

Lesson Plan for Practice/Application: Parts of the Cell

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Background

This lesson continues class work on a biology unit about cells. In prior lessons, the students studied how scientists use their microscopes to study cells and their components, the location—function, and structure of the cells' main parts.

English proficiency levels: Advanced beginners to intermediate

Grades: 9 to12

Standards: California Biology/Life Sciences

- Standard 1a) Students know that cells are enclosed with semipermeable membranes that regulate their interaction with their surroundings.
- Standard 1e) Students know the role of the endoplasmic reticulum and Golgi apparatus in the secretion of proteins.

Preparation

Content Objectives: Students will be able to:

- differentiate the characteristics of animal and plant cells
- identify and name at least six organelles in the cell
- match effectively the function to the organelle on a cell model
- build a three-dimensional model of a plant or animal cell

Language objectives: Students will be able to:

- discuss cells and organelles in small groups
- negotiate designs for building a cell
- use appropriate scientific terms for cells, organelles, and functions

Materials: Transparencies about animal and plant cells, Life Science/Biology textbooks, cardboard foam spheres, modeling clay, fruit, vegetables, paper, markers, glue

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Motivation

Pass out some specimens of cork around the class for students to observe. Have students tell what they know about cork. Ask students to identify the source of the cork. Show a magnified section of a cork on a transparency and point out the cell walls.

Show transparencies of different types of animal and plant cells and ask students to recall differences and similarities between these two types of cells. Have students state the functions of the organelles.

Presentation

Pass out and explain the scoring rubric and instructions for creating a three-dimensional cell. Show models and pictures of cells done by students in previous years to stimulate students' ideas for their task and provide models of what is expected. Have students discuss and negotiate options as a class and in their groups.

Practice

Instruct groups of 3 students to make a three-dimensional model of a plant or animal cell and its parts, using different materials, such as cardboard foam spheres, play dough, fruits, or cakes. Tell students to highlight, color, and label the different organelles and cell parts and provide a written explanation of the structure (e.g., what is it made of), location, and function of each cell organelle.

Encourage students to consult textbooks and negotiate a group design before beginning the work. Circulate and meet with students in their groups to discuss their understanding of structure, location, and function of cells and organelles. Remind students that completed projects will be graded according to a rubric previously discussed.

Review

Have students play a game based on the cell that was created by one group of students in the class. Explain that the students are expected to match the name and the function of an organelle to a picture of the organelle, and place the pictures onto a cell mounted on a large sheet of cardboard. Encourage classmates to provide help if needed.