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LER 1900 Cross Section Animal Cell Display

Learning Resources LER 1900 Cross Section Animal Cell Display Instructions

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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 the 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 of 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 convert 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 they assist in the cell division process. They are found only in animal cells.

Animal Cell Structure Worksheet
Directions: Correctly label all parts of the animal cell.
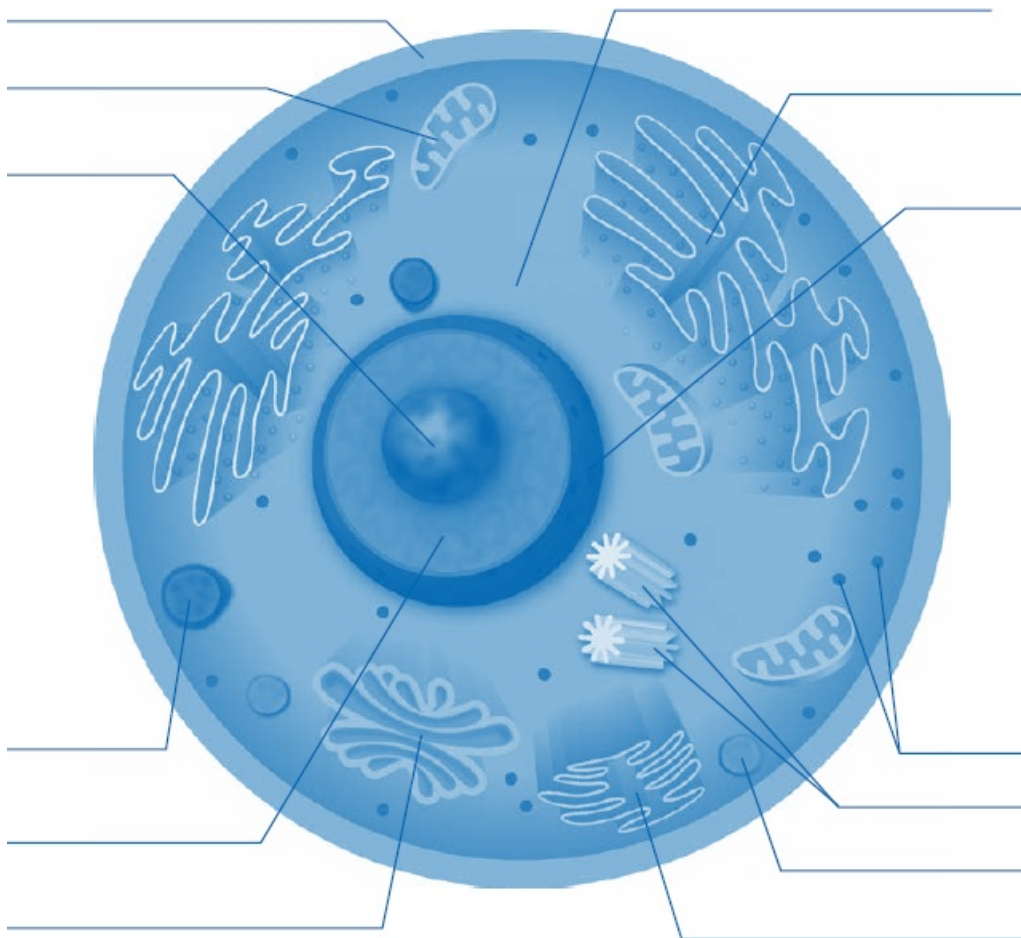
Interesting Cell Facts

- Our bodies have approximately ten trillion cells.
- Cells are alive and carry out basic life processes such as growth, reproduction, and response to the environment.

- A group of identical cells that carries out a function together is called tissue.
- Blood is made of cells that carry oxygen and carbon dioxide to other cells in your body.
- All organisms begin as a single cell.
- Our bodies are constantly making new cells to replace old cells that die.
- When a cell reproduces by the process of mitosis, it makes exact duplicated copies of itself.
- Scientists will often use nucleic acid stains to view the RNA and DNA in cells. The stain gives the cells a bluish color.

Mitosis

- Mitosis is the process in which a cell reproduces by dividing and becoming two identical cells. Mitosis occurs in six stages.
- Prophase – In this phase, the nucleus disappears and twin chromosomes appear which are exact copies of each other.
- Prometaphase – The nuclear membrane disappears completely and the twin chromosomes begin moving.
- Metaphase – The twin chromosomes line up in the middle of the cell.
- Anaphase – The twin chromosomes separate and begin moving to opposite ends of the cell.
- Telophase – A new membrane forms around the two groups of chromosomes to form.
- Cytokinesis – The cell membrane closes together in the middle of the cell, separating and forming two new cells.

Suggested Activities

- Use for classroom demonstration as well as individual student exploration.
- Using the letters on one-half of the cell model, quiz students on which parts of a cell the letter represents or make photocopies of page number 4 and use them as a quiz or small group exercise on animal cells.
- Allow students to hold the animal cell model. Ask them what observations they can make about the model and have them discuss what they already know about cells.
- Encourage students to do research on the internet or at the library to find out more about cells. Have them write down their findings in a notebook and share this with the rest of the class.
- Have the students sit in a circle and start passing the two halves of the model in opposite directions. When one student receives the two halves at once, that student needs to say one fact they know about cells or name a part of a cell.
- After the fact is determined to be correct, that student tosses the halves to two different students to start again. Remember, the fact or part of the cell that was said before should not be repeated more than once!

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