What is antimatter?

KS3 Ages 11-14 ⏰ 2 min read

Every atom in your body, every speck of dust, and every star in the sky is made of something called **1**. But hidden in the universe is its mysterious opposite: **1**. Think of antimatter as matter's identical twin, except everything about it is flipped backwards.

Regular matter is made of particles like protons (which have a positive charge) and electrons (which have a negative charge). Antimatter has the same particles, but with opposite charges. So an **1** has a negative charge, and an **1** (called a positron) has a positive charge. They're like perfect mirror images of each other.

The Ultimate Explosion

Here's where things get dramatic. When a particle of matter meets its antimatter twin, they don't just bump into each other and bounce off. They completely destroy each other in a process called **1**, converting all their mass into pure energy. This creates the most powerful explosion possible — far more powerful than nuclear bombs.

Imagine if every time you high-fived your reflection in a mirror, both you and your reflection would vanish in a flash of light. That's essentially what happens when matter and antimatter meet — except the "flash" contains enough energy to power a city.

Why Don't We See Antimatter Everywhere?

If antimatter exists, why isn't it all around us? The simple answer is that it would have already destroyed itself. In the early universe, scientists think there were equal amounts of matter and antimatter. Most of it annihilated, but somehow regular matter won out by just a tiny bit. That leftover matter became everything we see today — planets, stars, and us.

Making Antimatter Today

Scientists can create tiny amounts of antimatter in powerful machines called particle accelerators. But we're talking about incredibly small quantities — all the antimatter

ever made by humans wouldn't be enough to boil a cup of tea. It's also fantastically expensive to produce and nearly impossible to store, since it would annihilate the moment it touches any container made of regular matter.

Despite these challenges, antimatter isn't just science fiction. It's already being used in medical scanners called PET scans, and scientists dream of using it as the ultimate rocket fuel for space travel. After all, no fuel could be more efficient than one that converts 100% of its mass into energy.