



Objectives

✿ Identify and describe the function of the following organelles:

- ✿ Cell Membrane
- ✿ Cytoplasm
- ✿ Nucleus
- ✿ Nucleolus
- ✿ Ribosome
- ✿ Endoplasmic Reticulum
- ✿ Golgi Apparatus
- ✿ Lysosome
- ✿ Mitochondria
- ✿ Centriole

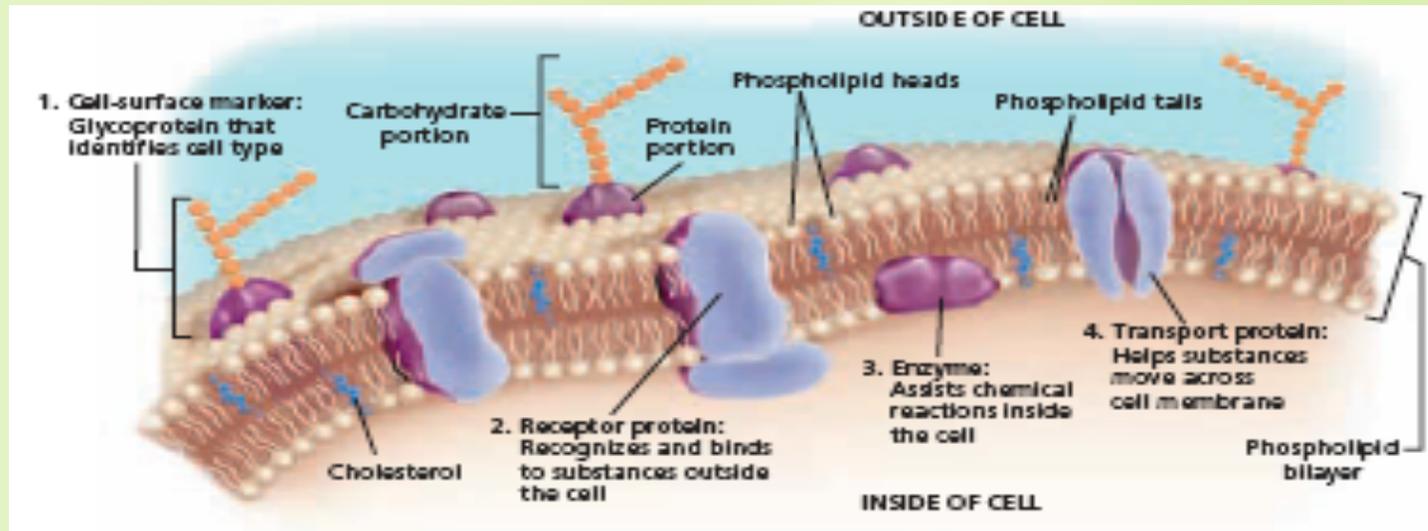




Organelles

- ✿ **Organelles** are small structures in or on a cell that carry out a particular function.
- ✿ They are similar to the organs of the human body because each organelle has a specific job to do.
- ✿ Eukaryotes have distinct membrane bound organelles and prokaryotes do not.

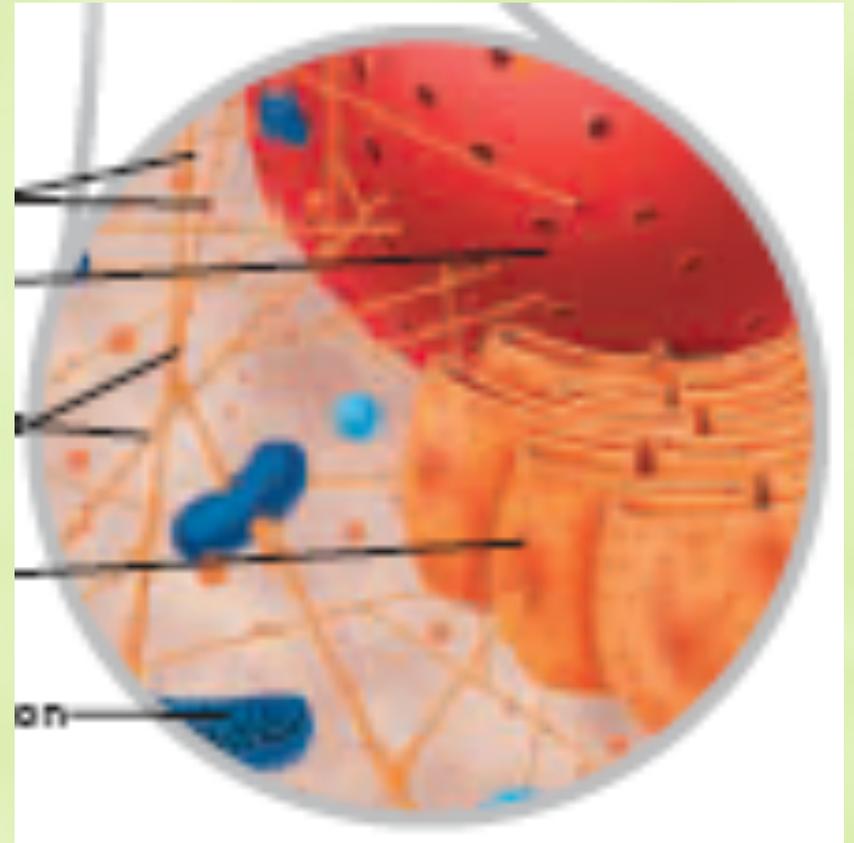
Cell Membrane



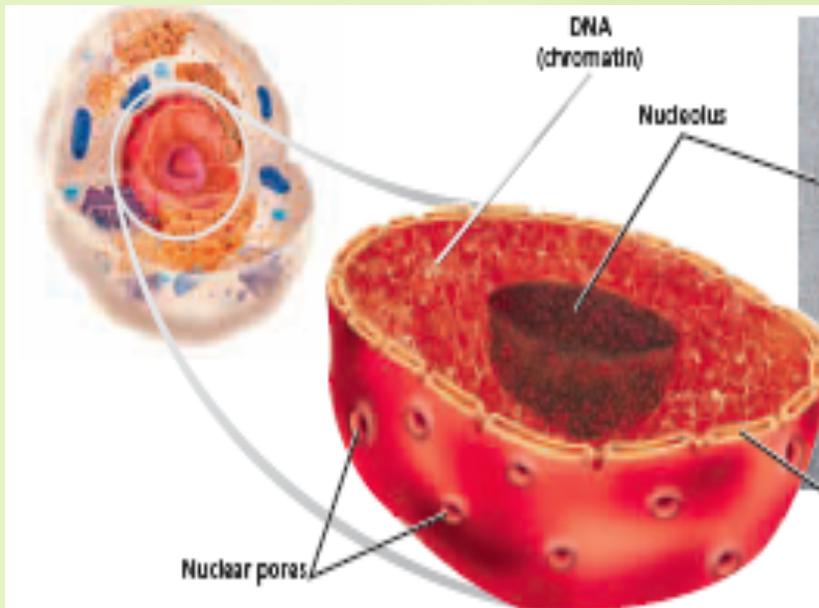
- ✿ Cell membranes are made up of 2 layers of **phospholipids**.
- ✿ Phospholipids have a hydrophilic (water loving) and hydrophobic (water fearing end.)
- ✿ Plasma membranes also make up the outer membranes of other organelles within the cells.
- ✿ The **fluid mosaic model** shows proteins in the cell membrane to help regulate the flow of materials in and out of the cell.

Cytoplasm

- ✿ As we have already learned, the **cytoplasm** is the inner part of the cell where the organelles and other materials are located.
- ✿ The cytoplasm includes the liquid medium of the cell called **cytosol**.
- ✿ There are also microtubules, microfilaments, and intermediate filaments that create a **cytoskeleton** to maintain the cell's shape.



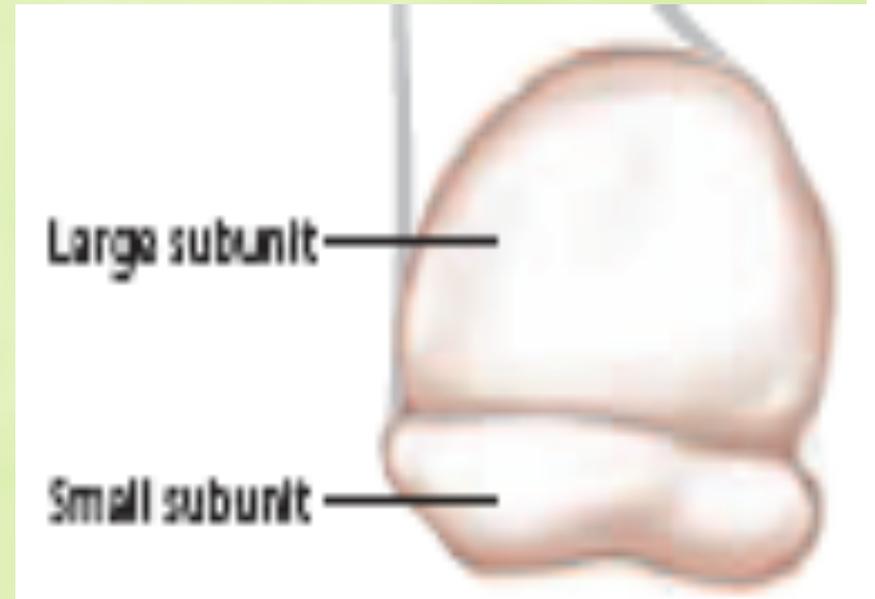
Nucleus



- ✿ The functions of a cell are controlled by its **nucleus**.
- ✿ The nucleus houses and protects the cell's genetic information in the form of chromosomes (DNA).
- ✿ Most nuclei have an area of dense genetic material called the **nucleolus**.

Ribosome

- ✿ **Ribosomes** are small sphere shaped and have a large subunit and a small sub unit that produce proteins.
- ✿ They decode the genetic material from the DNA and RNA to produce different proteins as needed by the cell.

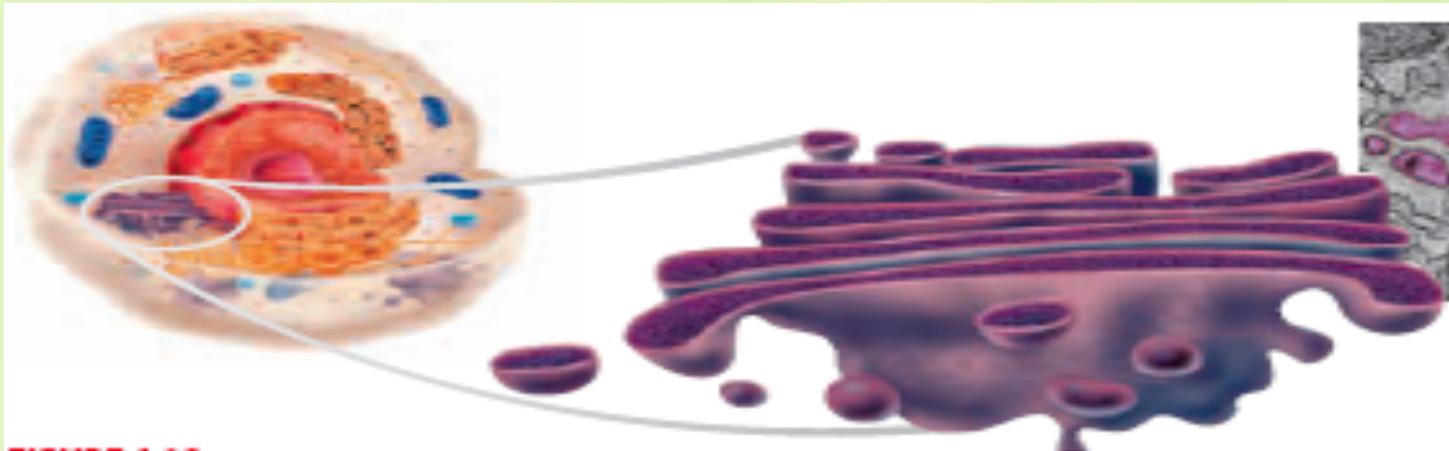


Endoplasmic Reticulum

- ✿ The **Endoplasmic Reticulum (E.R.)** is the organelle responsible for the movement of materials throughout the cell. (The cell's highway system.)
- ✿ **Rough E.R.** contains ribosomes that produce protein for use by the cell's membranes.
- ✿ **Smooth E.R.** builds lipids and produces some hormones.



Golgi Apparatus



- ✿ The **Golgi Apparatus** is the “packing and shipping” center of the cell.
- ✿ It takes in the proteins and lipids, stacks them and sends them to the parts of the cells that need them.

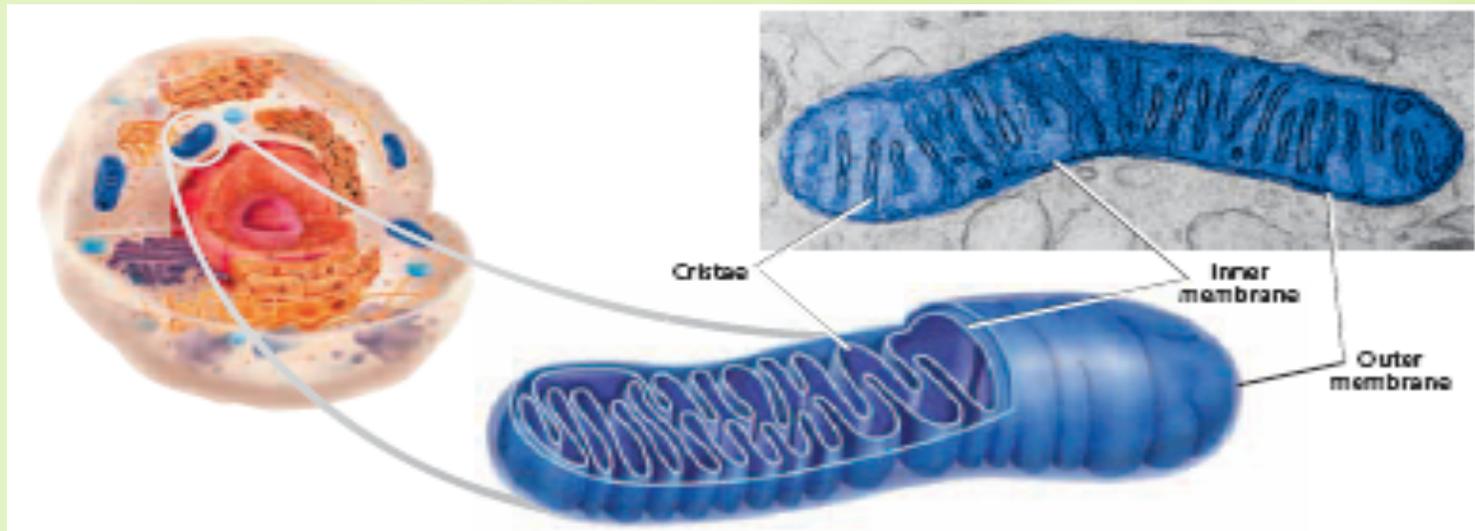
Lysosome



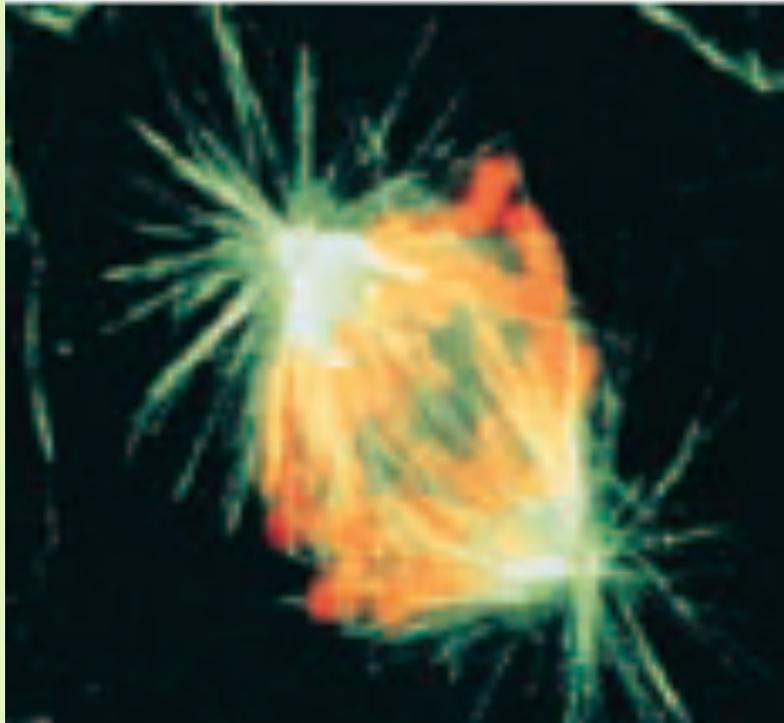
- ✿ **Lysosomes** are the “digestive” organelles of a cell. They break down materials brought into the cell including carbohydrates, proteins, & lipids.
- ✿ They will also break down worn-out organelles that the cell doesn't need anymore.

Mitochondria

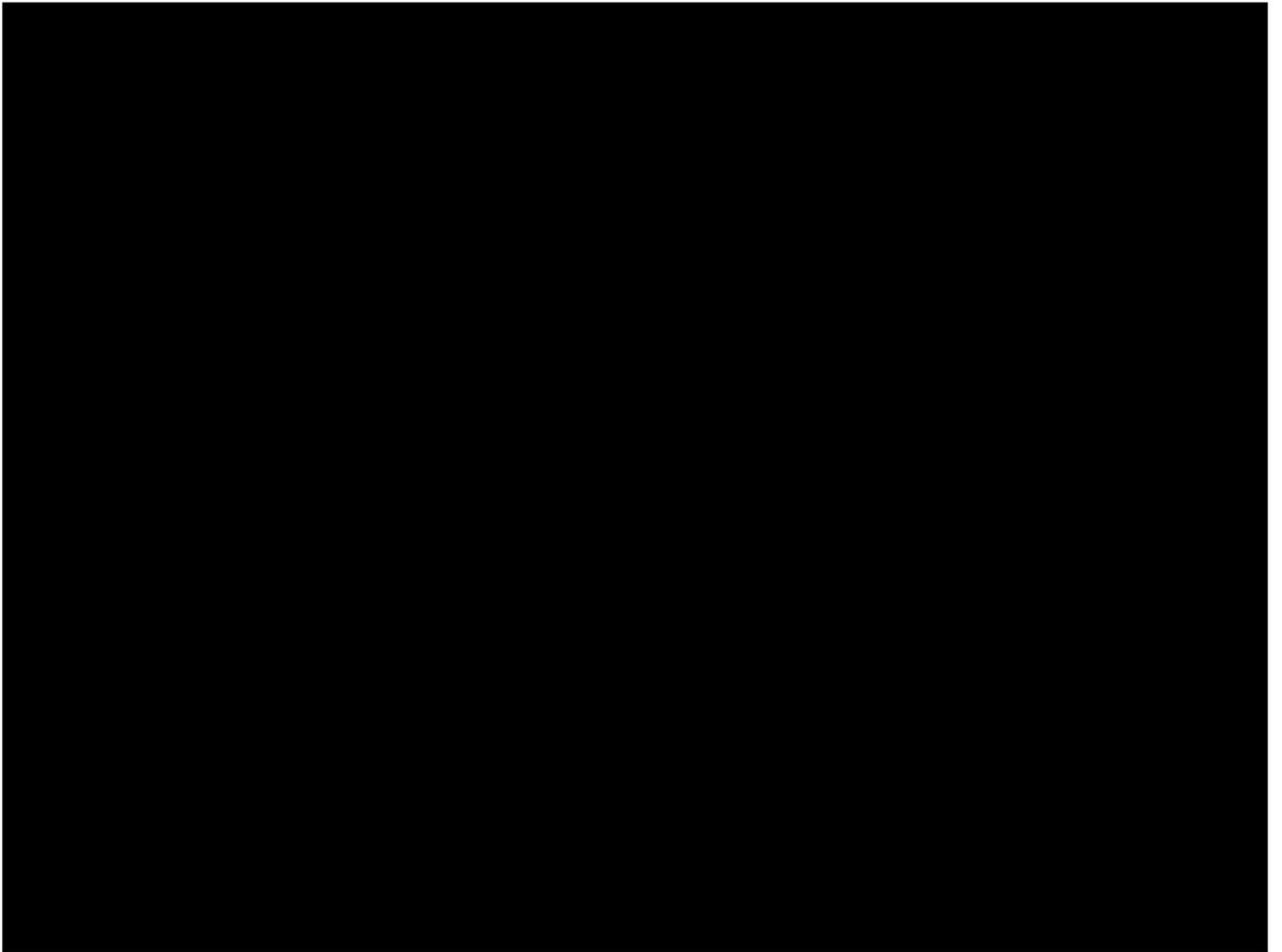
- ✿ The **mitochondria** are the “powerhouse” of the cells.
- ✿ Most cellular respiration occurs in the mitochondria.
- ✿ They produce **ATP** which is the functional unit of energy for most living cells.
- ✿ The higher the activity of a cell, the higher the number of mitochondria.



Centrioles



- ✿ A cell's **centriole** is located near the nucleus and consists of two short cylinders made up of microtubules.
- ✿ They help organize the cytoskeleton during cellular division and reproduction.



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