

Animal Cell Model Teacher Guide

Introduction:

The typical animal cell has many distinct parts that are very minute, even under the view of a microscope. The Animal Cell Model has been magnified multiple times over to give a clear view of different structures of the animal cell. These include the nucleus, endoplasmic reticulum, mitochondria, ribosomes, Golgi apparatus and centrioles.

Worksheet Guide:

Materials needed: *Animal Cell Model*, *Animal Cell Quick Start Guide*, *Animal Cell Model Worksheet* and *Animal Cell Model Worksheet Answer Key*.

Steps for using the *Model* and *Worksheet*:

Step 1: Have students study the location of the parts of the animal cell using the *Quick Start Guide* and the *Model*.

Step 2: After using the *Quick Start Guide* to get an understanding the animal cell parts, hand out the *Worksheet* for students to complete.

Step 3: See the *Answer Key* to correct the *Worksheet*.

Key Terms and Definitions:

Discuss and demonstrate these parts on the *Animal Cell Model*:

Cell Membrane: the thin layer of protein and fat that surrounds the cell. It is semipermeable, allowing some substances to pass into the cell but blocking others.

Centrosome: a small body located near the nucleus where microtubules are made; during cell division (mitosis), it divides and two parts move to opposite sides of the dividing cell.

Centriole: the dense center of the centrosome

Cytoplasm: the jellylike material outside the cell nucleus where the organelles are located

Golgi apparatus: a flattened, layered, sac-like organelle located near the nucleus. It produces the membranes that surround the lysosomes. It also packages protein and carbohydrates into membrane-bound vesicles to leave the cell.

Lysosome: round organelles surrounded by a membrane and containing digestive enzymes. Digestion of cell nutrients takes place here.

Mitochondria: spherical or rod-shaped organelles with a double membrane, made up of many folds on the inside. It converts energy stored in glucose into ATP (adenosine triphosphate) for the cell.

Nuclear membrane: the membrane that surrounds the nucleus

Nucleolus: an organelle within the nucleus where ribosomal RNA is produced.

Nucleus: spherical body containing many organelles, including the nucleolus. It controls the functions of the cell (by controlling protein synthesis) and contains DNA in chromosomes.

Ribosome: small organelles composed of RNA-rich cytoplasmic granules that are sites of protein synthesis.

Rough endoplasmic reticulum (rough ER): vast system of interconnected, infolding and convoluted sacks that are in the cell's cytoplasm. Its covered with ribosomes that give it a rough appearance. It transports material through the cell and produces proteins in sacks called cisternae.

Smooth endoplasmic reticulum (smooth ER): a vast system of interconnected, infolding tubes that are in the cell's cytoplasm. Smooth ER transports material through the cell. It provides increased surface area for the action or storage of key enzymes. Its functions include lipid synthesis, carbohydrate metabolism and attachment of receptors on cell membrane proteins. The bud off the rough ER moves the newly-made proteins and lipids to the Golgi apparatus, lysosomes and membranes.

Name: _____ Class: _____

Animal Cell Worksheet

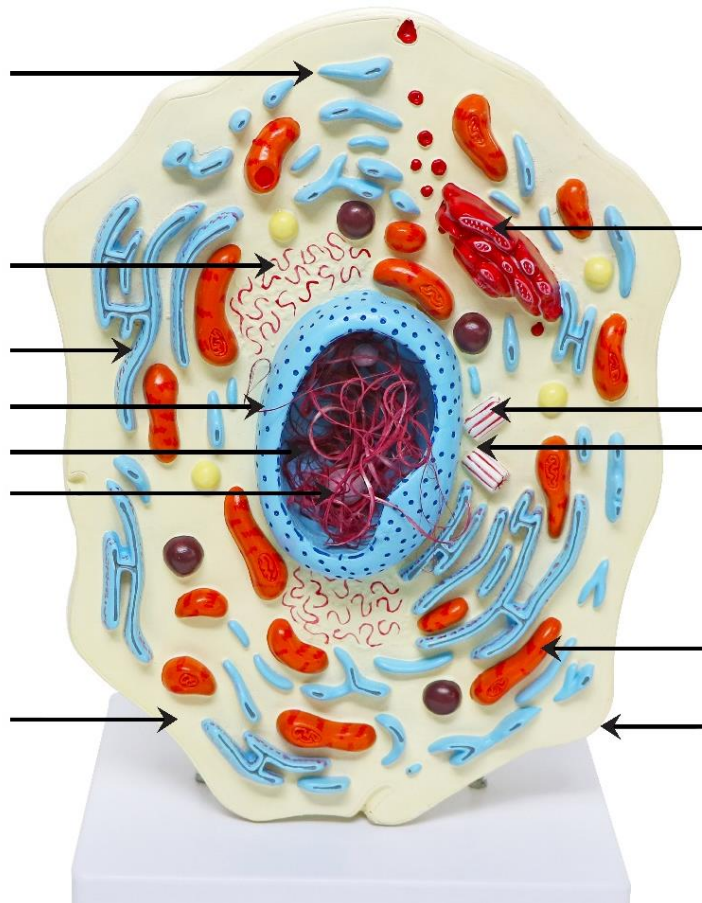
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Activity:

Identify each part of the animal cell correctly:

- | | |
|---------------------|---------------------------------|
| 1. Smooth ER | 7. Centrosome with 2 centrioles |
| 2. Rough ER | 8. Golgi apparatus |
| 3. Nuclear membrane | 9. Ribosomes |
| 4. Nucleoplasm | 10. Mitochondria |
| 5. Nucleolus | 11. Plasma membrane |
| 6. Centriole | 12. Cytoplasm |



Animal Cell Model

Activity:

Explain what each part of the animal cell does:

Cell Membrane:

Centrosome:

Centriole:

Cytoplasm:

Golgi apparatus:

Lysosome:

Mitochondria:

Nuclear membrane:

Nucleolus:

Nucleus:

Ribosome:

Rough endoplasmic reticulum (rough ER):

Smooth endoplasmic reticulum (smooth ER):

Animal Cell Worksheet Answer Key

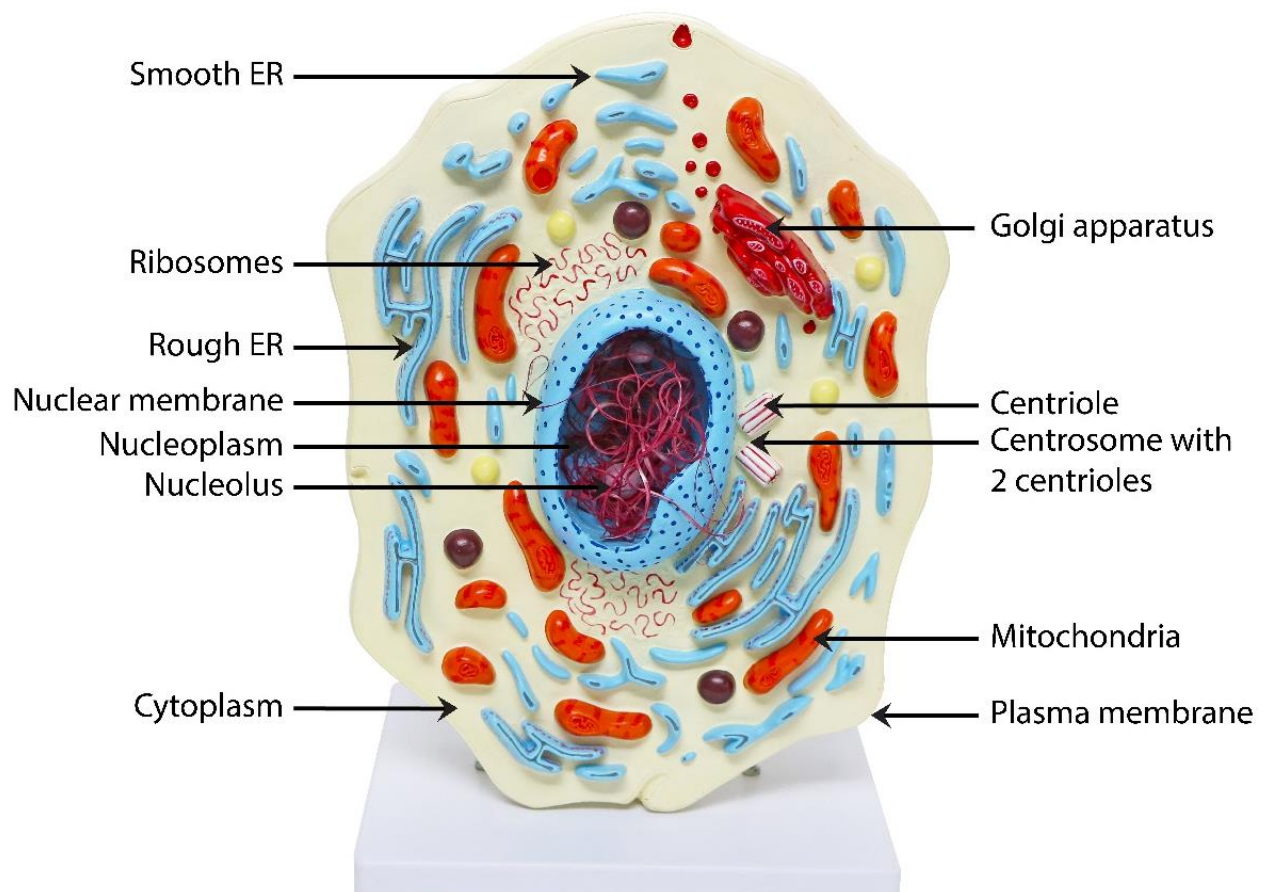
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