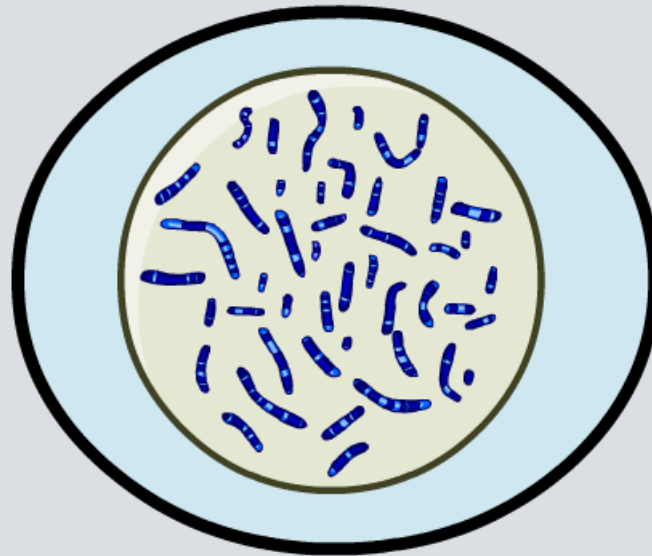


## Mitosis



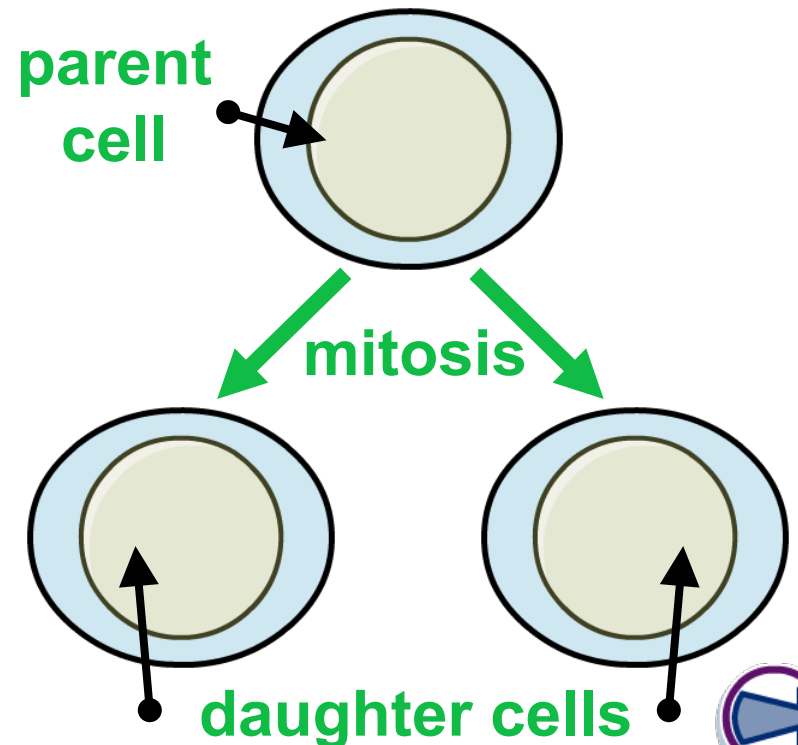
Most animals and plants start off life as just a single cell, but grow to become adults containing billions and billions of cells.

How does one cell become billions and billions of cells?

The type of cell division that makes animals and plants grow is called **mitosis**.

In mitosis, a **parent** cell divides into two identical **daughter** cells. These daughter cells divide in two, and so on.

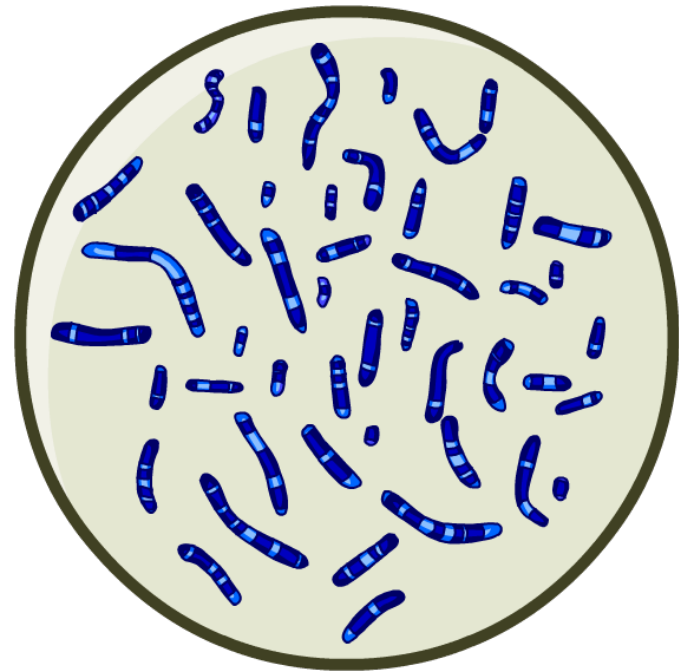
Mitosis is also the way in which old and damaged cells are replaced.



The two daughter cells produced by mitosis are genetically identical to the parent cell. What does this mean?

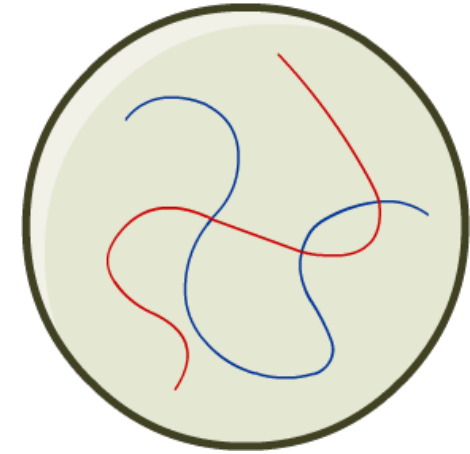
All the genes and chromosomes from the parent cell must be copied and passed on to the daughter cells.

Normally, a cell only contains one copy of each chromosome, but before dividing a cell must duplicate all its chromosomes. This means that all the genes will also be duplicated.

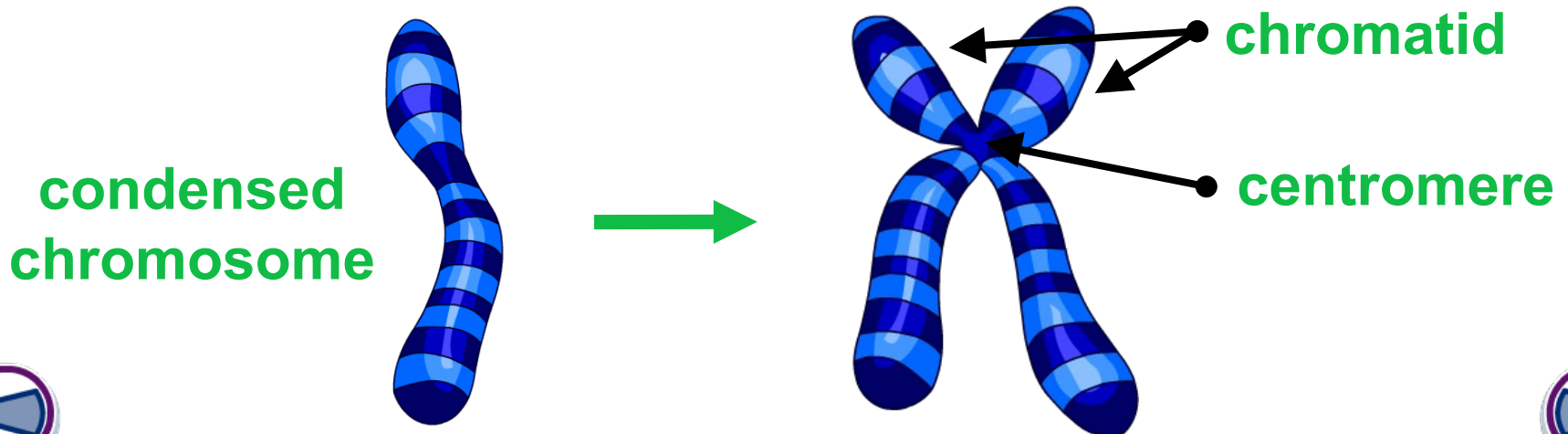


# Duplicating chromosomes

A cell's chromosomes are usually long, thin strands. Just before the cell divides, however, the chromosomes become shorter, thicker and more visible. They are said to **condense**.



Each chromosome duplicates and becomes two strands, each one called a **chromatid**. The two chromatids are joined at the **centromere**.



# What are the stages of mitosis?

Once the chromosomes have duplicated, mitosis takes place. This is a continuous process but can be divided into several parts:

- Each chromosome replicates so it contains two identical chromatids.
- The chromosomes align in the middle of the parent cell.
- The two chromatids in each chromosome are pulled apart into separate halves of the cell.
- The cell splits in two to produce two daughter cells, each containing the same chromosomes.

Mitosis involves copying a cell and its chromosomes exactly, so it is sometimes called **copying division**.

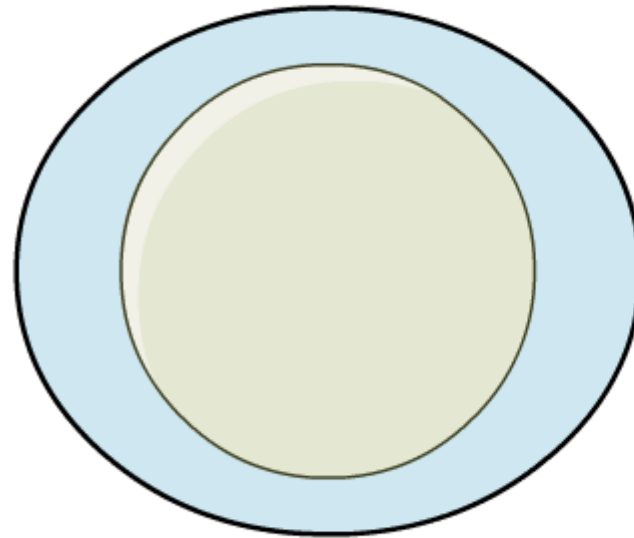




## What happens during mitosis?

Mitosis is cell division that produces two identical body cells. It is used during growth, and to replace old and damaged cells.

Click the cell or "**play**" to find out what happens.





## What is the order of stages in mitosis?

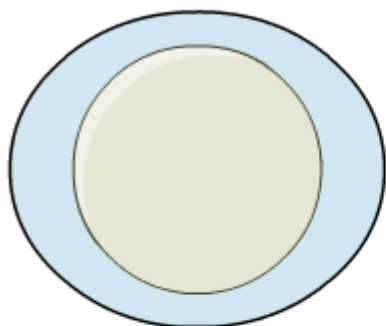
- 1 the cell divides into two daughter cells
- 2 chromosomes align in the center of the cell
- 3 chromosomes become shorter and thicker
- 4 chromatids move to opposite sides of the cell
- 5 spindle fibers shorten, separating the chromosomes
- 6 spindle fibers attach to the chromosomes



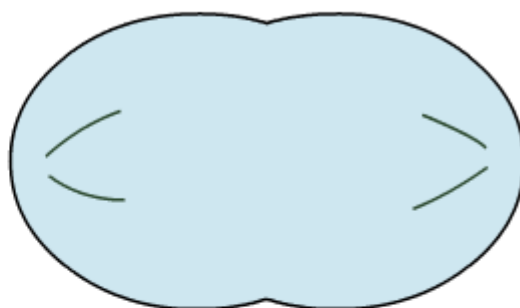
solve



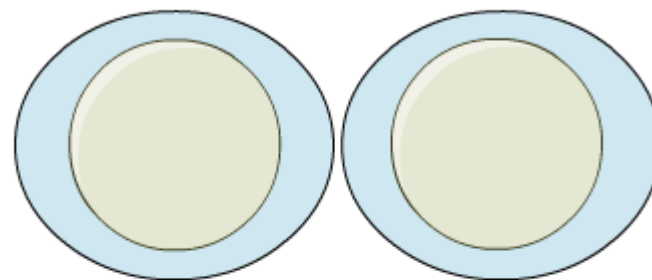
## What happens to chromosomes during mitosis?



parent cell



cell division



daughter cells

chromosome bank



solve

