

**Grade** Fifth

**Topic** Plant and Animal Cells

**Title** Comparing a Plant and an Animal Cell

### **Standards:**

- 5.1.4** Give examples of technology, such as telescopes, microscopes, and cameras, that enable scientists and others to observe things that are too small or too far away to be seen without them and to study the motion of objects that are moving very rapidly or are hardly moving.
- 5.4.7** Explain that living things, such as plants and animals, differ in their characteristics and that sometimes these differences can give members of these groups (plants and animals) an advantage in surviving and reproducing.
- 5.5.6** Describe and use drawings to show shapes and compare locations of things very different in size.

### **Objectives:**

#### **Cognitive Domain**

Students will use a microscope to compare and contrast plant and animal cells.

#### **Psychomotor Domain**

Students will assemble a slide to observe a plant and an animal cell.

#### **Affective and Psychomotor Domain**

Students will draw an illustration and explain what they observe under a microscope.

### **Materials:**

- Microscopes
- Slides
- Forceps
- Dropper
- Geranium Leaf
- Q-tips
- Student Science Journals
- Iodine

### **Procedures:**

1. Re-teach or teach comparing and contrasting.
2. Re-teach or teach how to use a microscope.
3. Use forceps to peel off a layer of plant tissue from the under side of a geranium leaf.
4. Prepare a microscope slide:

- a. Place a piece of the geranium leaf tissue on a microscope slide;
- b. The teacher should add a drop of iodine on this tissue;
- c. Carefully slide another slide or slip cover over this.
5. Student(s) should observe this tissue under the microscope.
6. The students should draw a picture of what they observe in their science journal, and label the plant cell with cell wall, cytoplasm, and nucleus.
7. The students should also describe in their science journal what they saw under the microscope.

(This lesson can be done in one or two days.)

Continue on the same day or begin Day 2 procedures.

1. Each student should use a q-tip to get a sample of tissue from their cheek.
2. Prepare a slide:
  - a. Smear the tissue onto a microscope slide.
  - b. The teacher should add a drop of iodine to this smearing
  - c. Carefully slide another slide or slip cover over this.
3. Student(s) should observe this tissue under the microscope.
4. In their science journal, the student should draw a picture of what they saw (an animal cell)
5. Label the cell membrane, cytoplasm, and nucleus.
6. They should also describe what they say.
7. In their science journal they should then compare and contrast the plant and the animal cell.

### **Pre Assessment:**

Ask the students to draw what a plant cell looks like and what an animal cell looks like.

### **Post Assessment:**

Have the students draw what a plant cell looks like and again what an animal cell looks like. They should label the cell wall, cell membrane, cytoplasm and nucleus.

### **Rubric:**

Drawings in the student journal

- |                |  |
|----------------|--|
| <b>Score 3</b> | Drew a plant cell and labeled the cell wall, cytoplasm, and nucleus.<br>Drew the animal cell and labeled the cell membrane, cytoplasm and nucleus. |
| <b>Score 2</b> | Drew and labeled either a plant cell with a cell wall or an animal cell with a cell membrane.  |
| <b>Score 1</b> | Attempted to draw an illustration of either a plant or an animal cell, no parts were labeled.  |

Describe in writing what plants and animal cells look like:

- |                |  |
|----------------|--|
| <b>Score 3</b> | Described and explained the plant and the animal cell (cell wall, cytoplasm, nucleus); (cell membrane, cytoplasm, nucleus) |
| <b>Score 2</b> | Described and explained the plant or the animal cell (cell wall, cytoplasm, nucleus); (cell membrane, cytoplasm, nucleus)  |
| <b>Score 1</b> | Attempted to describe and explain their observations..   |

Compare and contrast

**Score 3** Compared and contrasted the plant and animal cell. (differences -- cell membrane, cell wall; same -- cytoplasm, nucleus)

**Score 2** Could compare or contrast the plant and animal cell

**Score 0** Could not compare and contrast.

### **Extensions:**

Make Shrinky Dink Cells (available from Educational Innovations; [www.teachersource.com](http://www.teachersource.com))

Jello cells (directions available from ETHOS)

Read, discuss, and take notes on *Incredible Cells* (Newbridge Discovery Links) and/or the leveled readers in Scott Foresman on cells.

### **Created By:**

Pat Heitzmann

Carolyn Farrow

Kim Kalamara