



## Unit 7 Lab 2: Cheek Cells

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

### Introduction:

Many things that are viewed using a microscope, particularly cells, can appear quite transparent under the microscope. The internal parts of the cells, the organelles, are so transparent that they are often difficult to see. Biologists have developed a number of stains that help them see the cells and their organelles by adding color to their transparent parts.

While many biological stains are for advanced study only, there are some that are easy to obtain and use. Some readily available stains are: food coloring, iodine, malachite green (Ick fish cure), and methylene blue. Food coloring can be found at a grocery store, and iodine can be found at a pharmacy. The last two stains, malachite green and methylene blue can be purchased at aquarium shops.

Interestingly, certain stains color certain parts of a cell. Scientists choose specific stains when they want to look at a particular part of a cell. You will be experimenting with the two of the stains listed above to see which parts of your cheek cells each one colors.

### Objectives:

- Demonstrate the proper procedures used in correctly using the compound light microscope.
- Prepare and use a wet mount of living cells.
- Stain a wet mounted sample
- Identify cellular organelles in a stained tissue sample

### Materials:

- Microscope
- Eyedropper
- 2 flat slides
- 2 cover slips
- Toothpick
- Cheek cells
- Stain (Lugol's solution or methylene blue)
- Paper towel
- Water
- Pencil
- Paper
- Eraser
- Dilute bleach water in a beaker

### Procedures:

1. Before you begin, decide which stain you will use for the experiment (Lugol's solution or methylene blue). After you have completed your work discard the cover slip and soak the slide in the bleach solution for 5 minutes. **RINSE & DRY YOUR OWN SLIDE BEFORE YOU LEAVE!**
2. Cells from the inside lining of your cheek are good for learning how to stain. Gently scrape the inside of your mouth with the flat side of a toothpick. This scraping will collect some of your cheek cells. (Don't worry; these cells are constantly being shed from your mouth so they will not be missed!)

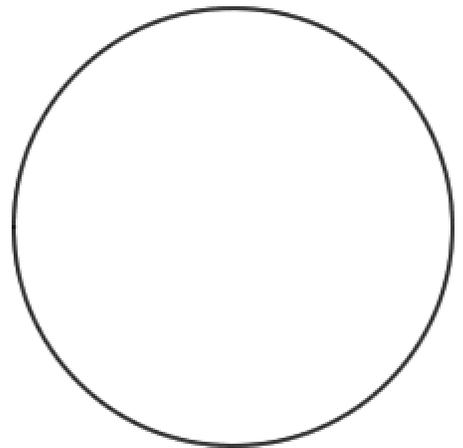
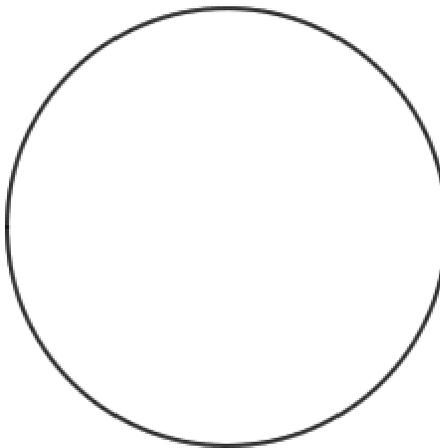
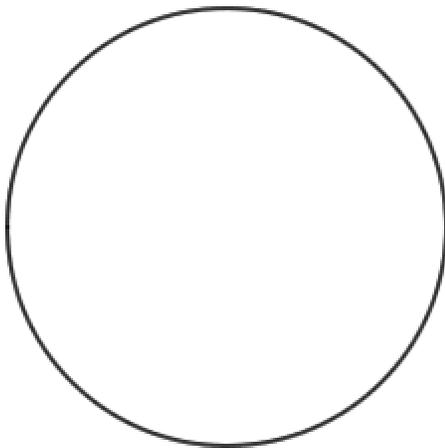
3. Place the cells on a flat slide and make a wet mount using water and a cover slip as you did in the Lab 1 when you made a wet mount of the lower case "e".
4. Now repeat this procedure so that you have two wet mounts of cheek cells (one for each partner in you group).
5. Now you need to add stain to one slide. To add stain, put a drop of the stain next to the cover slip on the slide and then draw it under the cover slip by placing a piece of paper towel against the other side of the cover slip. The paper towel will soak up the water, drawing the stain under the cover slip around the cell. Drawing the stain under the cell is called "wicking."
6. Use the Scanning/Low power/ 4x objective to focus, look at the stained slide under the microscope. You probably will not see the cells at this power. **Sketch** what you see below and place the magnification next to the drawing.
7. Switch to low power. Cells should be visible, but they will be small and look like nearly clear blobs (stained cells will be easier to see). Solid dark objects are probably not cellular. **Sketch** what you see below and place the magnification next to the drawing.
8. Once you think you have located a cell, switch to a high power and refocus. (Remember; do **NOT** use the coarse adjustment knob at this point). **Sketch** what you see below and place the magnification next to the drawing.

**Sketch** the stained cells at scanning, low and high power. Label the nucleus, cytoplasm, and cell membrane. Draw your cells to scale and include the magnification.

Scanning (\_\_\_\_x)

Low (\_\_\_\_x)

High (\_\_\_\_x)



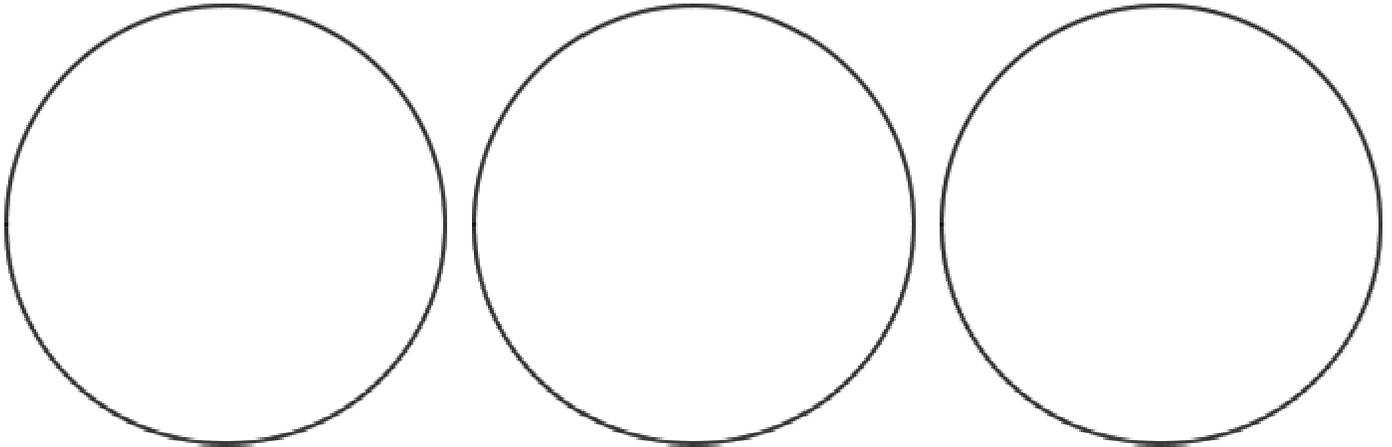
9. Now look at the unstained slide under the microscope repeating steps 6-8. Is it different? **Sketch** what you see and place the magnification next to the drawing.

**Sketch** the unstained cells at scanning, low and high power. Label the nucleus, cytoplasm, and cell membrane. Draw your cells to scale and include the magnification.

Scanning (\_\_\_\_x)

Low (\_\_\_\_x)

High (\_\_\_\_x)



10. Why were the Lugol's Solution and/or methylene blue necessary?

11. Cheek cells do not move on their own, so you will not find two organelles that function for cell movement. Name these organelles.

12. The light microscope used in this lab is not powerful enough to view other organelles in the cheek cell. What parts of the cell **were** visible? What parts of the cell **were not** visible?

Parts of the cheek cell that <b>were</b> visible:	Parts of the cheek cell that <b>were not</b> visible:

13. Were the cheek cells you observed eukaryotic or prokaryotic? How do you know?

**In the next lab you will try using different stains and different types of cells from both plant and animal.**