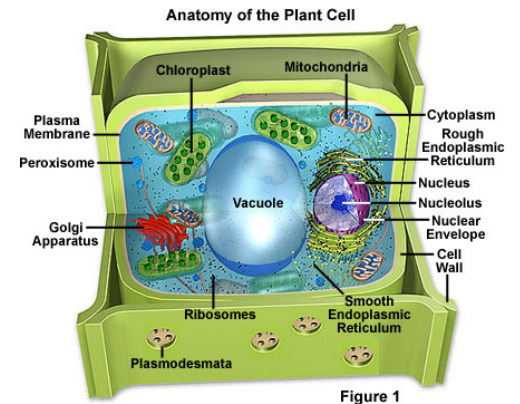


# Incredible Edible Cell

**Purpose:** You will use several different food items representing the various organelles or cell structures found in plant and animal cells to construct an edible cell model. This activity will help you learn more about the different parts of a cell and their functions.



## **Background:**

All cells have a *cell membrane*, which forms a barrier to separate the cell from its environment. The cell membrane surrounds a gel-like fluid called *cytoplasm*, which is the medium that holds all the organelles of the cell. The large *nucleus* of a cell is similar to your brain because it functions as the cell's control center. The nucleus contains genetic material that is used as instructions for directing cell functions. *Endoplasmic reticulum* (ER) surrounds the nucleus and helps to form and move proteins throughout the cell. Attached to the ER are *ribosomes*, which produce proteins and can also be found floating elsewhere in the cytoplasm. The *golgi body* receives materials from the ER and packages them for transport to other parts of the cell. The “powerhouses” of the cell are the *mitochondria*, which convert food energy to usable energy. Water, food, and other materials are stored in *vacuoles*. *Lysosomes* are the clean-up crew of the cell- they contain chemicals that break down old cell parts so they can be used again.

**Materials:** Rice cake, graham cracker, frosting, plastic knife, Fruit by the Foot, jelly beans, sprinkles, peanut butter cups, licorice, raisins, marshmallows, M&M's, paper plates & bowls, plastic gloves

## **Procedures:**

***Do NOT eat any of the materials until given permission by your instructor!! Use gloves when handling food items!***

1. Label the edge of a paper plate with your **group name** and **cell type** (animal or plant).
2. If you are making an *animal* cell, use a **rice cake** base. If you are making a *plant* cell, use a **graham cracker** base.
3. Spread frosting evenly over the base to represent the cytoplasm.
4. Assemble your model by sticking the appropriate “organelles” into the “cytoplasm,” showing correct spatial relationships between different types of organelles.

***\*\*\*Use Table 1 and pages 90-91 in your book as guides!***

5. Copy **Table 1** into your lab notebook, completing the table by filling in the main function of each organelle.

6. After your model is completed, raise your hand for the instructor to come take a picture and give you permission to eat your model.

**Data:**

**TABLE 1:**

Organelle/ Structure	Food Item	Function
Cell Wall	Graham crackers	
Cell Membrane	Fruit by the Foot	
Nucleus	Peanut butter cup	
Cytoplasm	Frosting	
Mitochondria	Red jelly beans	
Chloroplasts	Green jelly beans	
Endoplasmic Reticulum	Licorice strings	
Ribosomes	Sprinkles	
Golgi bodies	Gummies	
Vacuoles	Marshmallows	
Lysosomes	M&M's	

**Analysis Questions:**

1. Given the function of mitochondria, what tissue might contain cells with a high concentration of mitochondria? Why?
2. Why could a cell be called “the functional unit of life?”
3. Why is it important to have a cell membrane when there is a cell wall?
4. How is the nucleus the “command center” of the cell?
5. Draw a diagram of a nucleus. Label the nuclear envelope, chromatin, and nucleolus.

