Name: _____

Animal Cells

Animal cells are eukaryotic cells that contain various organelles. Let's study study some of the important organelles found in an animal cell.

The **cell membrane** is the structure that surrounds the cell. It acts as a barrier that allows substances to pass in and out of the cell. It also contains structures that help the cell communicate with other cells.

The **nucleus** is often referred to as the control center of the cell. It contains DNA and controls many of the cell's functions. Within the nucleus is a structure called the **nucleolus**. The nucleolus produces parts of the ribosomes.

Ribosomes are small organelles where protein synthesis takes place. They are found in the cytoplasm floating freely or attached to endoplasmic reticulum. **Cytoplasm** is a jelly-like material located outside the nucleus in which the organelles are contained. It is composed of water and dissolved nutrients and salts.

Endoplasmic reticulum (ER) is a series of interconnected membranes found outside the nucleus. There are two types of endoplasmic reticulum: **rough ER** and **smooth ER.** Rough ER has ribosomes attached to it giving it a "rough" appearance. It transports materials throughout the cell and produces proteins. Smooth ER does not have ribosomes attached to it. Like Rough ER, it transports materials throughout the cell but produces lipids (fats) instead of proteins.

The **Golgi Bodies** (also called Golgi Apparatus or Golgi complex) sort and package materials such as proteins and carbohydrates into vesicles. These vesicles are delivered to certain part of the cell or exported from the cell.

Mitochondria are round or rod-shaped organelles with a double membrane. A mitochondrion is often called a "powerhouse of the cell" because it produces energy for the cell. Mitochondria convert chemical energy in sugar to usable energy for the cell. This energy is known as ATP.

Vacuoles are vesicles in the cell that store nutrients, waste or water. **Lysosomes** are similar to vacuoles. They are small, round vesicles that contain enzymes that digest cell nutrients.

Name: _____

Plant Cells

Plant cells, like animal cells are eukaryotic cells that contain various organelles. They contain many of the same organelles as animal cells.

Plant cells have a **cell membrane** that surrounds the cell and acts as a barrier that allows substances to pass in and out of the cell. Plant cells also have a **cell wall**, located just outside the cell membrane. The cell wall is rigid and helps provide structure and protection.

Cytoplasm is a jelly-like material in which the organelles of the cell are contained. It is made of water and dissolved nutrients and salts.

Plant cells have a special structure called the **chloroplast.** The chloroplast is a round, double-membrane organelle that contains green pigment known as chlorophyll. Photosynthesis takes place in the chloroplast and provides sugar (food) for the plant cell.

Plant cells have a **nucleus.** It contains DNA and controls many of the cell's functions. Within the nucleus is the **nucleolus**, which produces parts of the ribosomes. **Ribosomes** are small organelles where proteins synthesis takes place. They are found in the cytoplasm floating freely or attached to ER.

Recall that there are two types of endoplasmic reticulum (ER): **rough ER** and **smooth ER.** Rough ER has ribosomes attached to it giving it a "rough" appearance. It transports materials throughout the cell and produces proteins. Smooth ER does not have ribosomes attached to it. Like Rough ER, it transports materials throughout the cell but produces lipids (fats) instead of proteins.

The **Golgi Bodies** (also called Golgi apparatus or Golgi complex) sort and package materials such as proteins and carbohydrates into vesicles. The vesicles are delivered to certain part of the cell or exported from the cell. **Vacuoles** are vesicles in the cell that store nutrients, waste or water. Plant cells have a large central vacuole that contains water and helps maintain the shape of the cell.

Mitochondria are round or rod-shaped organelles with a double membrane. They produce usable energy for the cell known as ATP.