

# The Cell Notes

Name \_\_\_\_\_

## The Cell

The cell is the \_\_\_\_\_ unit of living organisms.

## Levels of Cellular Organization

Cell

\_\_\_\_\_ Organs

\_\_\_\_\_ Organ Systems



### Anton van Leeuwenhoek

- He used one of the first simple \_\_\_\_\_ microscopes that had one lens and used natural light to view cells. (about 1700's)

### Robert Hooke

- He lived at about the same time as Van Leeuwenhoek did, (about 1665) except he used a \_\_\_\_\_ light microscope.
- He studied cork, he observed small geometric shapes.
- He gave these shapes the name \_\_\_\_\_.



## Scientists Contributing to the Cell Theory

- Hooke made drawings and descriptions and published them.
- He encouraged other scientists to search for cells in other living things.
- In the 1830's two German scientists named Matthias Schleiden and Theodore Schwann made similar observations on animals.
- All of these observations became known as the \_\_\_\_\_.

## The Cell Theory

1. All organisms are composed of \_\_\_\_\_ or \_\_\_\_\_ cells.
2. The cell is the \_\_\_\_\_ of organization of organisms.
3. All cells come from \_\_\_\_\_ cells.

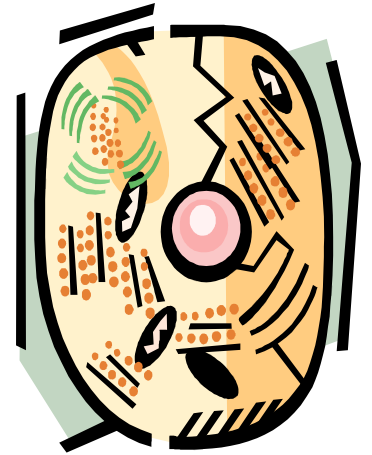
## Parts of the Cell

The Cell has Three Main Parts

- 1.
- 2.
- 3.

## The Plasma Membrane

- Serves as the \_\_\_\_\_ of the cell



- two layered membrane of \_\_\_\_\_
- selectively \_\_\_\_\_

### The Cell Wall

- Found only in \_\_\_\_\_
- Located \_\_\_\_\_ the plasma membrane
- Provides additional \_\_\_\_\_ and \_\_\_\_\_
- Made of \_\_\_\_\_

### The Cytoplasm

- Clear \_\_\_\_\_ inside the cell
- location of the \_\_\_\_\_ – sometimes called “little organs”

### Ribosomes

- found on \_\_\_\_\_ ER or \_\_\_\_\_ in the cytoplasm
- manufacture \_\_\_\_\_ (including enzymes)
- are called “protein factories”

### Endoplasmic Reticulum (ER)

- a network of interconnecting sacs and canals
- they carry \_\_\_\_\_ through the cytoplasm
- rough ER collects and transports \_\_\_\_\_ made by ribosomes
- smooth ER involved in the production and storage of \_\_\_\_\_

### Golgi Apparatus

- They sort \_\_\_\_\_ into packages to be sent to their proper \_\_\_\_\_
- called the chemical \_\_\_\_\_ and \_\_\_\_\_ center

### Vacuole

- Vacuoles store \_\_\_\_\_, food, \_\_\_\_\_, \_\_\_\_\_ or other materials.
- Vacuoles are \_\_\_\_\_ in plant cells and \_\_\_\_\_ in animal cells.

### Lysosomes

- membranous-walled organelles that contain \_\_\_\_\_
- they \_\_\_\_\_ excess or worn out organelles, food particles, and engulfed viruses or bacteria.
- lysosomes can fuse with \_\_\_\_\_ and digest its contents.

### Mitochondria

- transform \_\_\_\_\_ for the cell
- complex energy-releasing chemical reactions occur \_\_\_\_\_
- called “power plants”

### Energy Transformers in Plants

- \_\_\_\_\_ capture light energy and produce food to be used at a later time
- \_\_\_\_\_ traps light energy and gives plants green color.
- \_\_\_\_\_ are a group of storage organelles in plants.

### Centrioles

- Paired organelles that lie at right angles to each other near the nucleus
- function in cell \_\_\_\_\_

- only found in \_\_\_\_\_ cells

**Structures for support and locomotion**

**Cytoskeleton**

- composed of a variety of tiny rods and filaments that form a \_\_\_\_\_ for the cell.
- Like the skeleton that forms the framework for our bodies.
- \_\_\_\_\_ are thin, hollow cylinders made of protein
- \_\_\_\_\_ are thin, solid protein fibers.

**Cilia**

- fine hair like extensions found on free or exposed surfaces of some cells
- capable of \_\_\_\_\_ in unison in a \_\_\_\_\_ fashion
- made of \_\_\_\_\_
- Cilia (among other things) line the respiratory tract. They all beat in the same direction to help push foreign things to the outside.

**Flagella**

- move with a \_\_\_\_\_ motion
- flagella are much longer than cilia, but made of the same microtubule design.
- the flagella that propel this bacteria can go as fast as 10 body lengths per second. (compared to a humans 5.4 and a cheetahs 25 body lengths per second)

**The Nucleus**

- This is the \_\_\_\_\_ of the cell.
- It contains the \_\_\_\_\_ that directs all the processes that go on within the cell.
- When the DNA is not coiled up into chromosomes it is sometimes referred to as \_\_\_\_\_ and looks like grainy stuff in the nucleus.

**Nuclear Membrane**

- a double \_\_\_\_\_ encloses the nucleolus and chromatin granules
- the membrane has \_\_\_\_\_ so that RNA can come and go easily

**Nucleolus**

- produces \_\_\_\_\_

**What differences can you see from an animal cell and a plant cell?**

Plant	Animal

**Eukaryotic vs. Prokaryotic**

- Prokaryote is a cell \_\_\_\_\_ membrane bound organelles
- A Eukaryote is a cell \_\_\_\_\_ membrane bound organelles

## Plant Cell Coloring

Directions: Choose a color for each of the parts below and fill in the square with the color of your choice. Color the cell part to match.

Cell Membrane

- |   |  |                                  |
|---|--|----------------------------------|
| <input type="checkbox"/> Ribosome                     | <input type="checkbox"/> Mitochondria    | <input type="checkbox"/> Nucleus |
| <input type="checkbox"/> Cytoplasm                    | <input type="checkbox"/> Nucleolus       |                                  |
| <input type="checkbox"/> Smooth Endoplasmic Reticulum | <input type="checkbox"/> Chloroplasts    |                                  |
| <input type="checkbox"/> Rough Endoplasmic Reticulum  | <input type="checkbox"/> Golgi Apparatus |                                  |
| <input type="checkbox"/> Nuclear Membrane             | <input type="checkbox"/> Microtubules    |                                  |
| <input type="checkbox"/> Cell Wall                    | <input type="checkbox"/> Vacuole         |                                  |



## Animal Cell Coloring

Directions: Choose a color for each of the parts below and fill in the square with the color of your choice. Color the cell part to match.

- |  |  |                                  |
|--|--|----------------------------------|
| <input type="checkbox"/> Cell Membrane (Plasma Membrane) | <input type="checkbox"/> Mitochondria    | <input type="checkbox"/> Nucleus |
| <input type="checkbox"/> Ribosome                        | <input type="checkbox"/> Nucleolus       |                                  |
| <input type="checkbox"/> Cytoplasm                       | <input type="checkbox"/> Lysosome        |                                  |
| <input type="checkbox"/> Smooth Endoplasmic Reticulum    | <input type="checkbox"/> Golgi Apparatus |                                  |
| <input type="checkbox"/> Rough Endoplasmic Reticulum     | <input type="checkbox"/> Cytoskeleton    |                                  |
| <input type="checkbox"/> Nuclear Membrane                | <input type="checkbox"/> Cillium         |                                  |

