Cell-icious! An Edible Cell Activity

Middle School Science

Objectives: Identify human cell organelles and understand their functions

Introduction:
A cell is a basic unit of life. It takes in nutrients, expels waste, and reproduces. Each cell contains different types of organs called **organelles**. A human body is made up of about 20-30 trillion cells.

Supplies and Ingredients:
- 1/2 of a watermelon, sliced lengthwise
- Spoon
- Masking tape
- Permanent marker
- Toothpicks
- Human cell diagram (reference)
- Ingredients below (other edible pieces can be substituted)

Directions:
1. Remove most of the seeds on the surface (leave some seeds in to represent mitochondria) and replace with different, edible items below. (Scoop out watermelon with a spoon to make room for larger edible items.)
2. Write the name of the cell part on a piece of masking tape and wrap around a toothpick.
3. Insert toothpick flags into the watermelon next to each piece that represents an organelle.

Cell Membrane - watermelon rind
Protein and fat surrounding cell. Allows certain things to go in and out of the cell.

Cytoplasm - red watermelon fruit
Cell liquid. Organelles float around in it.

Nucleus - apricot (do not cut open)
Spherical. Serves as the command center for cell. Contains DNA.

Nucleolus - apricot pit
Within the nucleus. Ribosomal RNA is produced here.

Nuclear Membrane - apricot skin
Surrounds the nucleus.

Ribosomes - white candy sprinkles
Composed of RNA-rich cytoplasmic granules where proteins are manufactured.

Lysosomes - small berries
Round. Cell recycler and garbage disposal. Digestive enzymes break down worn-out organelles for reconstruction of new ones. Recycle proteins, lipids, and other molecules.

Vacuoles - chocolate-covered raisins
Fluid-filled cavities. Fills with food being digested and waste material that is leaving the cell.

Mitochondria - watermelon seeds
Oval or bean-shaped. Cell's powerhouses. Converts energy stored in glucose into ATP, which is the energy used for different cellular processes, such as moving substances across the plasma membrane.

Centrosome - short licorice piece
Near the nucleus. Where microtubules are formed. It divides and moves to opposite sides of cell during cell division (mitosis).

Rough ER (endoplasmic reticulum) - worm-shaped gum candy
Bumpy. Network of sacks in the cytoplasm that are covered with ribosomes. Transports material through the cell and produces proteins in sacks which are sent to the Golgi body or inserted into the cell membrane.

Smooth ER (endoplasmic reticulum) - smooth, thin licorice strands
Network of tubes in the cytoplasm. Transports materials through cell. Contains enzymes and produces and digests lipids (fats) and membrane proteins. Moves proteins and lipids to the Golgi body, lysosomes, and membranes.

Golgi Body (or Golgi apparatus) - rolled up fruit sheet, folded
Sack-like layers. Located near nucleus. Packed with enzymes that complete the processing of proteins before they leave for the inside or outside of cell.