How Light Travels and Why We See Colours

KS3 Ages 11-14 ⏰ 3 min read

What Is Light?

Light is a form of energy that travels really fast—around **300,000 kilometres per second**. That's so quick it can travel around Earth **7 times in just one second**! Light comes from sources like the Sun, light bulbs, and even fire.

Light travels in **waves**, similar to the ripples you see when you drop a stone in water. Each wave has a certain **wavelength**—the distance between the peaks of the waves. Different wavelengths create different colours that our eyes can see.

How Does Light Travel?

Light always travels in **straight lines** unless something gets in its way. When light hits an object, three things can happen: it can pass through (like through glass), it can bounce off (called **reflection**), or it can be absorbed (soaked up by the material).

Think of it like a football kicked in a straight line. If nothing stops it, it keeps going straight. If it hits a wall, it bounces off. If it lands in mud, it gets absorbed.

Why Do We See Different Colours?

Here's the amazing part: **all colours are just different wavelengths of light**. **Red light** has a long wavelength, while **blue light** has a short wavelength. **Green light** is somewhere in the middle.

When light from the Sun hits an object, the object absorbs some wavelengths and **reflects** others back to your eyes. A **red apple** absorbs most colours but reflects red light, so you see red. A **blue shirt** absorbs most colours but reflects blue light.

Think of it like a bouncy castle that only bounces back certain coloured balls. If you throw red, blue, and yellow balls at it, maybe only the red ones bounce back to you—so you'd only see red!

How Do Our Eyes See Colour?

Your eyes are incredible detectors. When coloured light bounces into your eye, it hits the back called the **retina**, which has special cells. These cells send messages to your **brain**, and your brain figures out which colour you're looking at.

Without light, there would be no colour—just darkness. That's why you can't see colours in a pitch-black room, but when you turn on a light, colours appear!