

Name \_\_\_\_\_

#### QUESTIONS

1. Why is the iodine necessary?

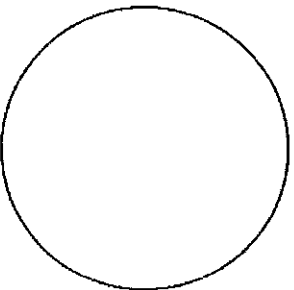
## The Human Cheek Cell

### Procedure:

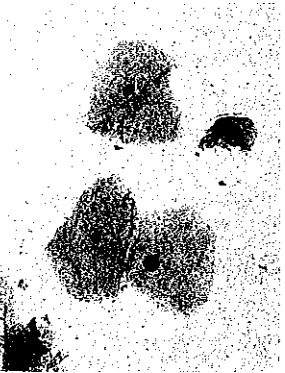
1. Gently scrape the inside of your cheek with the flat side of a toothpick. Scrape lightly. Place the scrapings on a clean, dry slide.
2. Discard toothpicks in the biohazard waste container.
3. Put on gloves to handle the iodine to keep from staining your skin. Put a drop of methylene blue on a slide.
4. Place a coverslip onto the slide. See diagram.
5. Use the SCANNING objective to focus. You probably will not see the cells at this power. Look for darker areas or "shadows" as this is most likely where your cells are located.
6. Switch to the next higher power. Cells should be visible, but they will be small and look like nearly clear brownish-yellow blobs. If you are looking at something dark in color, it is probably not a cell.
7. Once you think you have located a cell, switch to HIGH POWER and refocus.  
(\*Remember, do NOT use the coarse adjustment knob at this point)

Sketch the cell at high power. Draw your cells to scale.

Draw and label the nucleus, cytoplasm, and cell membrane on your cheek cells.



Label the nucleus, cytoplasm, and cell membrane on these diagrams.



2. Why can the iodine enter the cell?

3. What are the shapes of the cells?

4. Some of the cells may be folded or wrinkled. What does this indicate about the thickness of the cells?

5. How does the staining of the nucleus differ from the staining of the cytoplasm?

6. Explain why the cytoplasm looks grainy rather than clear.

## The Onion Cell Lab

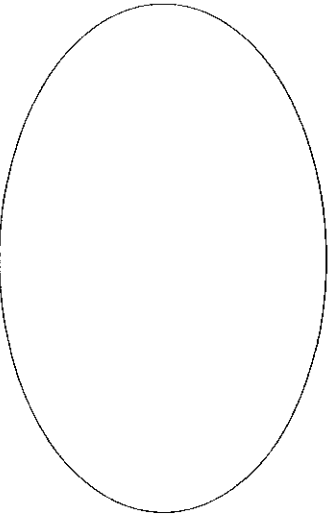
**Background:** Onion tissue provides excellent cells to study under the microscope. The main cell structures are easy to see when viewed with the microscope at medium power. For example, you will observe a large circular **nucleus** in each cell, which contains the genetic material for the cell. In each nucleus, are round bodies called **nucleoli**. The nucleolus is an organelle, which synthesizes small bodies called ribosomes. Ribosomes are so small you cannot see them with the light microscope. Also present in the onion cell, is a well-developed **cell wall** and a **cell membrane** just beneath it.

**Purpose:** To study the structure of the onion epidermal cell, with particular emphasis on the nucleus and nucleoli.

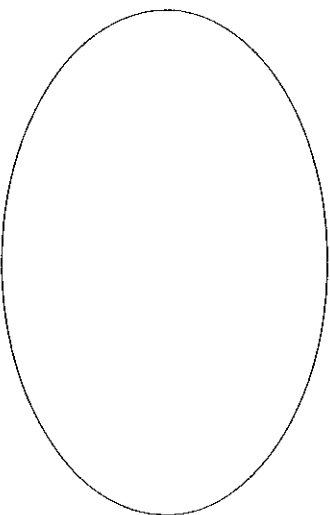
**Materials:** The following materials are required: onion, microscope, glass slide, cover slip, and iodine (**Note:** iodine is toxic and will stain - handle with care).

### Procedure:

1. Get a glass slide and cover slip for yourself and make sure they are both thoroughly washed and dried.
2. Remove the single layer of epidermal cells from the inner (concave) side of the scale leaf (The thinner the better).
3. Place the single layer of onion cell epithelium on a glass slide. Make sure that you do not fold it over or wrinkle it.
4. Place a drop of iodine stain on your onion tissue.
5. Put the cover slip on the stained tissue and gently tap out any air bubbles.
6. Observe the cells under 4x, 10x, and 40x with the diaphragm wide open. Slowly reduce the light intensity by closing the diaphragm, and observe the image. **Which light intensity revealed the greatest cellular detail?** \_\_\_\_\_
7. In the space provide below, **draw a group of 10 neighboring cells** at 10x. In one cell, label all the parts you see.



8. Switch to high power at 40x. Can you see a whole cell? If you can, **draw one cell and label it below**. If no, go back to 10x and draw one cell and label it below.



At the end of the lab answer the following questions:

1. What are the differences between the human cheek cell and the onion epidermal cell? (structures, shape?)
2. What are the similarities between the human cheek cell and the onion epidermal cell?