Acids and Bases: What Makes Them Different

KS4 CHEMISTRY Ages 11-16 ⏰ 3 min read

What Are Acids and Bases?

Everything around you is made of **atoms** and **molecules**. Some of these molecules behave in special ways when dissolved in water. **Acids** and **bases** are two types of chemical substances that have opposite properties, like two sides of a coin.

An **acid** is a substance that tastes sour, like lemon juice or vinegar. A **base** is the opposite—it tastes bitter and feels slippery, like soap. Both acids and bases are found everywhere: in your stomach, in cleaning products, in food, and even in the soil where plants grow.

Think of it like: Acids and bases are like rival teams in a game. When they meet, they're always trying to react with each other to find balance.

How Do We Measure Acids and Bases?

Scientists use something called the **pH scale** to measure how acidic or basic a substance is. The scale runs from **0 to 14**. A pH of **7** is neutral—neither acidic nor basic. Anything below **7** is acidic, and anything above **7** is basic (also called **alkaline**).

For example, stomach acid has a pH of about **2** (very acidic), pure water is **7** (neutral), and baking soda has a pH of about **8** (slightly basic).

Think of it like: The pH scale is like a thermometer, but instead of measuring temperature, it measures how acidic or basic something is.

What Happens When Acids and Bases Meet?

When an **acid** and a **base** mix together, they react with each other in a process called **neutralization**. During this reaction, they cancel each other out and create new substances, usually **salt** and **water**.

This is why baking soda (a base) can neutralize stomach acid when you have indigestion. It's also why we add bases to soil that's too acidic—to make it better for

growing plants.

Why Does This Matter?

Understanding acids and bases is important for many real-world situations. Your body carefully controls acid and base levels in your blood to keep you healthy. Factories need to know about acids and bases to make products safely. Gardeners use pH knowledge to help their plants thrive. Even your teeth depend on controlling acid—that's why dentists warn against sugary drinks that create acid in your mouth.

Acids and bases are fundamental to **chemistry**, and chemistry is everywhere in the world around us.