



How Your Body Keeps Its Temperature Steady

KS4 BIOLOGY

HOMEOSTASIS

HUMAN PHYSIOLOGY

Ages 11-15



3 min read

Why Temperature Matters

Your body is like a complicated machine, and machines work best at a certain temperature. Your **body temperature** needs to stay at around **37°C** — too hot or too cold, and your organs can't do their jobs properly. Your body has an amazing control system that keeps you at exactly the right temperature, whether you're in a freezing snow storm or a hot summer's day.

Think of it like a room with a thermostat. Just as a thermostat turns the heating on when it gets cold and the air conditioning on when it gets hot, your body automatically adjusts to keep the perfect temperature.

How Your Body Detects Temperature

Your body has special sensors called **thermoreceptors** scattered throughout your skin and inside your body. These tiny detectives are constantly checking the temperature and sending messages to your **brain**, specifically to an area called the **hypothalamus** (say: hy-po-THAL-uh-mus). The hypothalamus is like your body's personal thermostat control centre.

Cooling Down When You're Hot

When you get too warm, your body springs into action. **Sweat glands** release sweat onto your skin, and as it evaporates, it cools you down. Your **blood vessels** also expand, allowing more blood to flow near your skin so heat can escape into the air. That's why you look red and feel sticky when you're hot!

Think of it like opening windows in a hot house. Your body is opening its windows (blood vessels) to let the heat out.

Warming Up When You're Cold

When you're too cold, your body uses different tricks. Your **muscles** start to shiver — tiny, rapid contractions that create heat, like rubbing your hands together on a cold day. Your blood vessels also narrow to keep warm blood close to your vital organs. You might feel goosebumps, which happen when tiny muscles at the base of your hairs try to trap warm air.

Think of it like putting on extra layers and closing the windows. Your body is wrapping itself up tight to keep the warmth in.

The Amazing Balance

This process is called **thermoregulation**, and it's one of the reasons your body is so incredible. Your hypothalamus balances all these heating and cooling systems automatically, without you even thinking about it. It's like having a 24-hour guardian keeping you in the perfect comfort zone — which lets you focus on living your life!