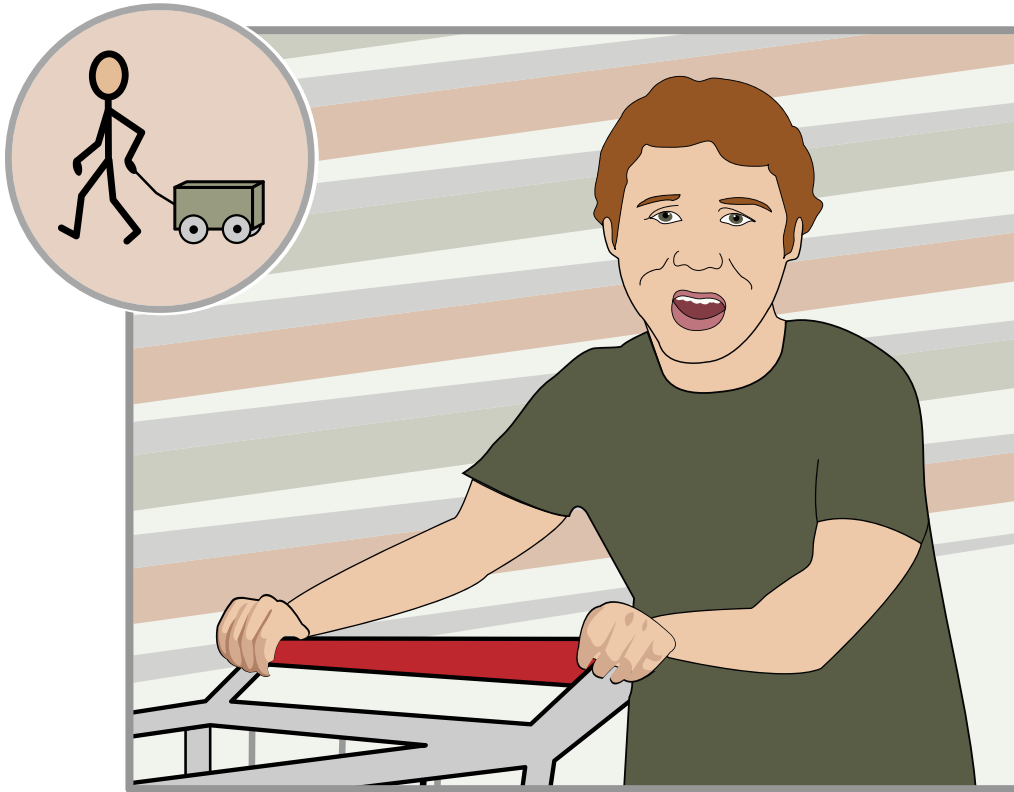


the food on the shelf. While you walk, you are slowly pushing the cart. You are pushing with a slow gentle push. The cart is moving at a slow speed.

Wait a minute! You remember that you are to meet a friend in 10 minutes. You need to hurry up. You push the cart harder. You are walking faster while you push. Walking faster helps you put more force on the cart. The cart is going faster because you have put more force on it. The cart is moving at a faster speed.

Speed is the measure of how fast something is moving.





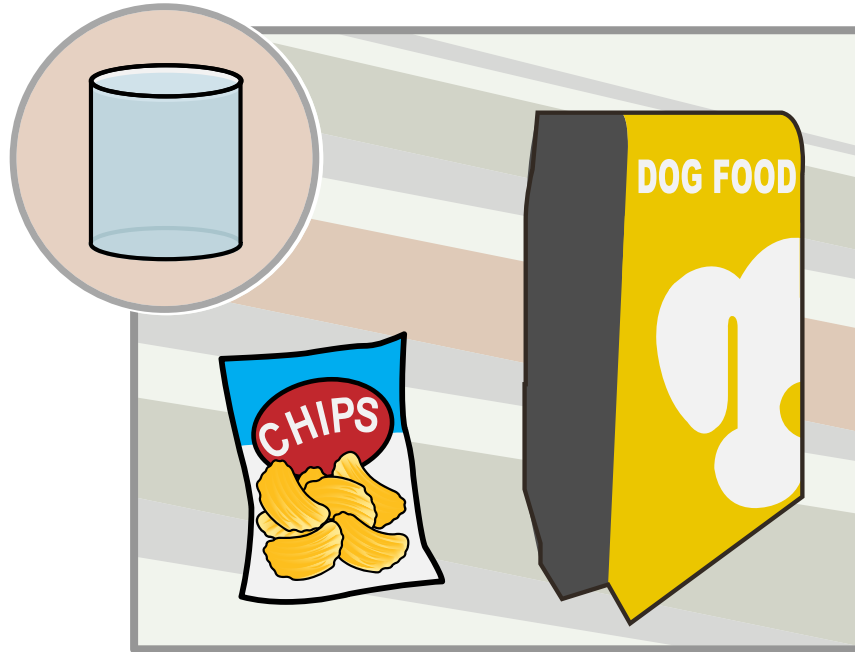
Watch out! The cart is going too fast. You can pull the cart to slow it down. You stop the cart just in time before it crashes into the display of cookies. The speed that the cart is moving can be fast or slow. Push to go faster; pull to slow down.



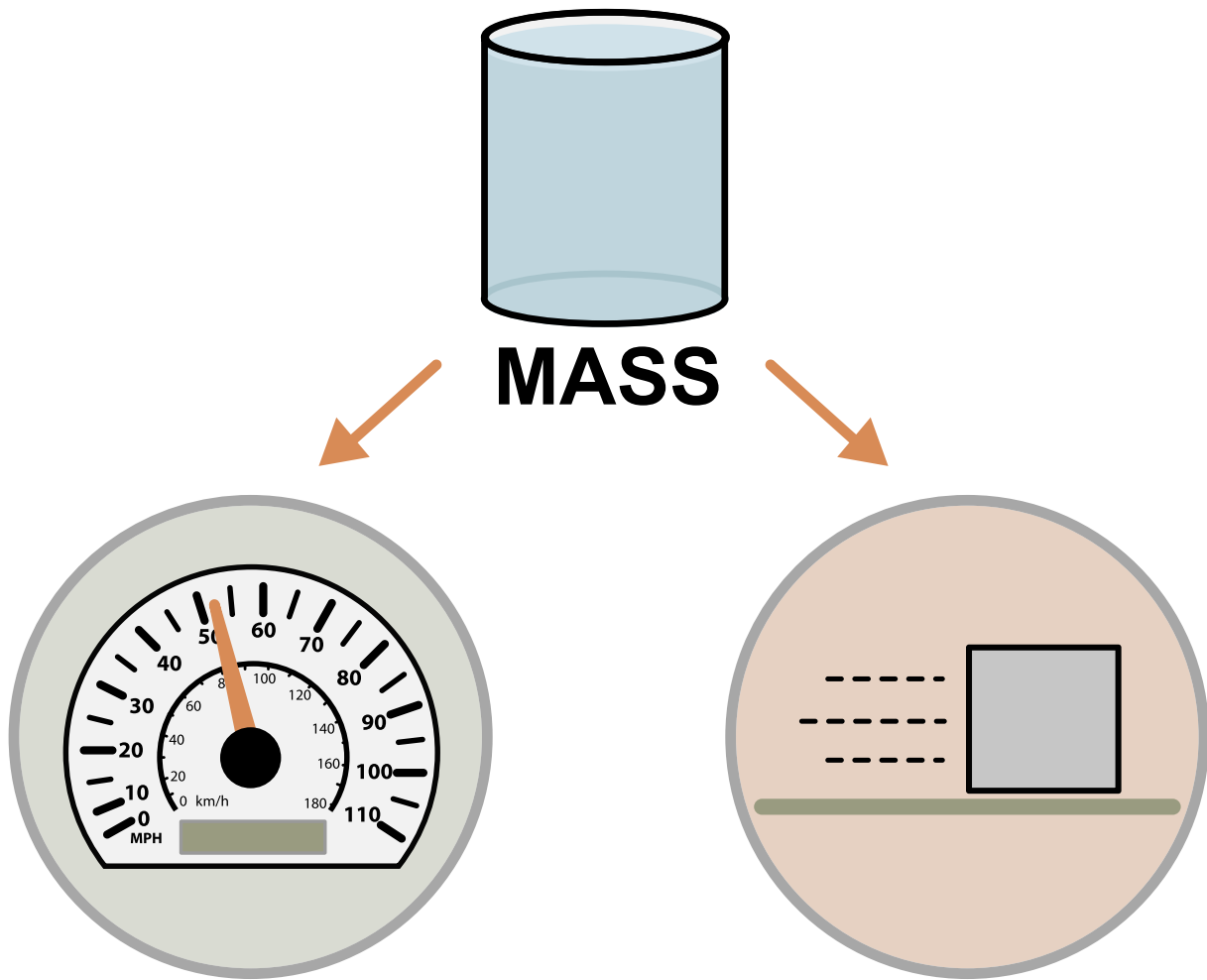
Look at the girls in Aisle 2. One has a small bag of chips in her cart. The other girl has a big bag of dog food in her cart.

- The bag of chips is small and not heavy.
- The bag of dog food is big and is heavy.

The bag of dog food has more mass than the bag of chips.



Mass describes how heavy or big something is. The cart with the dog food has more mass in it. This cart takes more force to push. The cart with the bag of chips does not have much mass. The girl can push this cart easily. With less mass, she can push the cart faster than the one with dog food.



The mass of an object will affect the speed that it can move.

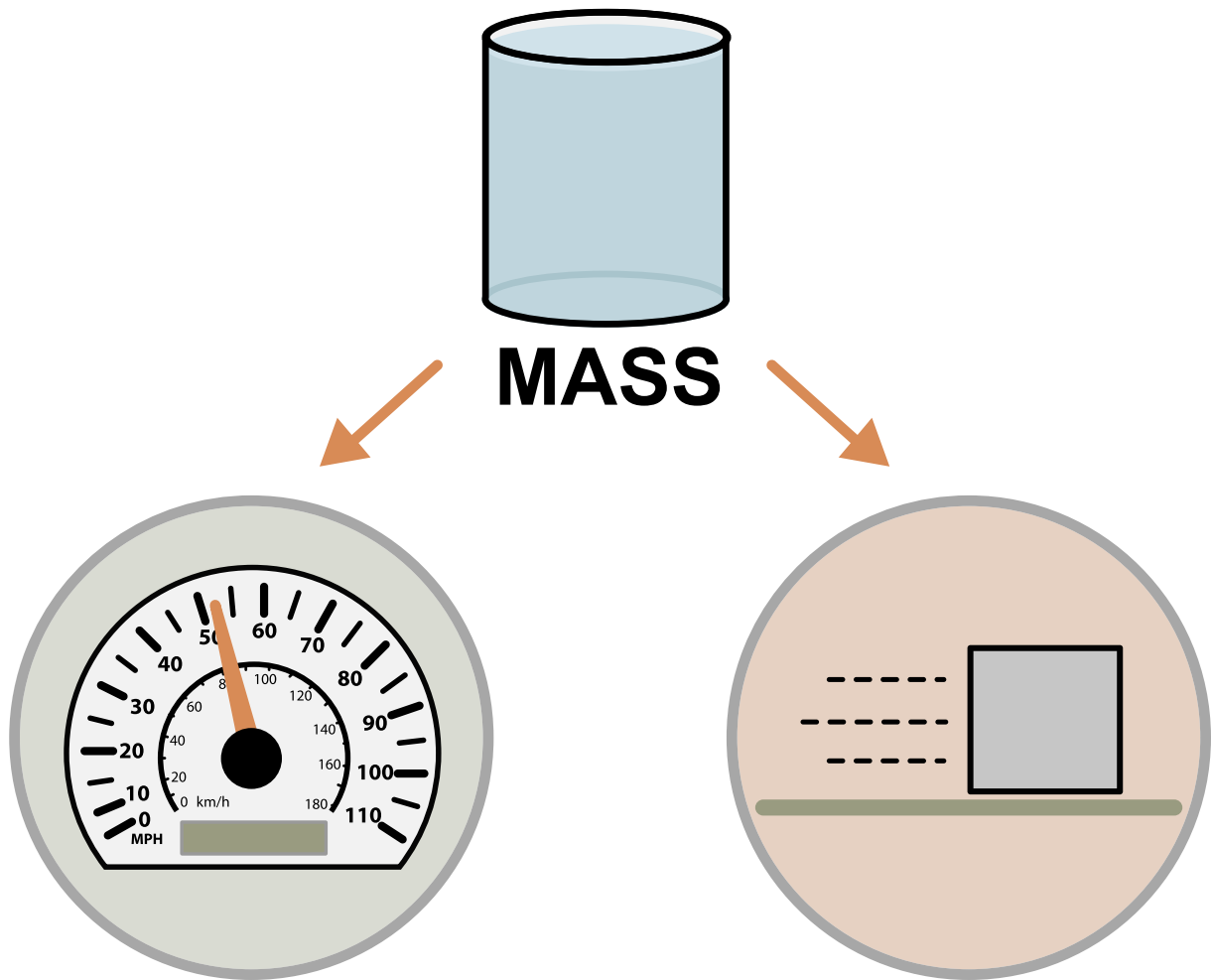
The mass of an object will affect the force that is needed to make it move.



The grocer is getting ready to stock the shelves with canned vegetables. He has 24 big boxes of canned vegetables on a pull cart. The boxes are very heavy. He pulls the cart to get it to the vegetable aisle. The grocer needs to use a lot of force to pull this cart.

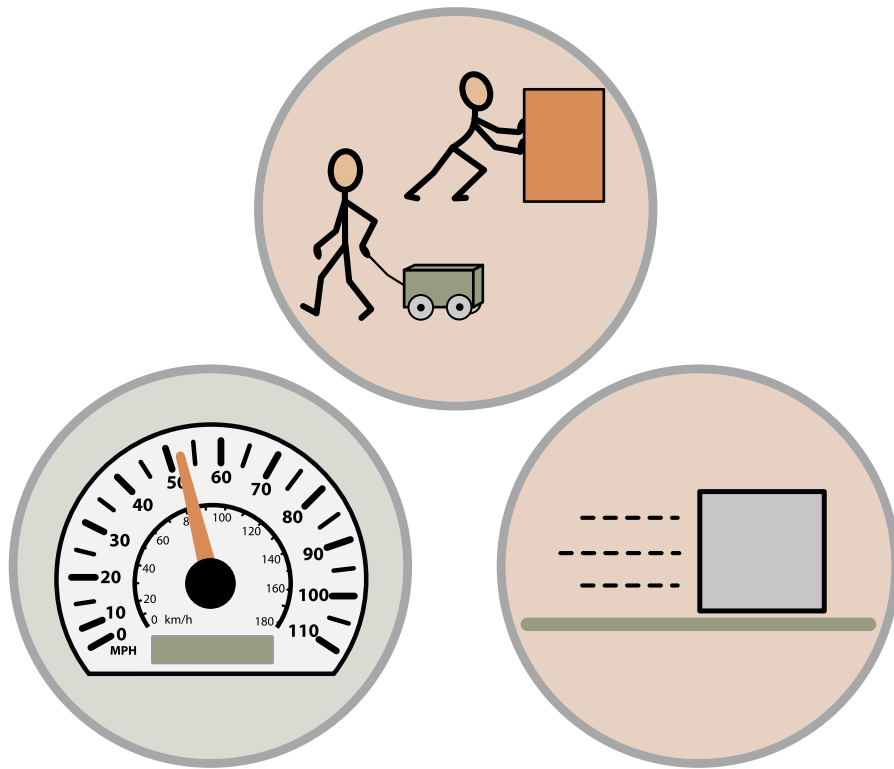
The grocer moves slowly as he pulls the cart. This cart has a lot of mass in the boxes. The bread man comes in the store pushing a small cart with 10 loaves of bread. This cart has less mass. It does not take as much force for the bread man to push his cart. He walks quickly down the aisle to put the bread on the shelves.





The mass of an object will affect the speed that it can move.

The mass of an object will affect the force that is needed to make it move.

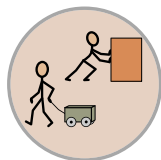


Force can make things move. But things will move at different speeds.

- Objects with more mass will take more force to move.
- Objects with less mass can move faster.

When you move things, think about the force and the mass.

yes



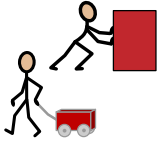
Force and Mass in Motion

no

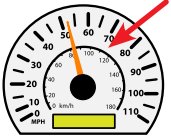


<p>push</p>	<p>slow</p>	<p>force</p>	<p>speed</p>
<p>pull</p>	<p>fast</p>	<p>cart</p>	<p>measure</p>
<p>move</p>	<p>small</p>	<p>chips</p>	<p>dog food</p>
<p></p>	<p>big</p>	<p>mass</p>	<p>canned vegetables</p>
<p></p>	<p>heavy</p>	<p>bread</p>	<p></p>

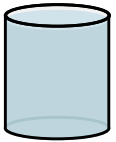
Glossary



force - the push or pull action to make something move



speed - the measure of how fast something moves



mass - how heavy or big something is