Animal vs. Plant Cells

Georgia Performance Standards: S5L3

Target Grade Level: 5th grade

Materials:

Microscopes*
Glass slides**
Cover slips**
White onion
Q-tips
Food coloring (blue, green, or red)
Tweezers
Scissors
Small cardboard box

*Some teachers have microscopes available to them, others can be checked out (ask teacher for details). There are some microscopes that can hook up to the SMART board.

**Glass slides and cover slips can be found in the science room available to Project FOCUS students.

Safety Concerns: The glass slides and cover slips are sharp and breakable. Be sure to emphasize these items are glass and can cause harm. Demonstrate how to handle these safely. Provide a small cardboard box to dispose of glass slides and cover slips. Do not throw these away in the regular trash can in the classroom.

Procedure: Perform these steps on your own, so you know what to expect and can prepare some things in advance for your students.

For the animal cell, take a Q-tip and scrape against the inside of your cheek. Rub the Q-tip on a glass slide, squeeze a drop of food coloring on it, and then place a cover slip over the food coloring. Observe the slide under the microscope, starting with the 20X objective and moving to 40X if necessary. You should be able to see round cells with a nucleus.

For the plant cell, slice the white onion, then cut into tiny pieces and have these ready for your students. Look closely at the inside portion of a small piece of onion, and you will see there is a thin, translucent layer of skin. Peel this up and away from the onion piece using tweezers. Place this flat on a glass slide. If the piece is too large, cut it into a smaller piece with scissors. Squeeze one drop of food coloring on top of the onion skin and place a cover slip over it. Observe the slide under the microscope, again

starting with the 20X objective. You should be able to see rectangular plant cells stacked on top of one another and their nuclei.

Students should be able to perform each of the above tasks on their own, aside from slicing and cutting the onion, which should be done in advance. This is best performed in small groups of two or four, depending on how many microscopes you have. Students can partner up such that one student prepares the cheek slide while the other prepares the onion skin slide. This may take more than one class period, with students rotating with you each time.

Modifications: If I were to perform this lesson again, I would demonstrate this to the class as a whole first, with images of my cheek and onion cells displayed on the SMART board. I would review some of the things we learned about animal and plant cells as a whole class. It seemed some of the students weren't sure of what they were supposed to see under the microscope, so this made it a bit difficult. Also, I had to repeat all the cell components and how to prepare the slides for each set of four students. It would have been easier to do a demonstration and review cell parts with the whole class first rather than take up valuable time going over everything per four students.