



Children's
Museum
of Houston

Sugar Cube Plant Cell

Can you create a plant cell and label all the major organelles?

MATERIALS



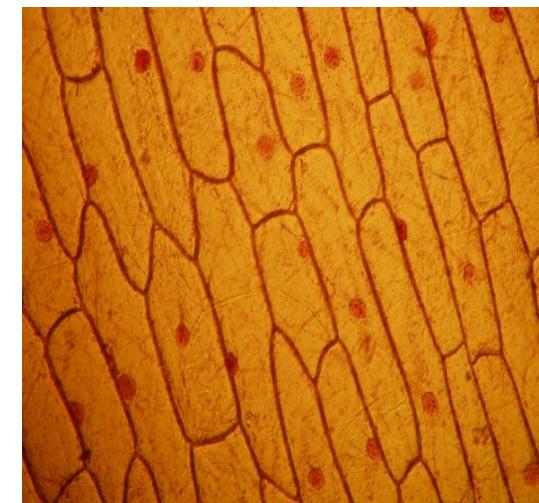
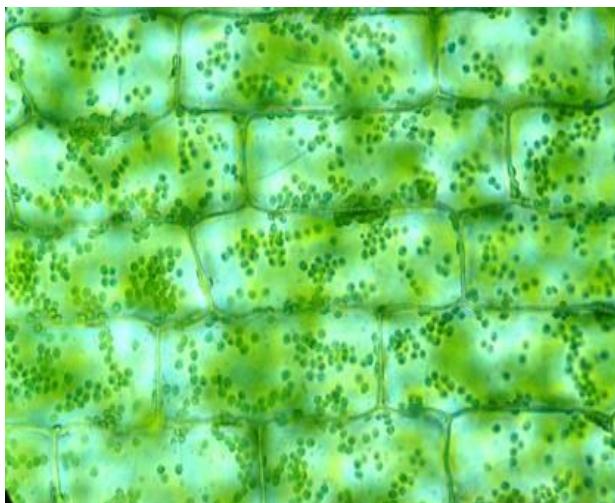
- ❖ Sugar Cubes
- ❖ Glue
- ❖ Permanent Markers
- ❖ Pencils
- ❖ 5x7 Chip Board
- ❖ Toothpicks
- ❖ Address Labels
- ❖ Plant Cell Diagram

Do the Experiment!

1. Glue sugar cubes onto a piece of 5x7 chipboard or cardboard so that they resemble the shape of a plant cell. Use the plant cell diagram to help you figure out the shape.
2. Use your permanent markers to draw the different organelles onto the sugar cubes. Don't forget the cell wall.
3. On an address label write the name of a particular organelle. On a second address label write what the function of that organelle is. Your cell diagram will have this information. Make sure you do this step for all the organelles.
4. Stick each organelle and its function to different toothpicks so that they look like little flags. Push the organelle flags into the sugar cube where you drew that organelle.
5. Don't eat your sugar cube masterpiece—glue tastes gross. Tell everyone that sees your model how a plant cell functions!

DID YOU KNOW...

Cells are the basic units of all **KNOWN** living organisms. Cells are the smallest unit of life that can reproduce independently and are often referred to as the building blocks of life. Robert Hooke discovered cells in 1665, and Matthias Jakob Schleiden and Theodor Schwann developed cell theory in 1839. You just made a plant cell out of sugar cubes. Plant cells and animal cells have some similarities, but are very different. Plant cells have cell walls, chloroplasts and plastids which animal cells do not have. Both have vacuoles but animal cell vacuoles are not nearly as large or defined. It is important to know these unique features so that we can correctly classify biological units. Making a model of a plant cell is just one of many ways in which to make an example of the thing itself. People can look at your plant cell model and learn a whole lot!



CHALLENGE

1. Can you create an animal cell using sugar cubes? There is an animal cell diagram on our website that you can use!
2. What is the main difference between animal cells and plant cells?
3. What do you think is the most important organelle in a plant cell? Why?
4. If you own a microscope put a leaf underneath the viewfinder at highest magnification. What do you see?

STEAM Challenge: Measure the width (W) and length (L) of the plant cell in inches. If the area of a rectangle is $W \times L$, what is the area of your plant cell? If the perimeter of a rectangle is $2 \times L + W$, what is the perimeter of your plant cell?