LAB LESSON PLAN
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California Agriscience Institute for Agriculture Teachers
California Department of Education

LAB TITLE: HOW DO ANIMAL AND PLANT CELLS DIFFER?

Ag Model Curriculum Standard(s), Learning Outcomes(s) & Biological Standard(s) Addressed: Animal Science B-3 and 4; Plant Science A-1, 6. Biological Standard #1

Objective(s): Upon completion of the lab activity, the learner will be able to: Understand the features of living things and the cells of which they are made of.

Teacher Preparation: More than one day less than one week.

How many class periods will lab take? One class period

Procedures (activities):

Method(s) of Evaluation: Lab drawing and teacher observation

HOW DO ANIMAL AND PLANT CELLS DIFFER?

If you want students to see movements of chloroplasts because of movement of cytoplasm (cyclosis), add a pinch of baking soda to a culture dish of Elodea one-half hour before class. Place the culture dish beneath a bright light.

MATERIALS AND/OR EQUIPMENT

- Light microscope
- Glass slide
- Coverslip
- Medicine dropper
- Methylene blue stain
- Toothpick, flat type
- Elodea plant leaf
- Water

PROCEDURE

1. Make a chart in your notebook in which to record your observations.

2. Prepare a slide of your cheek cells by first putting a drop of stain on a slide. Scrape the inside of your cheek with a toothpick.

3. Rub the toothpick in the stain and cover the drop with a coverslip.

4. Look at the cheek cells first on low power, then on high power.

5. Locate the nucleus, cytoplasm, and cell membrane. Fill in the chart.

6. Draw a picture of a cheek cell you observed. Label the nucleus, cytoplasm, and cell membrane.

7. Prepare a slide of an Elodea leaf by putting the leaf in a drop of water on a slide and adding a coverslip.

8. Look at the Elodea cells on low power of the microscope. Then look at the cells on high power.

9. Locate the cell wall, chloroplasts, nucleus, and cytoplasm. Fill in the chart. Note: You may have difficulty seeing the nucleus and cell membrane.

10. Draw a picture of an Elodea cell. Label the cell wall, chloroplasts, nucleus, and cytoplasm.

Cell part	Cheek cells parts present	Where located in cell	Elodea Cells parts present	Where located in cell
cytoplasm				
nucleus				
chloroplast				
cell wall				
cell membrane				

QUESTIONS AND CONCLUSIONS

1. Describe the shape of a cheek cell.

_____

_____

2. Describe the shape of an Elodea cell.

_____

_____

3. What parts did you see in both cells?

_____

_____

4. What parts are found in plant cells that are absent in animal cells?

_____

_____

5. What do these cell parts do in plants?

_____

_____

6. Is the nucleus always found in the center of the cell?

_____

_____

7. Which part of an animal cell gives shape to the cell?

_____

_____

8. Which parts of a plant cell gives shape to the cell?

_____

_____

9. As a result of this activity, can you correctly say that all living things are made of cells?

_____

_____

HOW DO ANIMAL AND PLANT CELLS DIFFER?

TEACHER'S KEY

1. Make a chart in your notebook in which to record your observations.

2. Prepare a slide of your cheek cells by first putting a drop of stain on a slide. Scrape the inside of your cheek with a toothpick.

3. Rub the toothpick in the stain and cover the drop with a coverslip.

4. Look at the cheek cells first on low power, then on high power.

5. Locate the nucleus, cytoplasm, and cell membrane. Fill in the chart.

6. Draw a picture of a cheek cell you observed. Label the nucleus, cytoplasm, and cell membrane.

7. Prepare a slide of an Elodea leaf by putting the leaf in a drop of water on a slide and adding a coverslip.

8. Look at the Elodea cells on low power of the microscope. Then look at the cells on high power.

9. Locate the cell wall, chloroplasts, nucleus, and cytoplasm. Fill in the chart. Note: You may have difficulty seeing the nucleus and cell membrane.

10. Draw a picture of an Elodea cell. Label the cell wall, chloroplasts, nucleus, and cytoplasm.

QUESTIONS AND CONCLUSIONS

1. Describe the shape of a cheek cell.

   Irregular, shaped like a crumpled bag

2. Describe the shape of an Elodea cell.

   Rectangular, like a shoe box

3. What parts did you see in both cells?

   Nucleus, cytoplasm and cell membrane

4. What parts are found in plant cells that are absent in animal cells?

   Chloroplasts and cell wall

5. What do these cell parts do in plants?

   Chloroplasts trap energy from the sun and make food

   the cell wall protects the cell

6. Is the nucleus always found in the center of the cell?

   No

7. Which part of an animal cell gives shape to the cell?

   Cell membrane

8. Which parts of a plant cell gives shape to the cell?

   Cell wall

9. As a result of this activity, can you correctly say that all living things are made of cells?

   No, from this activity, you can conclude only that Elodea and the inside of a human cheek are made of cells