

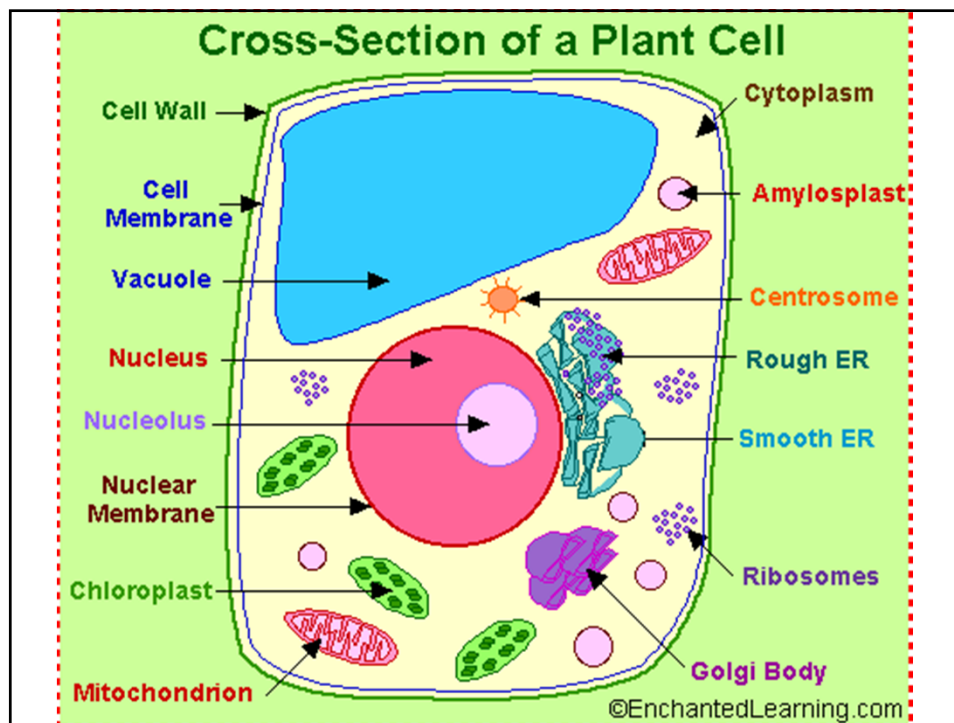
Cell Division

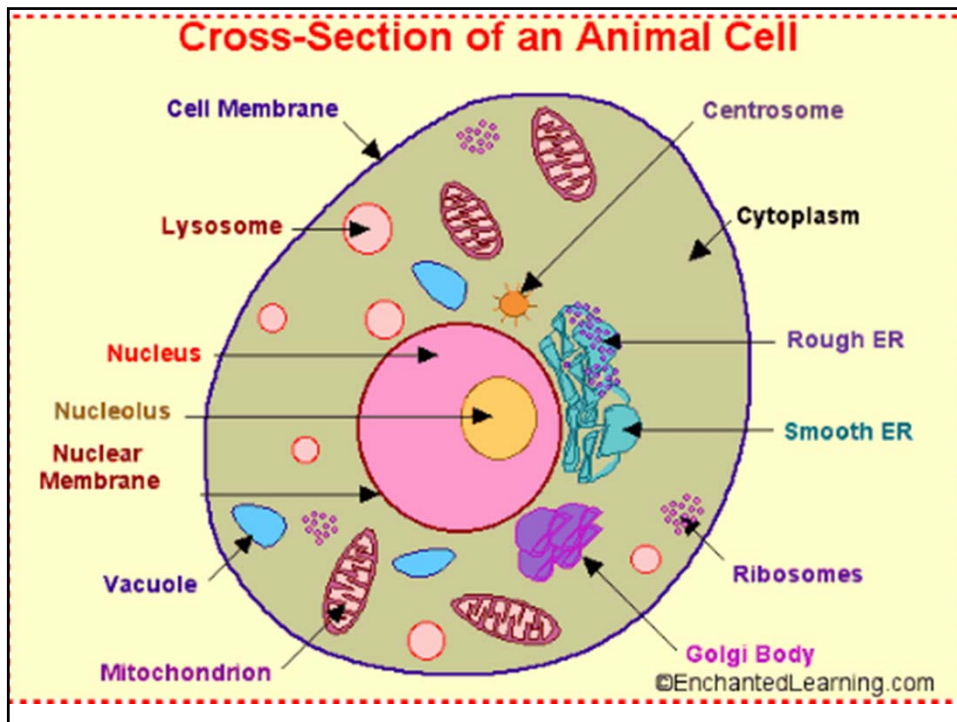
(Mitosis)

Parts of Cells

- Cell membrane
 - Semi-permeable membrane surrounding cell
 - Controls entry into and out of cell
- Cell wall
 - Shapes and supports a plant cell
 - Made of fibers of cellulose
 - Only plant cells have cell walls

- Nucleus
 - Spherical, often in center, bounded by membrane
 - Contains information to run cell
 - cell's brain
 - chromosomes are found here
- Chromosomes
 - Contain code which guides all cell activities
- www.cellsalive.com/cells/cell_model.htm

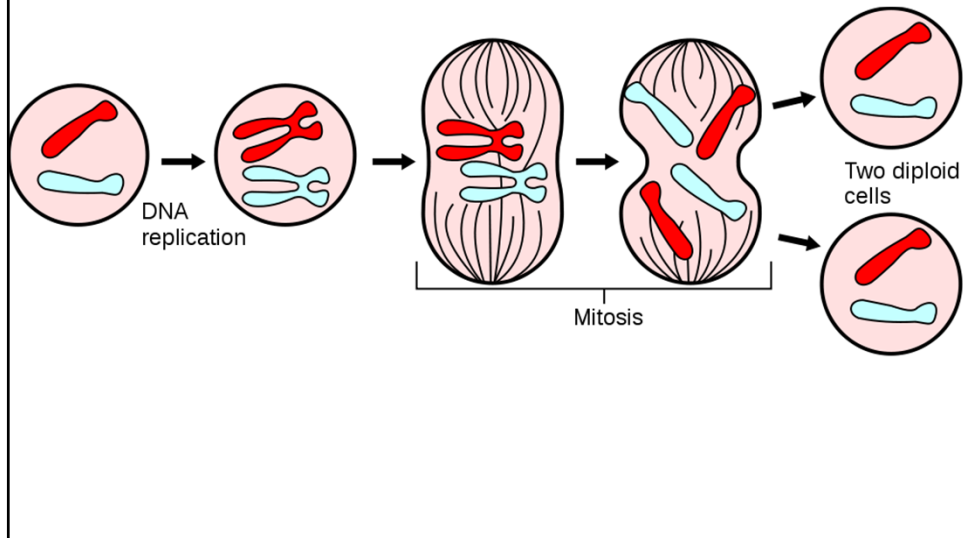




Mitosis

- **Mitosis** is when a cell divides itself in half to make two identical copies
 - The copies are called daughter cells
- Before mitosis, the cell creates an identical set of genetic information
- The duplicated genetic information then winds up into a visible object called a chromosome.

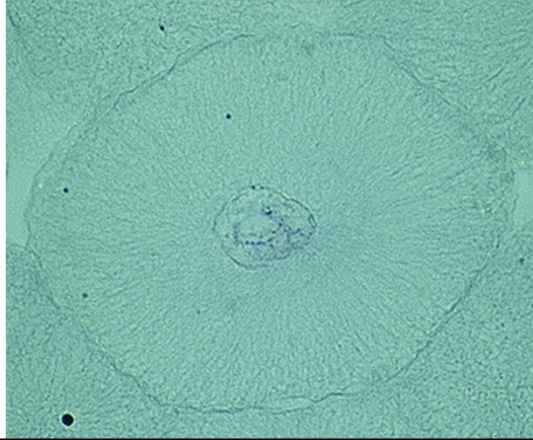
- Mitosis happens in almost all types of cells in the human body



- The process of mitosis is fast and highly complex.
- The sequence of events is divided into phases used to describe what kind of change the cell is going through.
- The phases are
 - Interphase
 - Prophase
 - Metaphase
 - Anaphase
 - Telophase

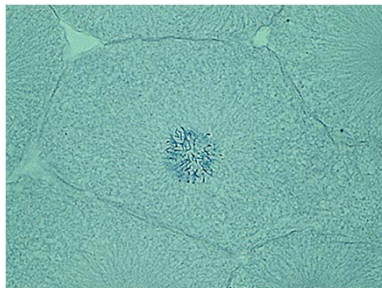
Interphase

- the beginning stage where chromosomes start to duplicate



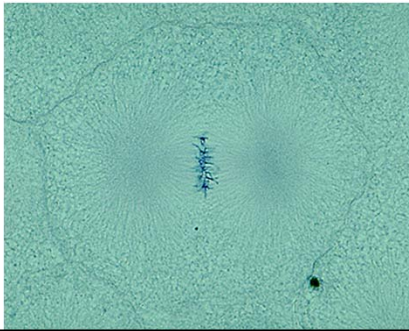
Prophase

- Chromosomes in the nucleus condense, pairs of centrioles move to opposite sides of the nucleus, spindle fibers form a bridge between the ends of the cell, and the nuclear envelope breaks down



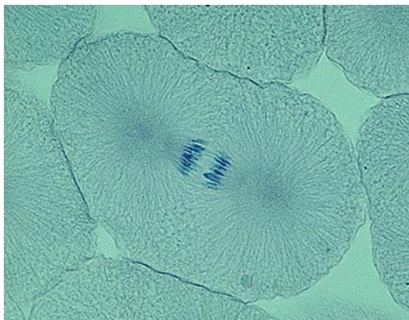
Metaphase

- the chromosomes are pulled into place by spindle fibers
- the chromosomes line up on the cell's center line and are prepared for division.



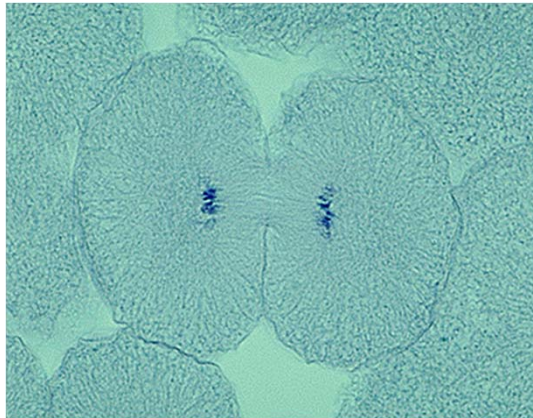
Anaphase

- The chromosomes move from the cell's center to their respective ends of the cell
- The cell begins to stretch out as the opposite ends are pushed apart



Telophase

- One complete set of chromosomes is now at each pole of the cell
- The spindle fibers begin to disappear, and a nuclear membrane forms around each set of chromosomes
- Single stranded chromosomes uncoil into invisible strands of chromatin



- www.johnkyrk.com/mitosis.html
- cellsalive.com/mitosis.htm

Summary

- Cells divide to give exact copies of themselves (called daughter cells) by a process called mitosis
- The process is very quick
- The process is continuous (it does not stop between phases)
- The process is constantly happening in all organisms