



How to Measure How Fast Something Is Moving

KS3 Ages 11-14 ⌚ 3 min read

What Is Speed?

Speed tells us how fast something is moving. It measures how far something travels in a certain amount of time. When you see a car speedometer showing **60 miles per hour**, that means the car travels **60 miles in one hour**.

Speed is all around us. A runner might sprint at **10 metres per second**, while a snail might creep at just **0.03 metres per second**. The key is comparing **distance** with **time**.

The Speed Formula

Scientists use a simple formula to calculate speed:

Speed = Distance ÷ Time

Let's say you run **100 metres in 20 seconds**. To find your speed, divide **100 by 20**, which equals **5 metres per second**. That's your running speed!

Think of it like counting how many sweets you eat per minute. If you eat **30 sweets in 5 minutes**, you're eating **6 sweets per minute** on average.

Different Ways to Measure Speed

There are lots of tools we use to measure speed in real life. **Speedometers** in cars use sensors to show your speed instantly. **Radar guns** used by police bounce radio waves off moving objects to calculate how fast they're going. **GPS devices** track your location and calculate how your position changes over time to tell you your speed.

In science lessons, you might use a **stopwatch and measuring tape**. You measure the distance with the tape, time how long it takes with the stopwatch, and use the formula to work out the speed.

Average Speed vs Instant Speed

Average speed is the total distance divided by total time—it smooths out the bumpy bits of a journey. **Instant speed** (or **velocity**) is how fast something is moving at exactly that moment. When you're driving, your speedometer shows instant speed, but your overall journey speed is average speed.

Think of it like your school day average. You might run fast at playtime, but walk slowly in corridors. Your average speed for the whole day is somewhere in between.

Why Speed Matters

Understanding speed helps us stay safe and build better things. Speed limits on roads keep people safe. **Terminal velocity** (the fastest a skydiver can fall) helps design parachutes. Athletes use speed measurements to improve their performance and break records.