Instructions for Pre-Lab

1. Print out the lab (3 total pages; 4 including this Pre-Lab instructions page). Write your name, period at the top.
2. Complete the objective (come up with your own objective).
3. Read, summarize, and write down the procedures for Part A: Onion cells. (see book p. 194)
4. Read and understand procedures for the cheek cell and *Elodea* cell.
5. Bring to class!
6. Closed toed shoes!

Investigating Cell Structures (p. 194-195)

[Pre-Lab] Objective: _____

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Materials:

- forceps
- glass slides
- toothpicks
- coverslips
- pipette
- onion
- iodine
- razor blade
- methylene blue

Part A: Plant and Animal Cell Structures

Onion Cells: Follow steps #1-6 in the book. **Summarize** and write out procedures below: **[Pre-Lab]**

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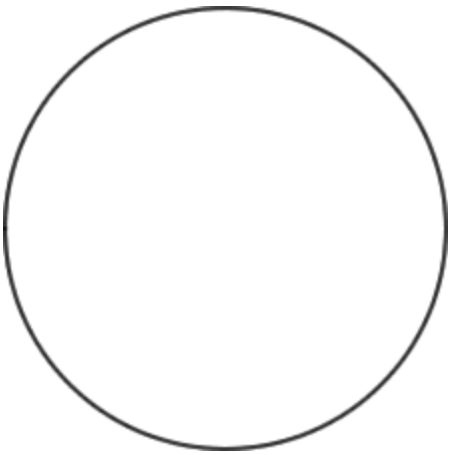
Onion: Label the nucleus, cell membrane, cell wall, cytoplasm

Low



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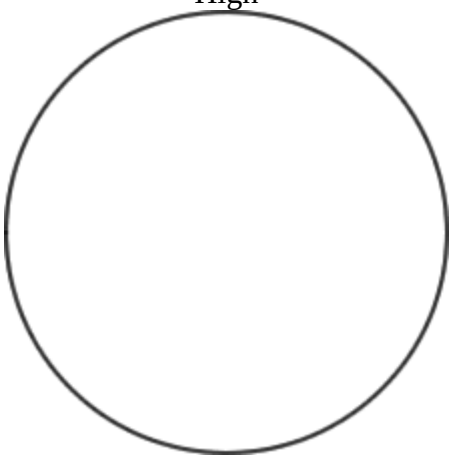
High



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Cheek cells: Ignore step #7 in book and follow the procedures below! [Pre-Lab:] Read and understand the procedures below!

1. Put one drop of methylene blue on a slide. Caution: methylene blue will stain clothes and skin.

2. Gently scrape the inside of your cheek with the flat side of a toothpick. Scrape lightly.

3. Stir the end of the toothpick in the stain and throw the toothpick away.

4. Place a coverslip onto the slide

5. Use the SCANNING objective to focus. You probably will not see the cells at this power.

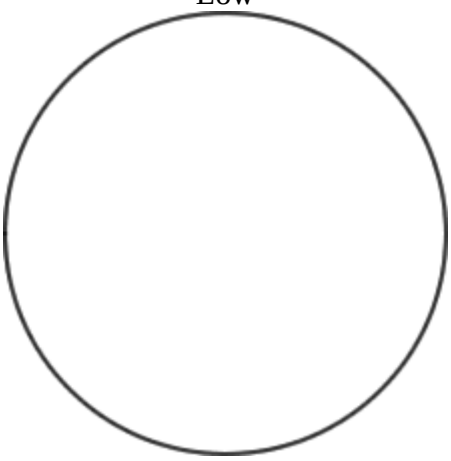
6. Switch to low power. Cells should be visible, but they will be small and look like nearly clear purplish blobs. If you are looking at something dark purple, it is probably not a cell

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 low and high power. Draw your cells to scale.

Cheek: Label the nucleus, cytoplasm, and cell membrane.

Low



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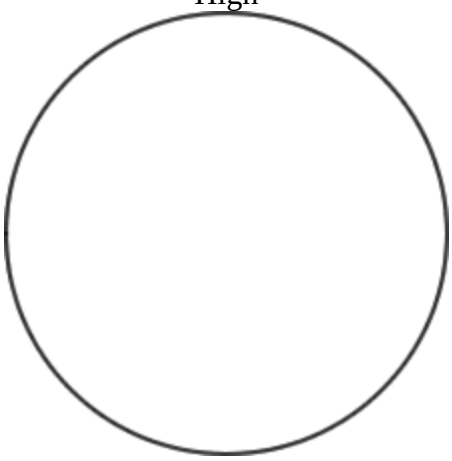
High



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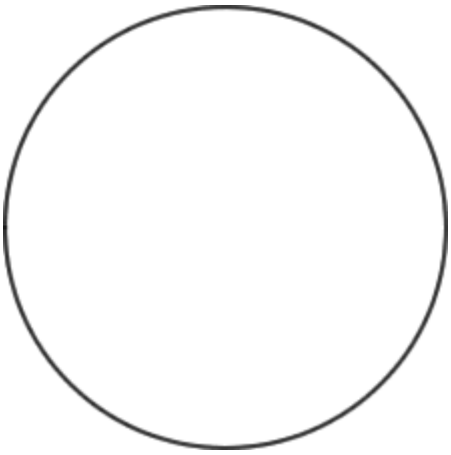
8. CLEAN UP!!!!!!!!!!!!!!!!!!

Elodea cells: *Elodea* is a type of freshwater plant. **[Pre-Lab:] Read and understand the procedures below!**
1. Obtain one *Elodea* leaf. Place on slide.
2. Add one drop of water on leaf. Carefully place coverslip on top of leaf and water drop.
3. Observe and draw.

Elodea: **Label** on one of your drawings: cell wall, cell membrane, cytoplasm, chloroplast, vacuole

Low



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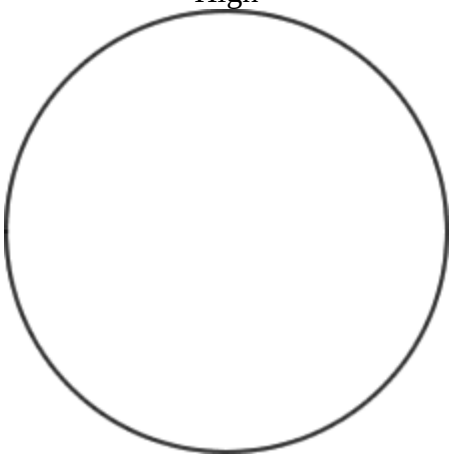

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4. Place slide above the light bulb of the microscope for about 10 seconds. Now, what do you observe about the cells? (Use low power; look at the structures inside of the cells…)

Post-Lab Analysis Questions:
1. Describe the shapes of the onion cells, cheek cells and *Elodea* cells you observed. Describe the functions of each of the structures you saw in the cells.

2. Why is iodine necessary? Why is methylene blue necessary?

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

4. List 3 organelles that were NOT visible but should have been in the cheek cell.

5. Is the cheek cell a eukaryote or prokaryote? How do you know?

6. The mouth is the first site of chemical digestion in a human. Your saliva starts the process of breaking down the food you eat using enzymes. Keeping this in mind, what organelle do you think would be numerous inside the cells of your mouth?