



Aerobic Respiration: How Bodies Get Energy to Live

KS4 BIOLOGY

KS3 SCIENCE

Ages 11-16 ⌚ 3 min read

What is Aerobic Respiration?

Aerobic respiration is the process your body uses to turn food into energy. It happens in almost every cell you have, and it requires **oxygen** to work. When you eat food like bread, fruit, or pasta, your body breaks it down into a simple sugar called **glucose**. Then your cells use oxygen to release the energy stored in that glucose.

The main equation for aerobic respiration is: **glucose + oxygen = carbon dioxide + water + energy**. This happens billions of times every single day inside your body.

Think of it like a campfire: the wood is like glucose, the oxygen from the air makes it burn, and the heat and light released are like the energy your body gets.

Where Does It Happen?

Aerobic respiration takes place in tiny structures inside your cells called **mitochondria**. Scientists sometimes call mitochondria the "powerhouses" of the cell because they're where most of your energy gets made. Each cell can have hundreds or even thousands of mitochondria, depending on how much energy that cell needs.

Why Do We Need It?

Without aerobic respiration, you couldn't do anything. You need energy for your heart to beat, your brain to think, your muscles to move, and even just to keep warm. When you exercise, play sports, or run around, your cells need much more energy, so they speed up aerobic respiration to give your muscles the power they need.

Think of it like charging a phone: glucose is like the electricity, oxygen is like plugging it in, and the energy released is like the charge that makes your phone work.

What Happens to the Waste?

When your body does aerobic respiration, it makes **carbon dioxide** and **water** as waste products. Your blood carries the carbon dioxide to your lungs, and you breathe

it out every time you exhale. The water gets used throughout your body or becomes sweat.

This is why you breathe faster when you exercise—your muscles are doing aerobic respiration faster, making more carbon dioxide that needs to be removed.