

CLASSIFYING INFORMATION

Cell Organelles

Compare the parts of a cell to the parts of your body. You have a brain, a heart, lungs, and skin—each organ in your body has a job to do! Just like your body, cells have organelles that do different jobs within the cell.

Read the text, complete the graphic organizer, and answer the questions.

1) “I am called the ‘powerhouse’ of the cell. As a mitochondria, I am responsible for producing the cell’s energy. Mitochondria digest the cell’s “food” and turn it into power for the cell. I am the chief conductor of cellular respiration. You can find me and my many brothers and sisters in the cytoplasm.”

2) “I work hard to build material for the cell. My job is to connect amino acids together to make long chains of protein. As a ribosome, you might find me floating in the cytoplasm or as a small bump on the side of the rough endoplasmic reticulum.”

3) “I am the packaging center. I box up proteins and put ions in storage. As the endoplasmic reticulum, I have two different parts—rough and smooth. My rough parts are responsible for packaging proteins. The ribosomes on my sides make me rough. My smooth parts are the smooth tubes that store spare ions and other chemicals the cell might need later. You can find me near the nucleus and throughout the cytoplasm.”

4) “I look like a pancake folded over and over. As a Golgi apparatus, I work with the endoplasmic reticulum to package molecules. I combine simple molecules to make larger molecules and store them in vesicles, or small pockets. In my spare time, I create lysosomes.”

5) “I am always hungry. That is because I am a tiny vesicle called a lysosome that is full of enzymes. I use my enzymes to break down food into nutrients. I float around in the cytoplasm waiting for food to digest.”

6) “I am the cell’s storage area. As a vacuole, I am a bubble-like container for storing food, water, or even waste. In a plant cell, I am very large, but in an animal cell, I am smaller and I hang out with my many siblings.”

Organelle #1	
Appearance	
Function	

Organelle #2	
Appearance	
Function	

Organelle #3	
Appearance	
Function	

Organelle #4	
Appearance	
Function	

Organelle #5	
Appearance	
Function	

Organelle #6	
Appearance	
Function	

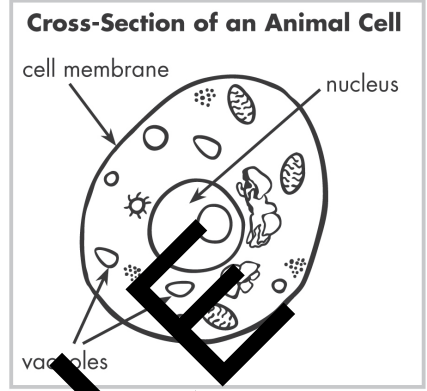
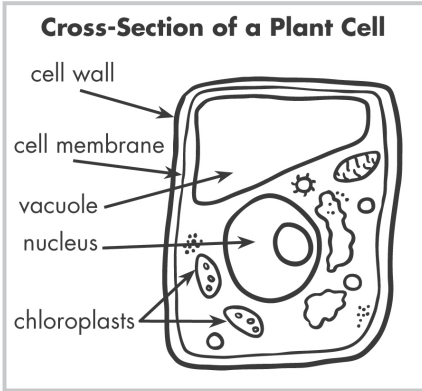
SAMPLE

1. Why are organelles essential to the life of a cell?
2. In what ways do the organelles work together? In what ways do they work separately? Cite examples from the text of each.
3. What can you infer about the location of most cell organelles?

COMPARE & CONTRAST

Animal & Plant Cells

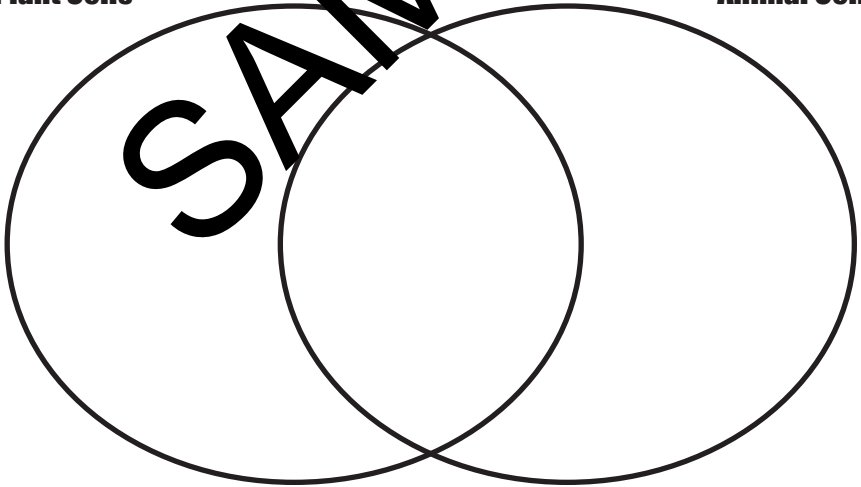
Look at the two diagrams and answer the questions.



1. Use the Venn diagram to compare and contrast plant cells and animal cells.

Plant Cells

Animal Cells



2. Why do plant cells have chloroplasts while animal cells do not? What special function do chloroplasts serve? What is the result of having chloroplasts? What is the result of not having chloroplasts?

CONCEPTS & PROCESSES

Osmosis

Read the text, conduct the experiment, and answer the questions.

The **cell membrane** allows essential molecules, such as water, to enter the cell and keeps other molecules out.

Osmosis is the movement of water from an area of *high concentration* to an area of *low concentration* through a cell membrane.

EXPERIMENT

Materials Needed:

- a tablespoon
- a glass half full of water
- food coloring
- scissors
- a white carnation flower

Procedure:

1. Add two tablespoons of food coloring to the glass of water.
2. Cut off the tip of the stem of a white carnation flower.
3. Place the flower in the colored water. Record your observations.
4. Wait 24 hours and record your observations again.

1. Draw the flower on Day 1 in the first box. Draw the same flower on Day 2 in the second box.

Day 1

Day 2

2. Describe the change that occurred from Day 1 to Day 2.
3. Use the definition of osmosis to explain what happened and why.
4. What role did the cell membrane play in this experiment? Why?
5. How did the cell membrane respond to the presence of food coloring?