

## Chapter 2: Eukaryotic Cell Structure

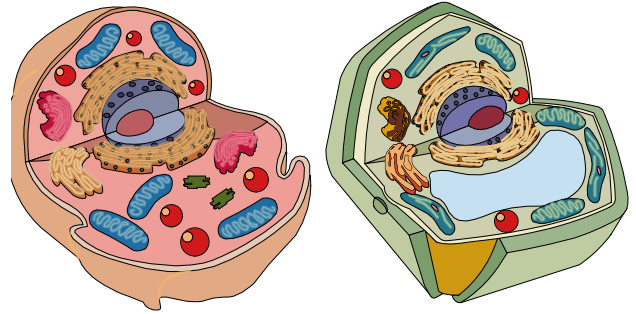
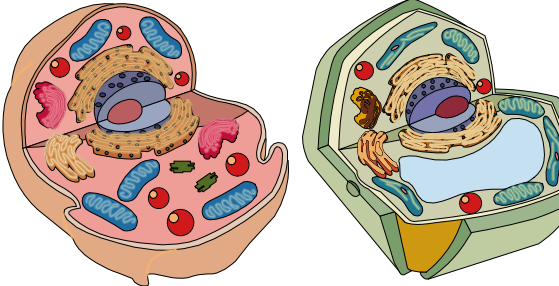
(Tb - Section 7-2 p. 174 - 181)

### Types of cells

There are two known types of cells:

- 1) Animal cells
- 2) Plant cells

Each of these types share some characteristics, but also have unique ones of their own.



What are some of the similarities of these cells?

What are some of their differences?

Cells are filled with small structures that perform specific jobs. Just like organs do specific jobs for your body, **organelles** do specific jobs for your cells.

\*hand out organelle worksheet\*

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webcode cbp-3072

<http://www.phschool.com/webcodes10/index.cfm?wcprefix=cbp&&fuseaction=home.gotoWebCode&x=0&y=0>

Check out Cells Alive as well

### Cell boundaries

#### Cell Membrane

Both plant and animal cells are bound by a **cell membrane**. This organelle acts like a barrier between this internal cell and the outside environment.

The cell membrane also permits / denies the entrance and exit of many molecules, nutrients and waste materials.

#### Cell Wall

The cell wall is present **only in plant cells**. It is a tough, flexible external layer made of cellulose used to reinforce the cell.

### Inside the Cell

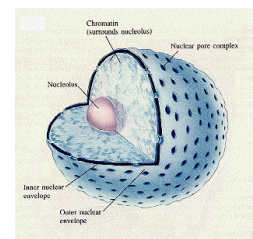
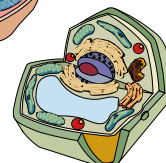
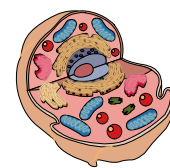
The inside of the cell is made of two **major** parts:

- 1) The nucleus
- 2) The cytoplasm.

### The nucleus

The nucleus is an enclosed structure that contains most of the cell's genetic material (DNA). The DNA is a series of coded instructions for making proteins and other important molecules.

The membrane that separates the inside of the nucleus from the rest of the cell is called the nuclear membrane.



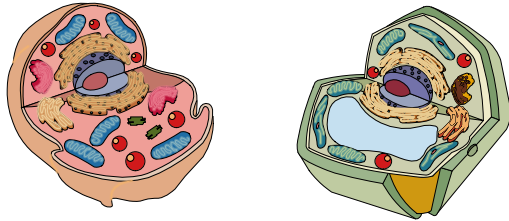
The nuclear membrane is riddled with **pores**, or holes through which some molecules can move in or out of the nucleus.

Inside the nucleus is found the **nucleolus**. Ribosomes are created and assembled inside the nucleolus.

Ribosomes are used to create proteins, using instructions from the cell's DNA in the nucleus.

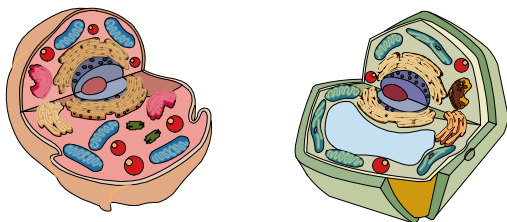
### Cytoplasm

The cytoplasm is everything inside the cell, but outside the nucleus in which everything else is located.



### The Golgi Apparatus:

The golgi apparatus is a series of layered membranes in which proteins and other materials are modified, sorted and packaged for storage and secretion of the cell.



### Vacuoles:

These are sac-like structures that are used to store materials such as food, water and wastes.

Animal cells have many small vacuoles.

Plant cells have very large vacuoles filled with water to give the cell more strength and support.

## Other organelles inside the cell

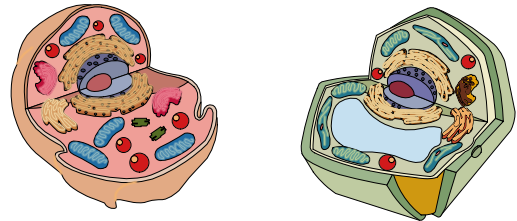
### The Endoplasmic Reticulum

In this organelle, lipids are produced and assembled. The ER is then used to transport the lipids, as well as proteins and other molecules, across the cell.

There are two types of ER:

Smooth ER: has no ribosomes on the outside surface.

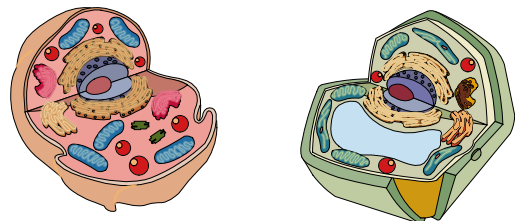
Rough ER: has ribosomes on the outside surface.



### Lysosomes

These organelles are responsible for the clean-up of cellular materials. They break down old organelles and food molecules for use by the cell.

They can recycle materials, or several can release their contents at once to kill the cell ("suicide sacks").



### Mitochondria

Mitochondria convert the chemical energy stored in food molecules into components the cell can use for energy.

### Chloroplasts

These exist only in plant cells, and capture the sun's energy and use it to convert water and carbon dioxide into sugars the plant can use for energy.

The pigment **chlorophyll** is found in the chloroplasts and give the plant its green colour.

Cytoskeleton:

This is a network of protein filaments and tubes that help the cell maintain its shape.

The cytoskeleton is also involved in the movement of the cell, and transport of materials within.

<http://www.studystack.com/hangman-116838>