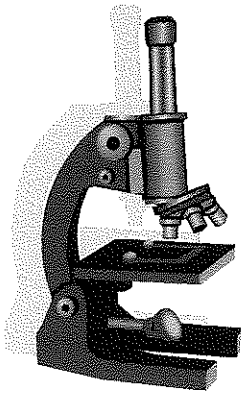


Grade 3 Cell Poster Project Due Date _____

Parent Signature _____

Purpose: The purpose of this project is to create a representation of a cell in order to better understand the parts of a cell and their functions.

- Using household items, make a poster of a plant or animal cell that meets the criteria listed below. (Example items: cereal, balloons, gummi worms, mints, fruit slices, dried fruit, rope licorice, fruit by the foot, jelly beans, sesame seeds, beads, toothpicks, modeling clay, pipe cleaners, glitter glue...)
- Choose what type of cell you will build, a typical plant or animal cell. Include this title clearly on your poster, along with your name.
- You may label each part of the cell along with its basic function, or create a key to label in some way each cell organelle and its function. Use the list of criteria below as a guide when making your cell.
- A photo of a sample poster is attached, to give you an idea of what a completed poster might look like, but feel free to use plenty of color on your poster as well as your creativity when finding objects to represent the various organelles. (Parents may have to help with gluing as heavier objects need to be glued well and given time to dry.)
- A list of cell parts and their basic functions is also included.
- Students can also log onto www.cellsalive.com to look at computer models of cells (Can be found on the leftside navigation bar under Cells Models or Cell Biology)

Posters will be graded using the following criteria:

- The cell poster is creative and shows **effort**.
- A title with the type of cell and student name are found on the poster with correct capitalization.
- A key or labels are easy to use to identify the parts on the cell.
- A description of the function of each cell part is provided.
- A variety of appropriate material is used (item resembles the cell part)
- Attention is paid to the accurate spelling of each cell part and accompanying definitions.

Cell Parts and their Functions

Cell Membrane- Gives the cell shape, holds the cytoplasm, and controls what moves in and out of the cell.

Cytoplasm- Jelly-like material within a cell, in which the organelles are located (made up mostly of water)

Cell Wall- Found only in plant cells. Forms a thick outer covering outside the cell membrane, gives the plant support and shape.

Chloroplasts- Found only in plant cells. Found in the cytoplasm of green plant cells, contain chlorophyll which gives plants their green color.

Nucleus- Controls the cell, like the cell's brain. DNA is found here.

Nuclear Membrane- Holds the nucleus together.

Nucleolus- Found in the nucleus, makes ribosomes.

DNA- Contains the code which guides all cell activities. Determines what traits a living thing will have, passes information from parent to offspring.

Ribosomes- Where proteins are made. Often connected to the endoplasmic reticulum. A cell may have as many as 500,000.

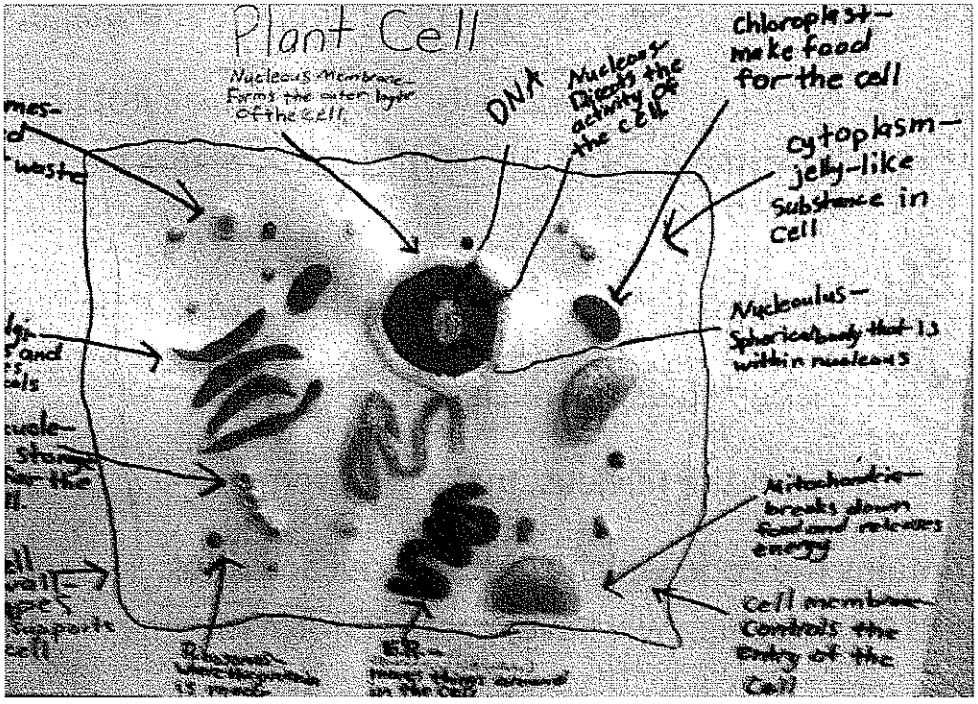
Endoplasmic Reticulum- The "transportation system" in the cell. May be *rough* or *smooth.*

Golgi Apparatus (Golgi Bodies)- Stores and releases chemicals.

Lysosome- Digestion center, digests food for the cell.

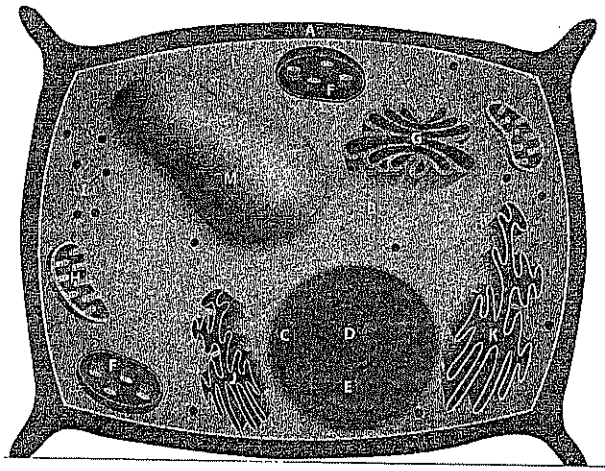
Mitochondria- "Powerhouse" of the cell. Produces energy when food is broken down.

Vacuole- Liquid-filled- may store food, water, minerals or waste. (Like the cell's storage unit) In plants it takes up lots of space.



The plant cell is a typical eukaryotic cell, and while there are some differences between functions of specific cells, they all contain the same basic organelles. This Cross-Section Plant Cell Model allows students to investigate the different parts of the cell. The model includes the most basic and common parts of a plant cell. Please note that some specialized organelles have not been included.

Parts of a Plant Cell (as represented by the model)



A. Cell Wall – A rigid and strong wall that protects and maintains the shape of the cell.

B. Cytoplasm – All organelles of a cell reside in the cytoplasm.

C. Nucleus – The nucleus is the controlling center of a cell. It also contains the DNA for the cell.

D. Nucleolus – Located inside the nucleus, the nucleolus produces RNA in the form of ribosomes.

E. Chromatin – Part of the nucleus that contains most of the DNA of the nucleus.

F. Chloroplast – An organelle that contains chlorophyll, which makes up the green substance in plants, and is where photosynthesis takes place.

G. Golgi Apparatus – Prepares proteins and fats that are created in the endoplasmic reticulum for transport to the outside of the cell.

H. Mitochondria – The main energy source for a cell. The mitochondria converts oxygen and nutrients into energy for the cell to use.

I. Ribosome – Some are attached to the rough ER and are composed of RNA.

J. Smooth Endoplasmic Reticulum (Smooth ER) – Helps with transporting materials throughout the cell. It produces membrane proteins and digests lipids.

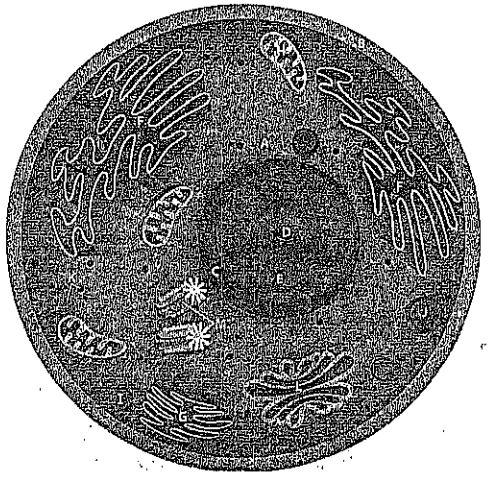
K. Rough Endoplasmic Reticulum (Rough ER) – Covered with ribosomes, produces protein and transports materials throughout the cell.

L. Cell Membrane – The cell membrane holds all the parts of a cell. Every cell is enclosed by a cell membrane. It controls the passage of materials in and out of the cell.

M. Vacuole – Most plant cells only have one large vacuole. It is filled with fluid and helps to maintain the shape of the cell.

Cells are the building blocks of life. All living things are made up of cells. The animal cell is a typical eukaryotic cell, and while there are some differences between functions of specific cells, they all contain the same basic organelles. The animal cell type is found not just in animals but in humans as well. This animal cell model allows students to investigate the different parts of the cell. *The model includes the most basic and common parts of an animal cell. Please note that some specialized organelles have not been included.

Parts of an Animal Cell (as represented by the model)



A. Cytoplasm – All organelles of a cell reside in the cytoplasm.

B. Cell Membrane – The cell membrane holds all the parts of a cell. Every cell is enclosed by a cell membrane. It controls the passage of materials in and out of the cell.

C. Nucleus – The nucleus is the controlling center of a cell. It also contains the DNA for the cell.

D. Nucleolus – Located inside the Nucleus, the Nucleolus produces RNA in the form of ribosomes.

E. Chromatin – Part of the nucleus that contains most of the DNA of the nucleus.

F. Rough Endoplasmic Reticulum (Rough ER) – Covered with Ribosomes, produces protein and transports materials throughout the cell.

G. Smooth Endoplasmic Reticulum (Smooth ER) – Also helps with transporting materials throughout the cell. It produces membrane proteins and digests lipids.

H. Mitochondria – The main energy source for a cell. The mitochondria converts oxygen and nutrients into energy for the cell to use.

I. Vacuole – Helps with digestion by filling with food and waste material.

J. Lysosomes – Digestion is the main function of Lysosomes.

K. Ribosome – Some are attached to the Rough ER and they synthesize proteins for the Lysosomes.

L. Golgi Apparatus – Prepares proteins and fats that are created in the Endoplasmic Reticulum for transport to the outside of the cell.

M. Centrioles – Divide into two parts during cell division and [illegible]y assist in the cell division process. They are found only in animal cells.