

Title: Animal and Plant Cells
Grade(s): 5
Subject(s): Science
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Overview: The teacher will review common parts of plant and animal cells then lead the class in a discussion regarding how to tell if a cell is from a plant or animal. Unlabeled pictures of two different cells will be placed on the students' computers; students will examine the pictures, label the cell parts, and decide if the cell is from a plant or animal. Finally, students will write an explanation of how they know which cell is from which type of organism.

Content Standards:

SC (5)	7. Identify common parts of plant and animal cells, including the nucleus, cytoplasm, and cell membrane.
TC (3-5)	1. Use input and output devices of technology systems.
TC (3-5)	2. Use various technology applications, including word processing and multimedia software.
TC (3-5)	10. Use digital environments to collaborate and communicate.

Local/National Standards:

Primary Learning Objectives:

The student will:

- Correctly label the parts of the cells in a **Word** document;
- Decide as a group whether each cell is from a plant or from an animal, then justify their decision in writing as part of the document.

Additional Learning Objectives:
Approximate Duration of Lesson:
Materials and Equipment:
Technology Resources Needed:
Background/Preparation:

60 minutes

Illustrations or photos of plant & animal cells to display to class
 Computer, **Microsoft Word**, USB drive with saved pictures of unlabeled plant and animal cells (see "Background/Preparation" section), ELMO with projector or Promethean Board.

1. Before this lesson, the teacher will need to save several *unlabeled* pictures of plant and animal cells onto a USB drive (one USB for all to share *or* one USB per group). Be sure to cite sources for the images, if necessary. The following website has several images of plant & animal cells:

www.yellowtang.org/cells.php

2. You may choose to save the images to each computer before the lesson or have students do so during the lesson (see Step 3 in Procedures/Activities).

3. Students should be familiar with the different organelles (parts) of plant and animal cells.

**Procedures/
Activities:**

Step 1 Using an ELMO and projector or Promethean Board, display an illustration or a photo of a **plant cell** and an **animal cell**. Have the class identify the various **organelles** (parts) of the cells including the:

- **nucleus** (plant and animal)
- **chromosome** (plant and animal)
- **endoplasmic reticulum** (plant and animal)
- **ribosome** (plant and animal)
- **mitochondria** (plant and animal)
- **cytoplasm** (plant and animal)
- **cell membrane** (plant and animal)
- **cell wall** (plant)
- **vacuole** (plant)
- **vesicle** (animal)
- **chloroplast** (plant)

Ask students, “How can we tell if a cell is from a plant or an animal?” Discuss the parts of the cells that will help us determine that answer (i.e., if the cell has a cell wall, it must be from a plant).

Step 2 Divide the class into small groups of 3-5 students, with one Computer per group.

Tell the students that they are investigative scientists. Deep sea ocean researchers have found a new, unexplored section of the ocean. The scientists want to know what type of new creatures can be living in this part of the ocean. The researchers have collected various samples from the water containing different types of cells. The researchers have brought the samples to your group and would like to know what type of new species could be living in this part of the ocean (are these plants or animals?).

Step 3 If needed, review for students how to copy images from the USB drive to their computer desktop and how to safely remove a UAB drive from their computer.

To save images to the Computer (from USB drive)

Give each group a USB drive containing the saved images. Instruct the groups to save the images to their computer:

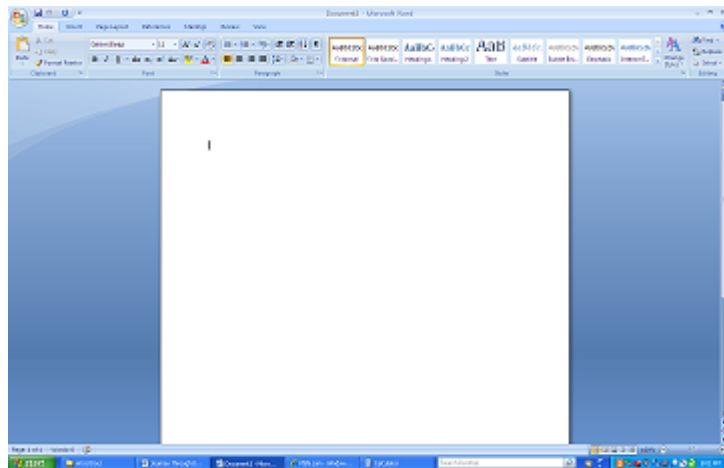
- Insert USB drive into the Computer.
- In the Start Menu go to My Computer.
- Under the label Devices with Removable Storage, double click the correct drive.
- The saved picture files will appear.
- Click on the picture you want to save. (It will be highlighted). Drag the file from the window onto the desktop. The file will now appear on the desktop.

To remove the USB drive, move the mouse to the bottom right of the screen. Hover the mouse over the icons until you see *Safely remove hardware* appear. Click the Icon (it looks like a green arrow and a gray box) and then click the message “Safely Remove Hardware.” You may now remove the USB drive.

Step 4

If needed, review how to insert pictures into a Word document:

Open a blank **Word** document. It should look like this:



To insert the picture saved on the Desktop, click on the *Insert* tab. (The second tab beside *Home*.)

Under the *Insert* tab, click on *Picture*. A window will appear where you can find your file. Click on *Desktop*. The files will appear. Click on the file you want to open and click *Insert*.

The picture will now appear in the **Word** Document.

Important. Follow these steps to make typing around the picture easier

- Click on the picture
- Under the red tab labeled *Picture Tools*, click on *Format*.
- Click on *Text Wrapping*, and then choose *Behind Text*.

To save the **Word** Document :

- Click on the **Microsoft** symbol at the top left of the page.
- From this menu click *Save As*.
- A window will appear. Designate where to save the file. (*Desktop, My documents, etc.*)
- Give the file a name and click save.
- The Document is now saved in the designated location.

- Step 5 The students will "investigate" the picture of their cells by:
- Labeling the parts of the cells by typing into the document (pictures can be moved by clicking and dragging);
 - Determining what types of new species are in the ocean (plant or animal).

- Step 6 After they have identified their cells, students will discuss their findings with the class including which facts they used to classify the cells as plant or animal. Which cells are from plants? Which from animals? How did you decide that?

Attachments: Assessment rubric.

Assessment Strategies: See attached rubric.

Extension: For an additional challenge, have students play a game in groups of 2 or 4. Student one, or team one, will draw a cell with enough organelles to determine the classification of the cell (plant or animal). Student two, or team two, will examine the drawing and then classify the cell as plant or animal. Teams may take turns drawing and classifying and may keep score of the correct classifications for each team.

Remediation: Provide a hardcopy, labeled illustration of plant and animal cells for students to use as a guide in labeling the parts of the cell.

If students continue to struggle with identifying which cell is which (plant or animal), have them write a list of all the parts of a plant cell and a list of all the parts of an animal cell. Students may then use the lists to compare the pictures and to determine which cell is from an animal and which is from a plant.

Assessment Rubric for Animal and Plant Cells

	1	2	3	4
Labeling Parts	Very few parts of both cells are correctly labeled.	Some parts of both cells are correctly labeled.	Most parts of both cells are correctly labeled.	All parts of both cells are correctly labeled.
Classify as Plant or Animal with Justification	Neither cell is correctly classified and no justification given.	One cell is correctly classified with justification.	Both cells are correctly classified, but justification needs work.	Both cells are correctly classified and reasonable justification is given.
Collaboration	Seldom collaborated	Some collaboration (50% of time)	Often collaborated (75% of time)	Student shared the computer; had a good attitude; contributed to the work.
Technology	Did not use the available technology.	Used software correctly but did not attempt to transfer images from USB.	Had difficulty using software or retrieving images from USB.	Student effectively used keyboard, word processing software, & USB device to complete project.