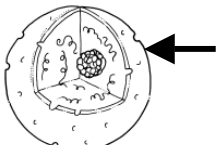
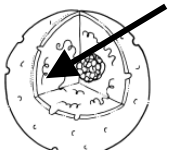
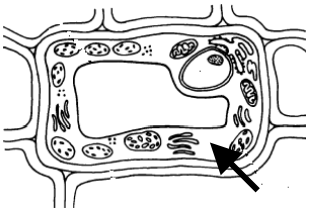
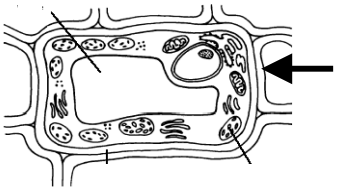
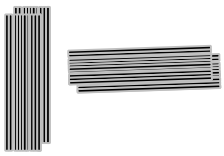
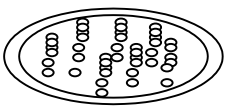
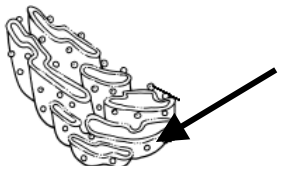
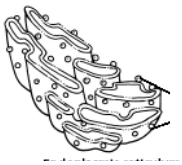
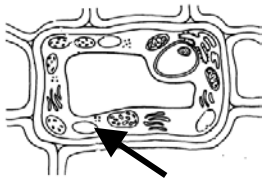
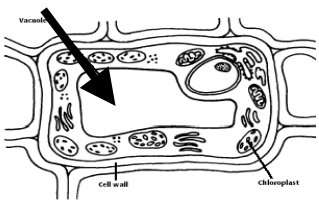
Day 1

Cell Review Puzzle

Print onto cardstock. Leave the top row of the table intact, but cut the rest into separate squares. Students must put the puzzle together matching the name of the organelle, the structure, and the function with the scenario given.

Organelle	Structure	Function	Situation
Nucleus		Contains DNA, which carries **instructions** for the cell's life processes.	**Scientists lasered these organelles out of one group of cells. Unlike the control group, they were unable to reproduce or carry out other life processes.**
Chromatin		Loose semi-unwound form that **DNA** takes when the cell is not dividing.	**This material can be collected from strawberries by breaking open the cell wall, the cell membrane, and the nuclear membrane. It consists of long, coiled molecules.**
Cell (plasma) membrane		**Controls** what enters and leaves the cell. **Transports** products into and out of the cell.	**This organelle is considered a semi-permeable barrier. Glucose, O_2, CO_2, and water are constantly being transported across its surface.**
Cytoplasm		Gel-like substance that surrounds the organelles.	**On a tour of the cell, your microscopic ship wants to visit each organelle. I It must travel through this clear but thick substance to get to them.**
Cell Wall		Stiff outside covering of plant cells made of cellulose. It **protects** and **supports** plant cells.	**A new multicellular organism is found in the rain forest. It appears to be an autotroph. Its cells most likely have this organelle on their outermost surface.**
Centrioles		Help in mitosis (cell **reproduction**) by organizing the spindle fibers that pull the chromosomes apart.	**Scientists studying a cure for cancer discover a strain of tumor cells that are no longer capable of cell division. What organelle are they missing?**
Chloroplasts		Double membrane sacs that contain chlorophyll. They take CO2 and H2O and make Glucose by **photosynthesis.**	**In water plants, bubbles of oxygen are seen forming near these organelles when they are placed under a light.**

Day 2

Mitochondria		Double membrane sacs that contain enzymes for cellular respiration. They take food and 02 and burn it to **make energy** in the form of ATP.	**An infant is brought to the doctor who sleeps constantly and seems to lack energy. He might have a rare disease that causes this organelle to malfunction.**
Ribosomes		mRNA (copied from DNA) goes here to be translated into proteins. Amino acids are joined together here as **proteins are produced.**	**Cells that line the digestive track constantly produce enzymes to digest food. Since enzymes are made from proteins, these cells must contain a large number of these organelles.**
Endoplasmic Reticulum (ER)		Long tubes covered in ribosomes that **transport** newly made **proteins** to their destination in the cell.	**I am a protein newly made on a ribosome. I seem to be headed into some sort of tunnel that leads to the Golgi apparatus. Where am I?**
Golgi Apparatus		Stack of sacs that takes proteins form the ER and **packages** and modifies them. They can be **shipped out** of the cell by exocytosis	**I am an organelle that tags proteins with special sugar molecules that determine whether it will stay inside the cell or be packed and sent out into the blood stream. Who am I?**
Lysosome		Sac of digestive enzymes and acid that break down and **digest** or recycle particles.	**You are a food particle that has just entered an amoeba. Suddenly you are engulfed in a sac. The pH drops. AHHHH. You are being digested. Where are you?**
Vacuole		**Storage** sac for water and dissolved substances. They are large in plant cells and provide support.	**You are a scientist trying to develop crops that grow in the desert. Your best chance is to increase the size of this organelle to hold twice what it usually holds.**