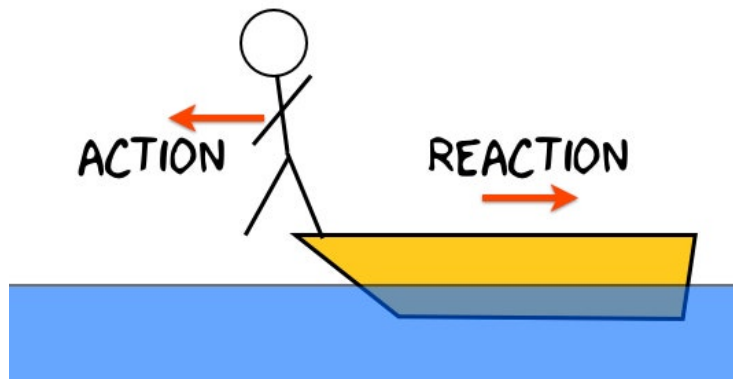


Grade 6 Science
Week of February 16 – February 19

Newton's Third Law

You're almost there; you've almost learned all of Newton's Laws of Motion! It's time to learn the final law, **Newton's Third Law of Motion**.

Newton's 3rd Law states that for every **action**, there is an **equal and opposite reaction**.

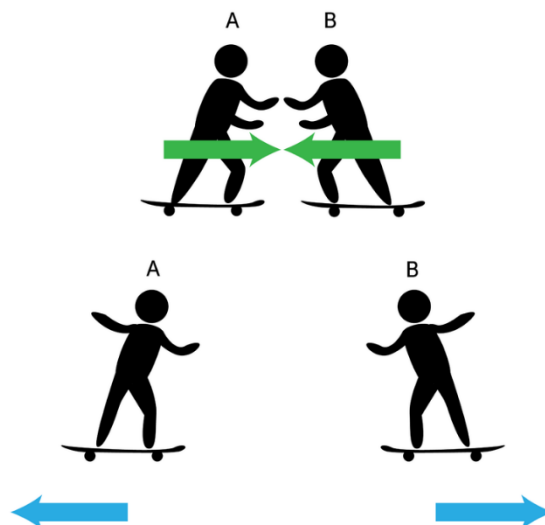


The law comes into play when forces are acting in **opposite directions**.

Let's take a look at this concept in action. In the image below, **skateboarder A** is moving **to the right**, and **skateboarder B** is moving **to the left**. They are moving towards each other, but going in opposite directions.

When skateboarder A and skateboarder B collide = **ACTION**

Skateboarder A and skateboarder B are then pushed in opposite directions away from each other = **REACTION**



Swimming and Newton's 3rd Law

When you swim, why do you push the water backward, in order to move forwards?

Action: Pushing water backward

Reaction: Your body moving forward

Watch the following video to understand further. Make sure you follow along in your Learning Guide!



Why Does a Swimmer Push the Water Back?: <https://youtu.be/6SA8-E2X7Xg>

Action & Reaction



Newton's Third Law: <https://youtu.be/MUGFT1hRTE4>

Did you know that if you push against the wall, the wall is actually pushing back against you? If you push harder, it pushes harder too.

This is the essence of **Newton's Third Law** that says:

Newton's Third Law of Motion (Action and Reaction)

If two bodies interact, the force the first body exerts on the second body will equal the force the second body exerts on the first body. The two forces will be opposite in direction and will act simultaneously (over the same interval of time).

Test this by pushing your hand down on a table. You are exerting a force on the table, but the table is exerting a force on your hand. You know this because your hand is compressed against the table - if the table didn't exert a force you wouldn't feel it!

The forces are **equal**, that is, they are the same. The forces are in **opposite** directions - your hand pushes against the table, the table pushes against your hand.

Force in Pairs

Newton's Third Law of Motion states that forces **act in pairs**; that's why this law is also known as the **Law of Force Pairs**.

Newton's Third Law of Motion = The Law of Force Pairs



Watch the video and be sure to follow along in your Learning Guide: <https://youtu.be/EQV9I4w6Ahs>

Newton's Third Law:

1. Watch the following video to answer the following question. Video: Newton's 3rd Law – Why does a swimmer

When you swim, the action is _____
and the reaction is _____.

2. Watch the following video to answer the following questions. Video: Newton's 3rd Law of Motion

When a bouncing tennis ball hits the floor, it provides a force on the floor. The reactive force is the _____ provides a force on the _____. The ball's force on the ground is in the _____ (up or down) direction, while the floor on the ball is in the _____ (up or down) direction. A bicycle tire pushes the ground _____ (backwards or forwards), while the ground pushes the tire _____ (backwards or forwards).

3. Newton's Third Law of Motion states that forces act in _____; that's why this law is also known as the _____.