What is acid rain?

KS2 KS3 Ages 7-14 ⏰ 2 min read

When you think of rain, you probably picture clean, fresh water falling from the sky. But sometimes, that rain picks up some unwelcome passengers on its journey down — chemicals that turn it slightly acidic. This is called **acid rain**, and while it won't burn holes through your umbrella, it can cause some serious problems for our planet.

How Does Rain Turn Acidic?

Normal rain is actually already a tiny bit acidic — about as acidic as black coffee. But acid rain is much more acidic, closer to lemon juice or vinegar. This happens when certain gases in the air, mainly sulphur dioxide and nitrogen oxides, mix with water droplets in clouds.

These troublesome gases mostly come from burning fossil fuels in power plants, factories, and cars. When coal burns in a power station, for example, it releases sulphur dioxide into the atmosphere. Up in the clouds, this gas reacts with water and oxygen to form sulphuric acid — the same stuff you'd find in a car battery, just much weaker.

Think of the atmosphere like a giant chemistry lab where invisible reactions are constantly bubbling away. The clouds become mixing bowls, stirring together water and pollution to create a weak acid cocktail that eventually falls as rain.

What Damage Does It Cause?

Acid rain is particularly nasty to things made of limestone and marble. Many old buildings, statues, and monuments are slowly being eaten away by acid rain, like a very slow-motion horror film. The acid dissolves the stone, leaving behind pitted surfaces and crumbling details that took craftspeople years to carve.

But the damage isn't limited to human-made structures. Acid rain makes lakes and rivers more acidic, which can kill fish and other water creatures. It also damages forests by washing important nutrients out of the soil and harming tree roots.

The Good News

Here's the encouraging bit: acid rain has actually become much less of a problem in many countries over the past few decades. Governments have introduced stricter rules about pollution from power plants and factories, and many have installed special equipment to remove harmful gases before they escape into the atmosphere. Cars have also become much cleaner thanks to catalytic converters and stricter emissions standards.

So while acid rain hasn't disappeared completely, we've proven that when we put our minds to it, we can tackle even invisible environmental problems floating around in our atmosphere.

Free for educational use