

Lab: Comparing Plant and Animal Cells

PRE-LAB

1. Describe the process of making a wet mount slide.
2. State which cell structures you expect to see with the aid of a compound light microscope.
3. Explain how a cell wall differs from a cell membrane.
4. Explain why cells have different shapes.
5. Why are cells microscopic? (Why are most cells so very small?)
- 6.

PROCEDURE 1: Cheek Cells

1. Place a drop of methylene blue on a slide. Take a toothpick and gently scrape the inside of your cheek. Rub the toothpick in the stain and place a coverslip over the spot. **THROW AWAY THE TOOTHPICK IMMEDIATELY!!**
2. Observe the cheek cell under low, medium and high power.
3. Cheek cells will be the light blue or clear structures with a dark, blue organelle inside each. **CHECK** for verification.
4. Draw the cheek cells under high power - label the cell membrane and nucleus.

PROCEDURE 2: Elodea Cells

1. Remove a fresh green Elodea leaf.
2. Prepare a wet mount slide of the leaf and examine under low, medium and high power.
3. Observe the flowing motion of the chloroplasts.
4. Sketch several cells under high power. Label the parts and color appropriately.
5. Use a dropper to collect a small amount of salt water.
6. Add several drops of salt water to the specimen by spreading it along the edge of the cover slip. Use a tissue to draw the water through the sample to the other side.
7. Observe the change and draw what you see.

PROCEDURE 3: Tomato Cells

1. Obtain a small piece of tomato skin, remove pulp and prepare a wet mount slide with the inner side down.
2. Examine under low, medium and high power.
3. Observe the large chromoplasts with pigment.
4. Sketch several tomato cells under high power, label cell wall and chromoplasts.
5. Color structures appropriately.

PROCEDURE 4: Pond Water

1. Obtain a small sample of pond water.
2. Add a couple of drops of pond water to a slide. Add a coverslip.
3. Observe the water under low, medium and high power.
4. Locate two organisms and draw them under high power.

ANALYSIS:

1. Why are stains such as methylene blue used when observing cells under the microscope?
2. How does the cheek cell differ from the Elodea cell?
3. Which was the larger cell, the Elodea or the cheek cell?
4. What is the general shape of a cheek cell?
5. What cell structures do the cheek cell and the Elodea share?
6. What are the green bodies inside the Elodea cells and what is their function?
7. What is the general shape of the Elodea cell?
8. In the potato cell, the iodine caused the leucoplast to change to what color? This indicates that the leucoplasts contain what?
9. The potato cell lacks what structures that the Elodea contain? Why don't they contain these structures?
10. Describe the general shape of the tomato cells.
11. What were the organisms drawn in the pond water? (plant or animal) How can you tell?
12. Is the nucleus always found in the center of the cell?
13. Which part(s) of the animal cell gives shape to the cell?
14. Which part(s) of the plant cell gives shape to the cell?
15. Why don't animal cells have chloroplasts?
16. Describe some of the problems you had when preparing slides and viewing them. Based on your experience, how will you solve these problems the next time you prepare a slide and use a microscope?