

Plant Cells 7th Grade Science

Using found garden items



Overview

This lesson will challenge students to learn the parts of the plant cell and the importance of the various structures supporting plant life.

Time needed: 2-3 class periods with option to do additional work outside of class.

Standards:

- S7L2. Obtain, evaluate, and communicate information to describe how cell structures, cells, tissues, organs, and organ systems interact to maintain the basic needs of organisms.
 - a. Develop a model and construct an explanation of how cell structures (specifically the nucleus, cytoplasm, cell membrane, cell wall, chloroplasts, lysosome, and mitochondria) contribute to the function of the cell as a system in obtaining nutrients in order to grow, reproduce, make needed materials, and process waste.
 - b. Develop and use a conceptual model of how cells are organized into tissues, tissues into organs, organs into systems, and systems into organisms.

Objectives:

- Students will understand the parts of a cell.
- Students will plan to construct a 3D model of a plant cell.
- Students will conduct a nature walk to harvest material to build their 3D model of a cell.
- Students will share their completed models with the class, explaining why they chose each item to represent the structures.

Materials:

- Okra to examine
- [https://www.schooltube.com/media/Plant cells | Crash Course biology| Khan Academy/1_7n8uphg1](https://www.schooltube.com/media/Plant%20cells%20|%20Crash%20Course%20biology%20|%20Khan%20Academy/1_7n8uphg1)
- <https://www.mathworksheets4kids.com/science/cells/color/identify-plant-cell.pdf>
- Large butcher paper or poster boards
- Glue, markers, pens, etc.
- Access to a garden or outdoor space to get supplies.

Outline:

- Engage: Students will examine a few okra pods and make hypotheses about how it is made and then watch the video in the plant cells.
- Explore: Students will explore the structure of plant cells using the printable diagram.
- Explain: Teacher will explain the key concepts of the plant cell parts and their functions.
- Extend: Students will create 3D models using found materials from the garden.

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Lesson Plan:

- Engage: Students will explore the okra pods by breaking them open. They will try to determine the different parts of the fruit. The teacher will explain that all fruits and vegetables that we eat come from plants. They will then watch the video in the plant cells. The teacher will lead them in a discussion about the plant cell structures.
- Explore: Let the students explore the parts of the cell using the printable diagram.
- Explain: Teacher will explain that students will create their own 3D diagrams using items they will scavenge from the outdoor classroom or nature trail. They need to find things that represent each part and use their notes as a checklist for what types of items they should be collecting.
- Extend: Students will collect found items in the garden and design and build a 3D model on a piece of butcher paper or poster board.
- Evaluate: Students will evaluate the success of their model on how well they can explain to the class what items they used to represent each structure and why they chose those things and what each structure does in the cell.



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