

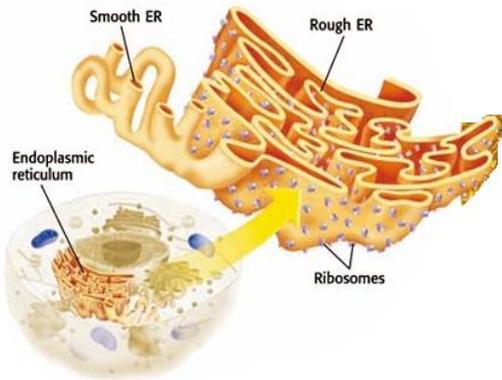
Name: _____

Eukaryotic Cells part II

Directions: Read and Highlight answering the questions as you go.

Ribosomes

Cells need to make proteins. Those proteins are used to fix and repair muscles and other organs. The teeny tiny round **Ribosomes** are the assembly line for proteins. There are more ribosomes inside a cell than any other organelle. Some ribosomes are floating in the cytoplasm while others are attached to the endoplasmic reticulum.



Endoplasmic Reticulum

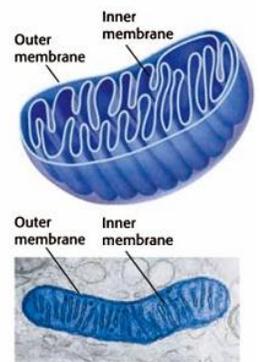
The **endoplasmic reticulum** (en doh plaz mick re tick yoo lum) sounds like a Harry Potter spell, but it is the name for a series of tubes located next to the nucleus. These tubes are folded and bunched together so it almost looks like a bunch of spaghetti.

The endoplasmic reticulum is the internal delivery system for the cell (think of someone delivering your mail). Its job is to transport materials to different parts of the cell.

1. What do all ribosome do?
 - a. Make proteins
 - b. Float in cytoplasm
 - c. Attach themselves to membranes
 - d. Make organelles
2. What does the endoplasmic reticulum look like?
 - a. Oval, with small pores like a sponge
 - b. Small and round like a golf ball
 - c. Long tubes with many folds like spaghetti
 - d. A bubble full of liquid like soap
3. Which phrase best describes the job of the endoplasmic reticulum?
 - a. Internal delivery system
 - b. Protein factory
 - c. DNA storage
 - d. Web of proteins

Mitochondria

Just like Westerville has a power plant that supplies electricity, every eukaryotic cell has an organelle that provides energy. The energy provider inside the cell is a peanut shaped organelle called the mitochondrion (mite oh kahn dree uhn). Since cells have more than one mitochondrion, you might see them called mitochondria (many mitochondrions). The mitochondria break down sugar from our food to make a special type of cell energy called ATP (that's short for Adenosintriphosphate). Mitochondria are the entire reason we inhale oxygen. If the mitochondria in our cells didn't need oxygen, we wouldn't need to breath. The organelles in the cell use the ATP to carry out their jobs. Without the mitochondria breaking down the sugar for energy, our cells couldn't survive.



Chloroplasts



Animal cells cannot make their own food; they have to eat food to get energy. Plant cells are different; they can make food through a process called photosynthesis. Remember that photosynthesis is where plants take in sunlight, water, and carbon dioxide and turn them into sugar (glucose), water, and oxygen. Photosynthesis happens inside the **chloroplast** (ch lor o plasts) an organelle only in plants. The Elodea leaves had hundreds of chloroplasts in each cell. The chloroplasts almost

looked like tiny green skittles inside the cell.

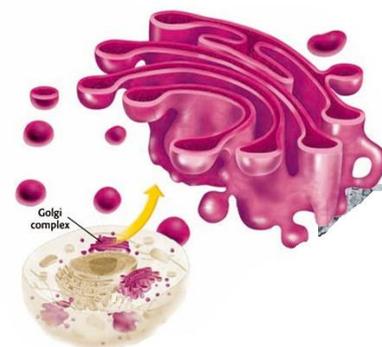
Why are plants green? The chloroplasts inside the cell have a green pigment called **chlorophyll**. (ch lor o fill). The chlorophyll traps the sunlight as energy for photosynthesis. An easy way to remember this is the chlorophyll fills up the chloroplasts giving it the green color.

4. What are the peanut shaped organelles that break down sugar and provide energy to the cell?
 - a. Golgi complex
 - b. Cell membranes
 - c. Ribosome
 - d. Mitochondria
5. Which process happens inside a chloroplast?
 - a. Making ATP
 - b. Making DNA
 - c. Photosynthesis
 - d. Formation of animal cells

Golgi Body

The golgi is one of those organelles that people keep changing its name. It has been called the golgi body, golgi complex, and the golgi apparatus. It was named after Camillo Golgi, an Italian biologist. It is pronounced GOL-JI in the same way you would say squee-gie, as soft a "G" sound.

While layers of the golgi may look like the endoplasmic reticulum, they have a very different job. The **golgi body** is a series of tubes that package material for transport around the cell. So the golgi body is like a gift wrapping shop for proteins.



Lysosomes

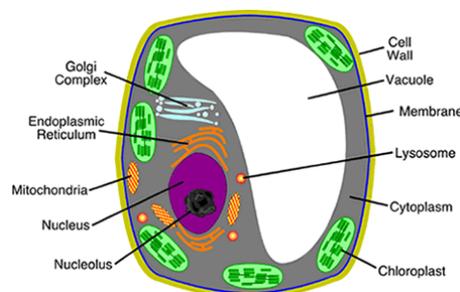


Ever wonder what happens to organelles that are not working properly or extra material that the cell do not need, well that is a job for the **lysosomes**. They keep the inside of the cell clean, like custodians clean the school (kind of sounds like Lysol). The lysosomes are full of digestive chemicals that can break down worn-out or damaged organelles. They also help to get rid of waste and bad things that might get into the cell.

Vacuoles

Besides the cell wall and chloroplasts another difference between plant and animal cells is the vacuoles. Although both cells have them, plant cells have one big vacuole that takes up most of the cell where as animal cell have many smaller vacuoles spread throughout the cell.

The **vacuole** stores water and other material for the cell. It's kind of like your refrigerator. The cell on the left is a plant cell and the cell on the right is an animal cell. Notice how the plant cell has a vacuole that takes up most of the cell.



6. What long folded cell part serves to package and distribute proteins?
 - a. Golgi complex
 - b. Cell membrane
 - c. Endoplasmic reticulum
 - d. Cytoplasm
7. What do lysosomes do?
 - a. Make new proteins
 - b. Move material around
 - c. Get rid of waste and digest food
 - d. Copy DNA
8. What is the function of most vacuoles?
 - a. To make proteins
 - b. To store water
 - c. To make sugar
 - d. To protect the cell

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