What is a gene?

KS2 KS3 Ages 7-14 ⏰ 2 min read

Every single cell in your body contains a complete set of instructions for building you. These instructions are called **1**, and they're written in a chemical code that's been passed down through your family for generations.

The Body's Instruction Manual

Your genes are stored inside the nucleus of every cell, wound up tightly in structures called chromosomes. Humans have 23 pairs of chromosomes, which means we have about 20,000 different genes in total. Each gene contains the instructions for making a specific protein, and proteins do most of the actual work in your body — from helping you digest food to fighting off infections.

Think of genes like recipes in a massive cookbook. Each recipe (gene) tells your body how to make a particular dish (protein). Some recipes make the proteins that determine your eye colour, others make the proteins that help your muscles grow, and still others make the proteins that keep your heart beating.

Where Do Your Genes Come From?

You inherited half your genes from your mother and half from your father. That's why you might have your mum's nose but your dad's sense of humour — different combinations of genes create the unique person that is you. Some traits, like having brown eyes, are controlled by just one or two genes. Others, like your height, are influenced by hundreds of different genes working together.

Genes Can Change

Most of the time, genes are copied perfectly from one generation to the next. But occasionally, tiny changes called **1** occur in the genetic code. Most mutations don't cause any problems at all, and some can even be helpful. For instance, a mutation thousands of years ago gave some people the ability to digest milk as adults — quite handy if you're a dairy farmer!

Understanding genes has revolutionised medicine. Scientists can now identify genes that cause certain diseases and are working on ways to fix faulty genes. It's rather like being able to spot the typos in those recipe books and correct them before they cause any trouble with the cooking.