Friction: The Force That Slows Everything Down

KS2 SCIENCE FORCES AND MOTION Ages 10-13 ⏰ 3 min read

What is Friction?

Friction is a **force** that happens when two surfaces rub against each other. It acts like an invisible hand trying to stop movement. Whenever something slides, rolls, or rubs against another object, friction is at work. Even air creates friction when you move through it really fast!

Friction appears everywhere. When you slide down a playground slide, friction between your skin and the slide surface slows you down. When a ball rolls across grass, friction from the grass gradually stops the ball. Even walking relies on friction between your shoes and the ground—without it, you'd slip around like you're on ice!

Think of it like two rough sandpaper sheets rubbing together. The bumpy surfaces catch and drag against each other, making movement harder.

Why Does Friction Slow Things Down?

At a **microscopic level** (so small you can't see it), all surfaces are bumpy and rough. When two surfaces move against each other, these tiny bumps catch and stick momentarily, creating resistance. This resistance slows down movement. The rougher the surfaces, the more friction they create.

Imagine pushing a heavy box across carpet versus polished tile. The carpet has more texture, so there's more friction, making it harder to push. The smooth tile has less friction, so the box slides more easily. This happens because the bumps on the carpet's surface create more resistance than the flat tile.

Think of it like trying to run through a crowded room full of people. More people mean more bumping and slowing down—that's like rough surfaces with more friction!

Why Do We Need Friction?

Although friction slows things down, we actually need it to survive! Without friction, you couldn't walk, write with a pencil, or even hold onto objects. Car tyres need

friction with the road to grip and stop safely. Friction helps us grip things, control movement, and stay safe.

However, friction can also waste **energy**. In cars and machines, engineers try to reduce friction using lubricants like oil, which makes surfaces slippery. This helps engines run more efficiently and saves fuel. This is why we oil door hinges and bicycle chains—it reduces friction so they move more smoothly.

Think of it like a seesaw: friction is helpful when you need to stop safely, but annoying when you want something to move freely and fast.

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