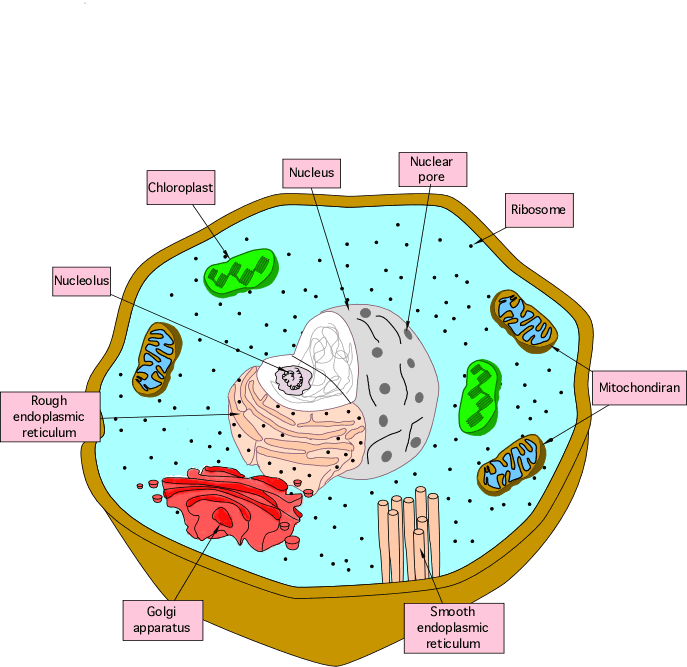
**Biology 11: The Cell**

Date: Name:



By the end of the lesson you should be able to:

* State the 2 types of cells
* Relate the structure to function for all the organelles

**Types of Cells**

There are two types of cells:

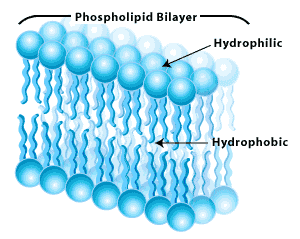
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

( )

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

( )

**Cell Membrane**

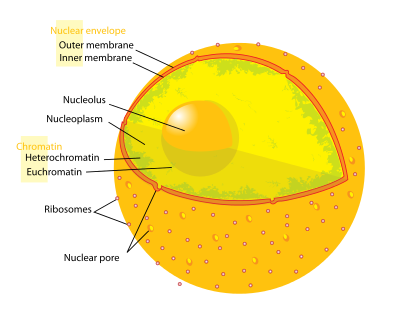
* AKA: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Confines the cytoplasm
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Made of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Structure of Cell Membrane**

* The fatty acid tails are “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
* The phosphate heads are “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
* There are proteins embedded in the membrane to transport molecules through

the membrane

**Nucleus**

* The “control centre” of the cell as it regulates gene expression, in-turn \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the cell.
* Houses the nucleoplasm, DNA and nucleolus
* Enclosed by the nuclear membrane which is connected to the rough endoplasmic

reticulum (RER)

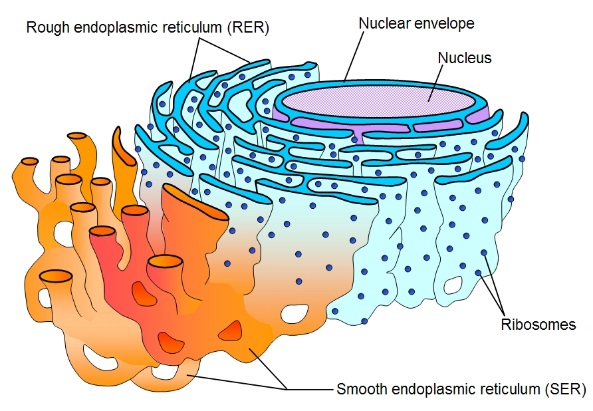
**Nucleolus**

* Found inside the nucleus and makes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Nuclear Membrane**

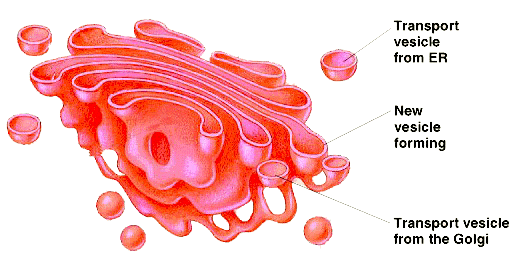
* Also called the nuclear envelope, a barrier that prevents the passage of materials into the nucleus while keeping the genetic material (DNA) inside the nucleus
* Has many holes called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which regulate the passage of chemical messengers into the nucleus and allows \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (a small copy of some DNA) to exit.

**RER & SER**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Made of cell membrane folded into sacs
* There are two types:
  + Rough: has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ attached
  + Smooth: no ribosomes attached
  + RER: processes \_\_\_\_\_\_\_\_\_ and sends them to the Golgi Apparatus
  + SER: makes \_\_\_\_\_\_\_\_\_, detoxifies poisons, drugs and other toxins

**Ribosomes**

* Found attached to the RER and floating in the cytoplasm
* Are the site of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

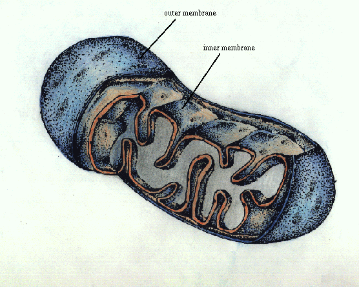


**Golgi Body**

* AKA: Golgi Apparatus or Golgi Complex
* Made of flattened sacs of cell membrane
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ proteins

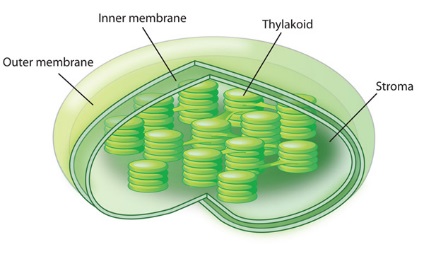
via \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a process called \_\_\_\_\_\_\_\_\_\_\_\_

**Vacuoles & Vesicles**

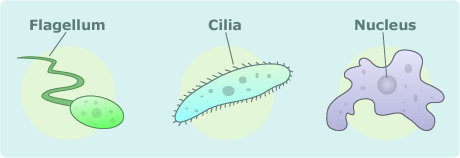
* Membrane bound \_\_\_\_\_\_\_\_\_\_\_\_ used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Formed from ER and Golgi Apparatus
* Vesicles (small) are typically for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and vacuoles (large) for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

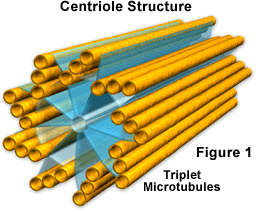
**Mitochondria**

* "Powerhouse of the cell"
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chloroplast**

* Site of photosynthesis, found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Uses \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to convert light energy into chemical energy (glucose)

**Flagella & Cilia**

* Made of microtubules
* Flagella: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Cilia: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Centrioles**

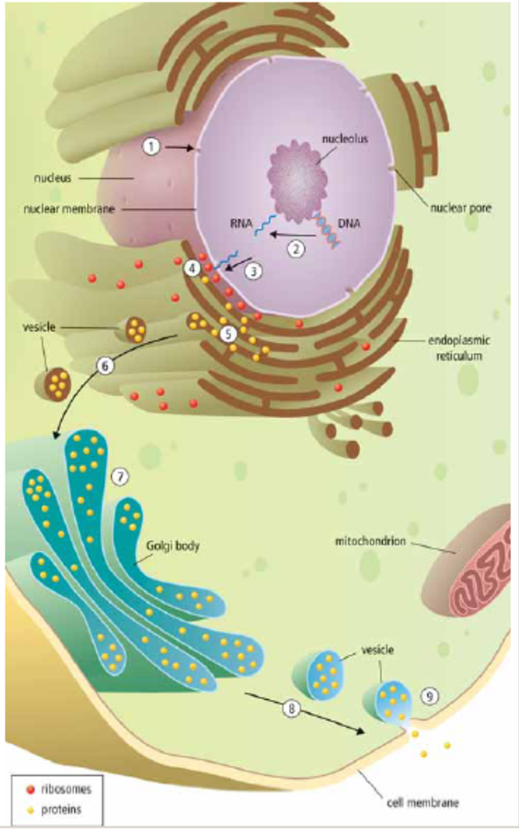
* Not found in plant cells
* Help to organize spindle fibers during mitosis (cell division)

**Cytoskeleton**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and supports organelles
* Moves things inside the cell
* Made of microtubules, microfilaments and intermediate filaments

**Lysosomes & Peroxisomes**

* Lysosomes: sac of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Peroxisomes: transfer hydrogen and detoxify parts of the cell

**Protein Synthesis**

1. The nucleus receives a chemical signal to make a specific protein
2. The DNA message for a specific protein is copied into a small molecule called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. RNA leaves through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. The RNA message is delivered to the \_\_\_\_\_\_\_\_\_\_\_\_\_, where the protein is made
3. The manufactured protein enters the \_\_\_\_\_\_\_\_\_\_
4. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ forms off the end of the ER and carries the vesicle to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Golgi \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the protein for transport
6. A vesicle forms off the end of Golgi to cell membrane
7. The vesicle attaches to cell membrane and is release out

You should be able to describe how these structures work together:

**DNA mRNA Ribosomes RER**

**Golgi Vesicles Proteins Nucleus**

**Amino acids tRNA Nuclear Pore**