

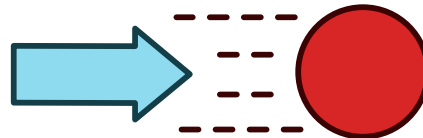
How Does It Move?

Level H/I

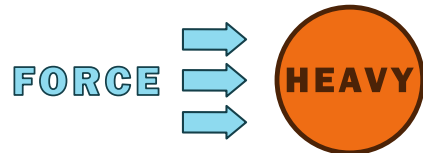
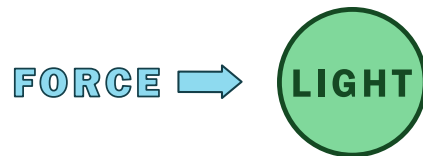


FORCE

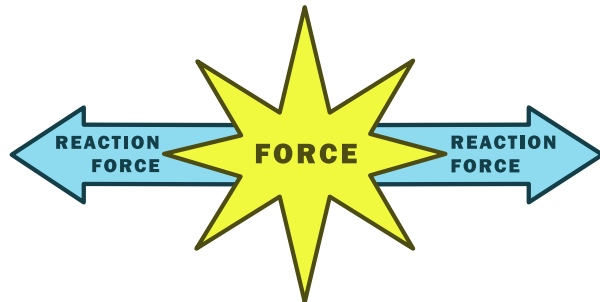
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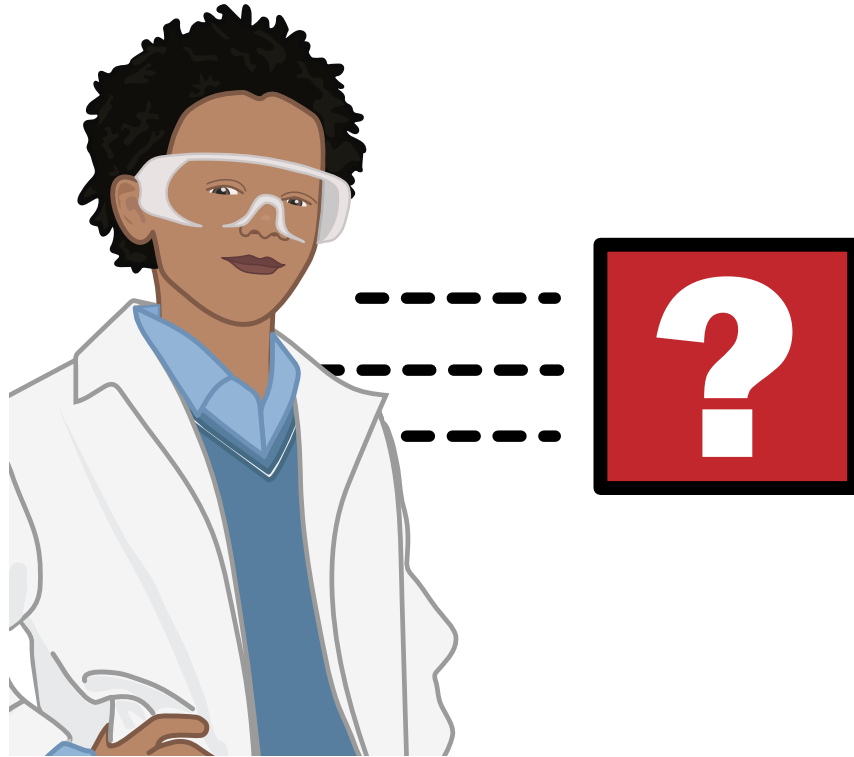
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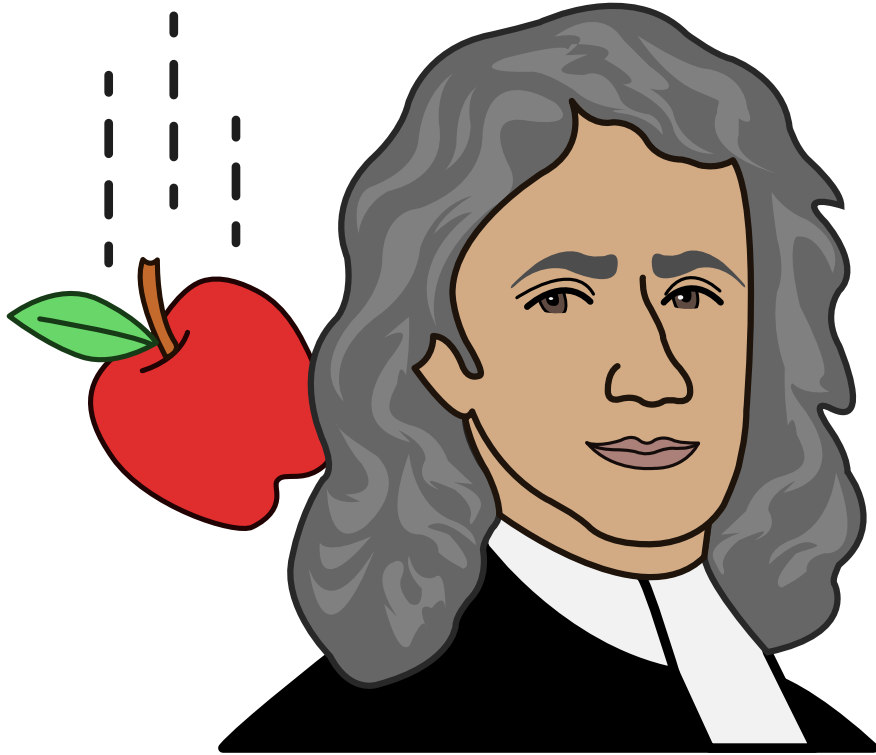
3



Written and Illustrated by Travis Schaeffer



Simon wants to learn about motion.
He wants to learn what causes something
to move.

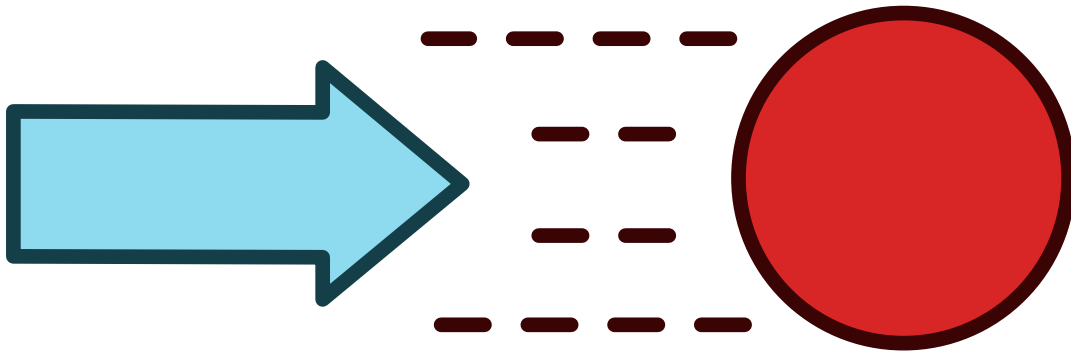


Simon is sitting under an apple tree.

The famous scientist, Sir Isaac Newton, discovered **gravity** under an apple tree.

An apple fell from a tree and fell on his head. One small apple started his study into gravity. It led him to write the **Three Laws of Motion.**

FORCE



The First Law of Motion: An object at rest will remain at rest unless a **force** causes it to move. What does that mean? if something is not moving (at rest), it will stay that way until something makes it move (force). Simon tests the First Law of Motion with a soccer ball.

FORCE

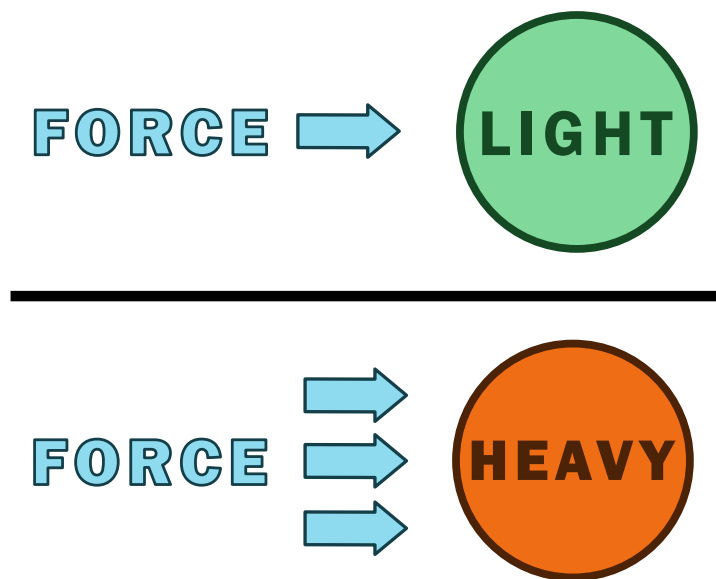


Simon places the soccer ball in the grass. The ball does not move. It is at rest and will remain at rest. Simon kicks the ball. The ball moves! The force of his foot kicking the ball causes it to move. Simon understands the First Law of Motion.

The Second Law of Motion:

Acceleration is created when a force acts on a **mass**.

The greater
the mass, the
greater the
amount of



force is needed to move it. What does

that mean? Light things are easy to move.

Heavy things are hard to move. Simon tests

the Second Law of Motion with a soccer ball

and a tree.

Simon softly kicks the soccer ball with his foot. The small force of his kick was enough to move the lightweight soccer

ball. Simon softly kicks



a tree. The

tree does not

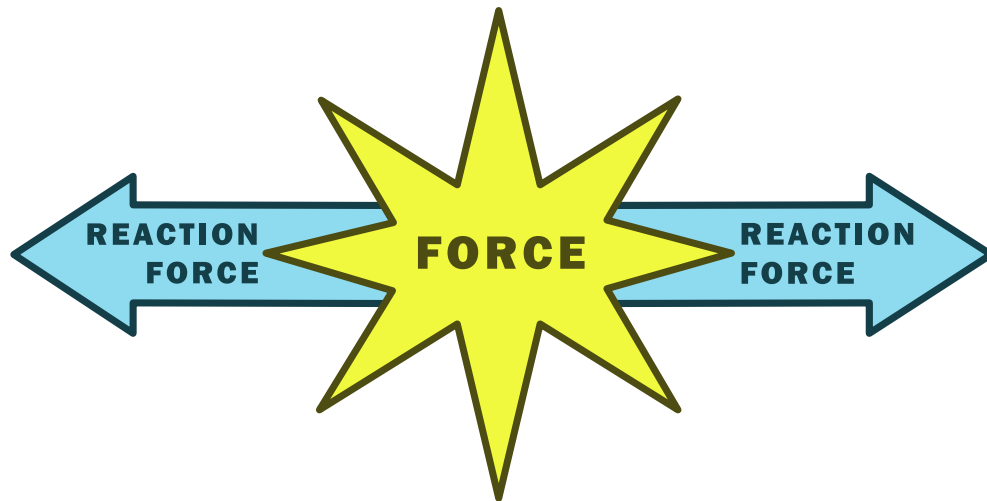


move! The

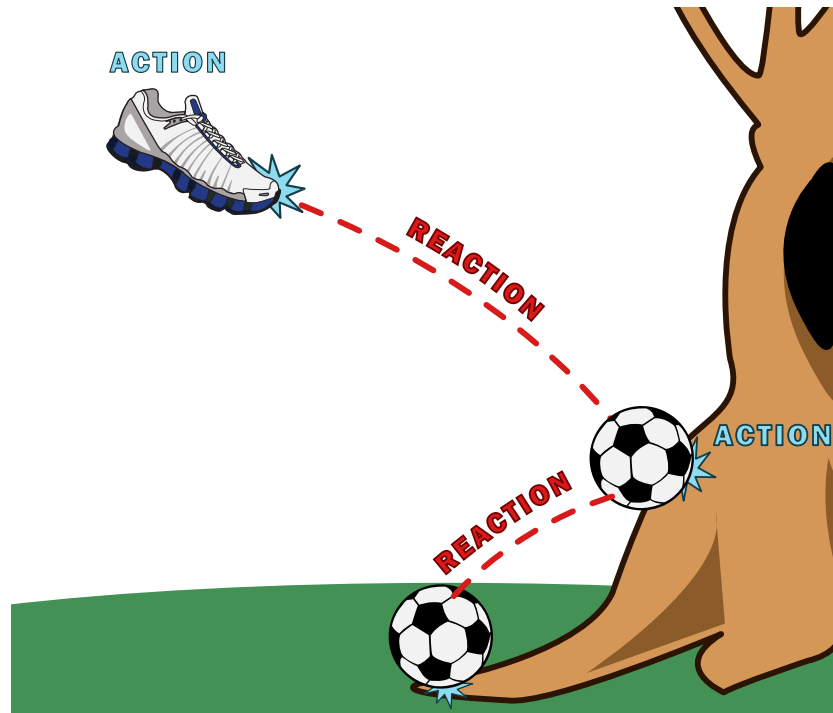
small force of his kick was not enough

to move the large heavy tree. Simon

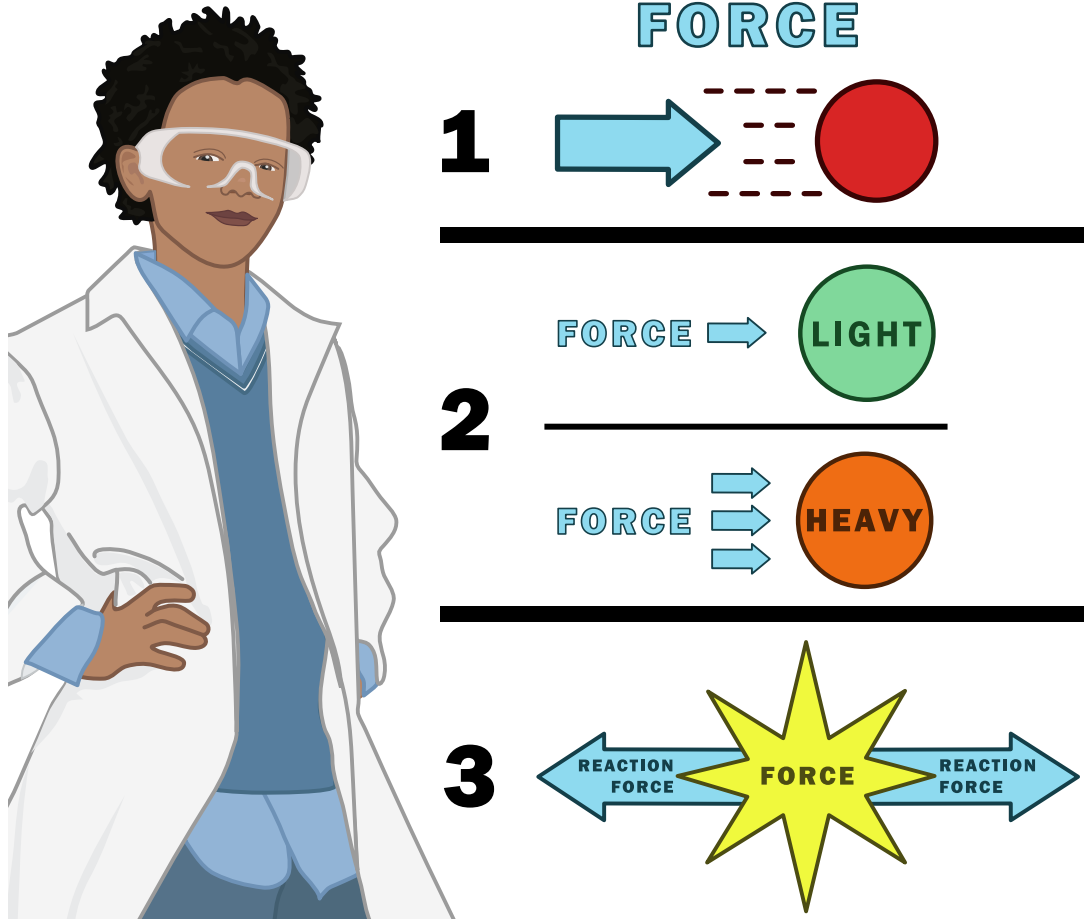
understands the Second Law of Motion.



The Third Law of Motion: For every action there is an equal and opposite reaction. This means that for every force there is a reaction force that is equal in size, but opposite in direction. What does that mean? If two objects bump into each other, this will change how the objects are moving. Simon tests the Third Law of Motion with the soccer ball.

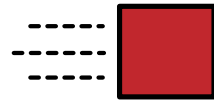


Simon kicks the ball (action). The ball moves up in the air and across the yard (reaction). But watch out! The ball hits the tree (action). The tree stops the ball and the ball bounces back to Simon (reaction). Simon understands the Third Law of Motion.



Simon has learned the Three Laws of Motion. He has learned how something moves and why it moves. Create motion of your own!

yes



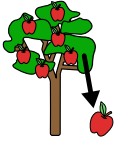
How Does It Move?

no

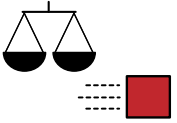


<p>move / motion</p>	<p>famous</p>	<p>first</p>	<p>Simon</p>	<p>apple tree</p>	<p>scientist</p>
<p>study</p>	<p>second</p>	<p>light</p>	<p>Sir Isaac Newton</p>	<p>gravity</p>	<p>Three Laws of Motion</p>
<p>rest</p>	<p>heavy</p>	<p>soft</p>	<p>object</p>	<p>force</p>	<p>soccer ball</p>
<p>kick</p>	<p>small</p>	<p>third</p>	<p>tree</p>	<p>size</p>	<p>direction</p>
<p>bounce back</p>	<p>equal</p>	<p>opposite</p>			

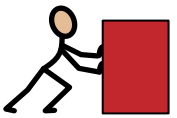
Glossary



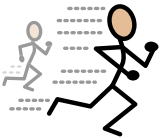
gravity - force that pulls toward the center of the Earth



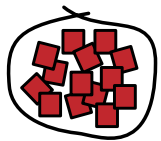
Three Laws of Motion - Newton's physical laws of motion



force - strength or energy from physical action or movement



acceleration - increase in speed



mass - the amount of "stuff" something is made up of