

USING MICROSCOPES	
Objective	The students will be able to describe the differences between plant and animal cells, and how to operate a microscope, to examine cheek cells, onion cells, and potato cells. As a class, they will then use FluidSurveys to create a poll to see how many people described the correct cell under their microscope.
Learning Environment	The class will use a computer with internet access in the computer lab.
Types of Students	The students will be in elementary school and specifically grades 3-6.
Standards	ISTE/NETS Standards Facilitate and Inspire Student Learning and Creativity
Materials	Computers in computer lab with internet access, FluidSurveys Projects.
Procedures	<ol style="list-style-type: none"> 1. The students will learn how to use FluidSurveys Projects with the help of their teacher. 2. The teacher will need to prepare a viewing clip for the students showing a diagram of a microscope labeling all of its parts and guide them through an introduction to the following parts from top to bottom: Eyepiece 10x Body tube Revolving nose piece Objective lens 4x (low); 10x (medium); 40x (high) Stage Stage clips Carrying arm Mirror or light source (lamp) Base <p>PURPOSE To give them the experience of using a microscope and to further the students understanding of cells.</p> <ol style="list-style-type: none"> 3. Then, each student will be assigned to discover the difference between plant and animal cells using a microscope. Setting Up a Wet Mount Slide: The teacher explains that a wet mount slide gets its name because it is wet with either stain or water. Stains are used to color parts of cells so they may be seen easily. In order to view something with a microscope a person must be able to see through it. The object must let light through it - this means translucent. The teacher then demonstrates how to make a wet mount slide. Then the student will advance to prepare their own slides for observation. The teacher may draw the following diagram on the screen and describe what she will do with the materials. A wet mount slide includes the following: a slide, a cover slip, a specimen, a drop of stain or water. When preparing a slide, hold the cover slip at an angle and let it drop onto the slide slowly trapping the specimen between the two pieces of glass. A piece of onion skin is easy to use in this first activity. 4. Observing and Comparing Cells: Depending on the age of the students the teacher may share them on a screen: Onion Skin <ol style="list-style-type: none"> a. First take a piece of onion skin off the onion. b. Put it flat on a slide. c. Bring the slide to the leader for a drop of iodine stain. d. Carefully put on a cover slip remembering to angle it.

	<p>e. Examine the cell under low then medium power. f. Ask the teacher to put it on high power. g. Draw a few cells showing what you observed in the space provided. h. Describe in a few sentences what you saw while looking at the cell through the microscope.</p> <p>Cheek Cells</p> <p>a. Using a toothpick scrape the inside of your mouth. b. Place it carefully on the center of the slide. c. Bring it to the leader for a drop of blue stain. d. Repeat steps d-h from onion skin directions.</p> <p>Potato Cells</p> <p>a. Using a knife carefully cut a very thin slice of potato. b. Have the leader add a drop of iodine stain. c. Repeat steps d-e from onion skin directions. d. Draw a few cells in the space provided. e. Describe what you saw.</p> <p>5. After each group has presented their findings and assumptions of the cell they think they have viewed as a class they will combine the data and see the percentages of people who were correct.</p> <p>6. The following vocabulary should be discussed and or defined:</p> <p>Cell Walls Plants have thick cell walls to strengthen the plant stem.</p> <p>Cell Membranes Animals have thin membranes because they have other forms of skeletons.</p> <p>Chloroplasts Green colored structures that produce food.</p> <p>Nucleus Both plants and animals have these; they control heredity and cell division.</p> <p>Cytoplasm A clear liquid where most of the cells life functions occur.</p> <p>After the discussion the students should have the opportunity to observe the slides again so they may observe the items discussed.</p>
Application	Using the poll data from Fluidsurveys, the students will create a presentation with the data they have collected about the plant and animal cell findings.
Evaluation	<p>The students will present their whole project. Each student will present his or her section of the project.</p> <p>The students will be evaluated based on the following:</p> <ul style="list-style-type: none"> • Using FluidSurveys – 20 points • Creativeness – 10 points • Individual participation – 20 points <p>50 points</p>

<http://www.col-ed.org/cur/sci/sci06.txt>