The Incredible, Edible Cell

Overview Learn more about cellular structure by making your own cell that you can eat! Be creative and pick different foods to represent the different organelles.

Episode Connection: Cells

Objectives:

Students will be able to:

1. Describe the cell as a 3D object rather than the 2D object they are accustomed to observing.
2. Describe the appearance and location within the cell of the various cell organelles.
3. Compare and contrast plant cells and animal cells

Materials (per student):

- "Cell" containing:
  - Cell membrane = plastic cup or food storage container
  - Cytoplasm = Pudding or Knox/Jello mixture
- 1 small Dixie cup full of cell parts (organelle) materials:
  - Nucleus = gumball
  - Mitochondria = 4 hot tamales or circus peanuts
  - Ribosomes = 1 teaspoon of round cake sprinkles
  - Endoplasmic Reticulum = 2 red or yellow pieces of fruit roll-up or stringy licorice
  - Vacuoles = 4 chocolate covered raisins or M & M's
  - Golgi Bodies = jelly beans
  - Lysosomes = Pink candy sprinkles
  - Chloroplasts = Green candy sprinkles
- 1 paper plate
- Toothpicks
- 1 plastic spoon

Procedure:

1. Make the “cells” ahead of time.
    a. For the Knox/Jello mixture: Follow the package directions to mix up batches of Jello gelatin mix. Pick a light colored flavor. Every 6 oz package will make approximately 4 or 5 cells. Add some unflavored Knox gelatin to the Jello to make it set up a little stiffer. Pour the Jello/Knox mixture into individual containers until they are about 1/2 - 2/3 full. Refrigerate overnight to set.
    b. For pudding cells: Follow the package directions to mix up batches of pudding. Be sure to use a light color like butterscotch, banana or vanilla. Every 6 oz package will make approximately 4 or 5 cells. Pour pudding into individual containers until they are about 1/2 - 2/3 full. Refrigerate overnight to set.
2. When handing out “cells”, be sure to have students label their cups. You can choose to have the students make 2 cells each (animal and plant) or have some students make animal cells and others plant cells. Have the students discuss differences.
3. Have students construct their “cells” using the materials given. It may be helpful to have diagrams of cells at each station or displayed for all the class to see.
4. When you have finished creating your edible cell, talk about what each organelle does and why it is important for the survival of the cell. After reviewing the parts one final time, those students who wish to can feast on their cell.

You can even make a cell cookie or pizza using similar procedure.

Background: Parts of a Cell

Cells are tiny living things that make up all plants and animals. Every animal and plant consists of millions of tiny cells. Every cell is made up of different parts that help it to function. These parts are called organelles. Together, all of the organelles of the cell are like a factory that keeps the cell alive. These are the names and jobs of all the different organelles of a cell.

Cell wall - All plant cells (but not animal cells) have a cell wall around them. The

cell wall is like the brick walls of a factory; the cell wall helps to support the plant cell, just like walls of a factory keep the building standing up.

Cell membrane - The cell membrane allows certain things to go in and out of the cell. It is like a screen door in a factory; it allows some things to go in and out, but not others.

Cytoplasm - The cytoplasm is the liquid in the cell that all the other organelles float around in. It is like the factory floor; it provides a surface that everything can stand on.

Ribosomes - The ribosomes make proteins. They put together the different pieces of proteins that the cell makes. Ribosomes are like the assembly line in the factory; they use certain materials to put together a product.

Golgi apparatus - The Golgi apparatus, also called Golgi body, packages the proteins that the ribosomes make. They are like the mailroom in the factory; they package things up so that they can be moved.

Endoplasmic reticulum (ER) - The ER is a transportation network that moves materials. The ER is like the mail truck; it takes materials from the mailroom (the Golgi bodies) and distributes them around the cell.

Mitochondria - The mitochondria produce energy for the cell to use. They are like the power supply for the factory; they are the powerhouse of the cell.

Lysosome - The lysosome digests wastes in the cell. It is like the cleaning crew of the factory; it gets rid of materials in the cell that the cell doesn't need.

Nucleus - The nucleus controls what the cell does and contains the DNA. The nucleus is like the control room of the factory; it tells everything else what to do.

Chloroplast - The chloroplast (only found in plant cells) helps the plant make its own food. It is also like a power supply; it provides the cell with the materials to make food.