



# How Cells Divide to Make New Cells

KS4 BIOLOGY

Ages 11-14 ⌚ 3 min read

## Why Do Cells Need to Divide?

Your body is made of trillions of **cells**, and they're constantly dying and being replaced. Every second, millions of your cells are dividing to create new ones. This happens so you can grow, heal from injuries, and replace old or damaged cells. Without cell division, you wouldn't be able to get bigger, and you wouldn't be able to repair scraped knees or cut fingers.

Cells divide in two main ways: **mitosis** and **meiosis**. Most of your body uses mitosis, but meiosis is the special process that creates **sex cells** (sperm and eggs).

## What is Mitosis?

**Mitosis** is when a cell splits into two identical copies of itself. Before the split happens, the cell makes a perfect copy of its **DNA** — the instruction manual inside every cell that tells it how to work. Then the cell carefully divides, giving each new cell a complete set of instructions.

Think of it like photocopying a recipe book. First you copy all the pages so you have two identical books, then you split them between two people. Each person now has the complete recipe book to follow.

Mitosis happens in **four main stages**. First, the **DNA** copies itself and gets tightly coiled up. Next, these coiled bundles (called **chromosomes**) line up in the middle of the cell. Then, special threads pull the chromosomes to opposite sides. Finally, the cell pinches in the middle and splits into two new cells. This whole process usually takes a few hours.

## What is Meiosis?

**Meiosis** is a different kind of cell division that only happens when your body makes sex cells. Unlike mitosis, meiosis creates **four cells**, and each one has **half** the **DNA** of the parent cell. This is important because when a sperm and egg join together, they combine their DNA to create a baby with a full set of instructions from both parents.

Think of it like two people each bringing half a recipe book. When they combine their books, they have all the recipes needed to cook amazing meals together.

## Why Does This Matter?

Cell division isn't just about growing taller — it's happening inside your body right now. Your **bone marrow** is making new blood cells, your **skin** is making new skin cells, and your **intestines** are replacing cells that wear out from digestion. Without this constant division, your body would stop working.