Atoms and How They Fit Together

KS3 Ages 11-14 ⏰ 3 min read

What Are Atoms?

Atoms are the tiniest building blocks of everything around you. They're so small you can never see one, even with a regular microscope. Everything in the universe—from the air you breathe to the phone you hold—is made of atoms stuck together in different ways.

Imagine if you could keep cutting something into smaller and smaller pieces. Eventually, you'd reach a piece so tiny that you couldn't cut it any smaller without changing what it is. That's an atom.

Think of it like LEGO bricks. Just as millions of tiny LEGO blocks can snap together to build a huge castle, millions of atoms can join together to create everything in the world.

What Are Atoms Made Of?

Each **atom** has a centre called a **nucleus** (pronounced NOO-clee-us). This is like the heart of the atom. Inside the nucleus are two types of particles: **protons** (which are positively charged) and **neutrons** (which have no charge).

Buzzing around the nucleus are much tinier particles called **electrons** (which are negatively charged). The electrons zoom around the nucleus in layers, kind of like planets orbiting the sun, though they don't actually follow set paths.

Think of it like a solar system in miniature. The nucleus is like the sun in the middle, and the electrons are like planets flying around it.

How Are Atoms Arranged?

Atoms don't usually exist alone. They join together to make **molecules**. When atoms connect, they share or swap electrons with each other. This creates **bonds**—the glue that holds atoms together.

Different arrangements of atoms create different materials. Two atoms of hydrogen and one atom of oxygen join together to make a **molecule** of water. Change the

arrangement, and you get something completely different.

There are **118 different types of atoms** in nature, called **elements**. Hydrogen is the simplest and most common. You can find all of them listed on something called the **Periodic Table**. Scientists use this table to understand how atoms behave and what they can create together.

Understanding atoms helps us explain why things burn, how our bodies work, and even why the sky is blue!