



# Understanding Acids and Alkalis Explained Simply

KS3 Ages 11-14 ⌚ 3 min read

## What Are Acids and Alkalis?

Everything around you is made of tiny invisible particles called **atoms** and **molecules**. Some of these particles have special properties that make things acidic or alkaline. But what does that actually mean?

**Acids** are substances that taste sour and can eat away at things. **Alkalis** (also called **bases**) are the opposite—they're slippery and bitter-tasting. When you mix an acid and an alkali together, they can neutralize each other in a **chemical reaction**.

Think of it like: Acids and alkalis are like two teams playing opposite positions in a game. When they meet, they try to balance each other out and create something new.

## What's Inside Acids and Alkalis?

The secret lies in something called **hydrogen ions**. These are tiny charged particles made from hydrogen atoms. Acidic substances have lots of hydrogen ions floating around in them. The more hydrogen ions something has, the more acidic it is.

Alkaline substances work the opposite way. They have fewer hydrogen ions and more **hydroxide ions** instead. So acids and alkalis are really just different arrangements of these special particles.

## How Do We Measure Acidity?

Scientists use something called the **pH scale** to measure how acidic or alkaline something is. The scale runs from **0 to 14**. A pH of 7 is perfectly neutral—neither acidic nor alkaline. Water has a pH of about 7.

Anything below 7 is acidic. The lower the number, the more acidic it is. Lemon juice has a pH of about 2, and stomach acid is even stronger at around 1. Anything above 7 is alkaline. Baking soda has a pH of about 8, and bleach is much more alkaline at around 13.

Think of it like: The pH scale is like a seesaw. When it tips one way, you've got acid; when it tips the other way, you've got alkali; right in the middle is perfectly balanced.

## **Where Do We Find Acids and Alkalis?**

Acids and alkalis are everywhere! Vinegar, orange juice, and tomatoes are acidic. Soap, ammonia, and washing powder are alkaline. Your own stomach produces **hydrochloric acid** to help digest food. Understanding these differences helps scientists and doctors keep us safe and healthy.