What is a Force and How Does It Change Movement

KS3 Ages 11-14 ⏰ 3 min read

What Exactly is a Force?

A **force** is simply a push or a pull. It's everywhere around you! When you kick a football, you're applying a force. When you throw a ball, that's a force too. Even **gravity** — the invisible pull that keeps you stuck to the ground — is a force. Forces are measured in units called **Newtons**, named after the famous scientist **Isaac Newton**.

Everything in the universe is affected by forces. Without forces, nothing would ever move, stop, or change direction. Forces are the reason why the world works the way it does.

Think of it like... a video game character. You use your controller (the force) to push the character left or right, make them jump, or stop them in their tracks. Without your controller input, the character wouldn't move at all.

How Forces Change the Way Things Move

When you apply a force to something, it changes how that object moves. There are several ways this can happen:

Starting Movement: If something is sitting still and you push it, that force gets it moving. A stationary toy car won't roll until you push it.

Stopping Movement: If something is already moving, a force can slow it down or stop it completely. When you use the brakes on a bicycle, you're applying a force that stops the wheels spinning.

Changing Direction: A force can also change which way something is moving without stopping it. When you steer a car around a corner, you're using force to change the car's direction.

Changing Speed: A force can make something move faster or slower. When you press the accelerator pedal in a car, you're applying a force that makes the engine

work harder and the car go faster.

Think of it like... kicking a football. A gentle kick (small force) sends it rolling slowly. A hard kick (big force) sends it flying across the field super fast. Kick it from the side, and it changes direction. All different forces, all different results!

Newton's Laws Make It Simple

Isaac Newton discovered three special rules about how forces work, called **Newton's Three Laws of Motion**. The first law says that objects keep doing what they're doing unless a force makes them stop. The second law says that bigger forces cause bigger changes in movement. The third law says that every force has an equal and opposite force.

Understanding forces helps scientists, engineers, and athletes predict and control how objects will behave. It's one of the most important ideas in **physics**!