

Observing Plant and Animal Cells

Lesson: Understanding Cell Theory and Observing Cells

Florida State Standard: SC.6.L.14.2 – Investigate and explain the components of cell theory and compare the basic structure of plant and animal cells.

Florida State Benchmark: SC.6.L.14.1 – Describe and identify the functions of major organelles of plant and animal cells, including the nucleus, cell membrane, cell wall, mitochondria, chloroplasts, and vacuoles.

Objective:

Students will observe plant and animal cells under a microscope to identify their structures and compare their similarities and differences.

Materials:

- Microscope (1 per group)
 - Pre-prepared slides of plant cells (e.g., onion skin)
 - Pre-prepared slides of animal cells (e.g., cheek cells)
 - Worksheets for sketches and notes
 - Safety goggles (1 per student)
 - Dropper with iodine solution (optional for staining)
 - Paper towels
 - Lab gloves
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Safety Precautions:

1. Handle microscopes and glass slides with care to prevent breakage.
 2. Wear safety goggles to protect eyes from accidental splashes or stains.
 3. Use iodine solution sparingly and avoid direct contact with skin or eyes; rinse immediately if contact occurs.
 4. Dispose of used slides and other materials in designated containers to ensure safety and cleanliness.
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Procedures:

1. Preparation:

- Distribute microscopes, slides, and materials to each group.
- Ensure all students are wearing safety goggles and gloves.

2. Observing Plant Cells:

- Place the plant cell slide (e.g., onion skin) under the microscope.
- Start with the lowest magnification to locate the cells, then gradually increase magnification to observe details.
- Identify the cell wall, cell membrane, and nucleus.
- Sketch the observed plant cell on the worksheet and label its parts.

3. Observing Animal Cells:

- Repeat the steps with the animal cell slide (e.g., cheek cell).
- Locate the nucleus and cell membrane.
- Compare the appearance of the animal cell to the plant cell.
- Sketch the observed animal cell on the worksheet and label its parts.

4. Discussion and Comparison:

- Have students write observations about the differences and similarities between plant and animal cells.
- Guide them to relate these findings to the principles of cell theory.

Note: Clean-up

- Carefully remove slides and return them to their storage cases.
- Clean the microscope lenses with a soft, lint-free cloth.
- Dispose of any waste materials, such as used gloves and paper towels, in designated bins.
- Return all equipment to its proper location.
- Ensure the work area is clean and all materials are accounted for before leaving.