

Name:

Class:

Date:

Onion, Elodea Leaf, and Cheek Cell Labs Questions

I. PRE-LAB QUESTIONS. *Answer all Questions in COMPLETE SENTENCES.*

1. What is the function of chloroplasts? What do chloroplasts contain that perform this function?

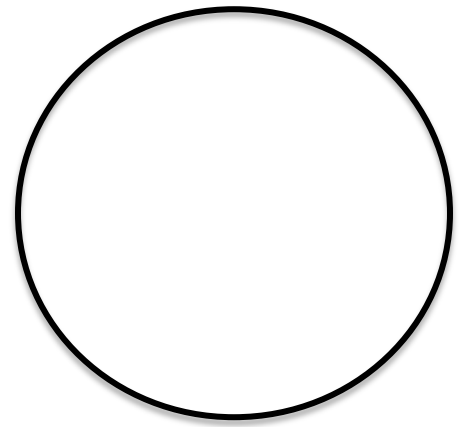
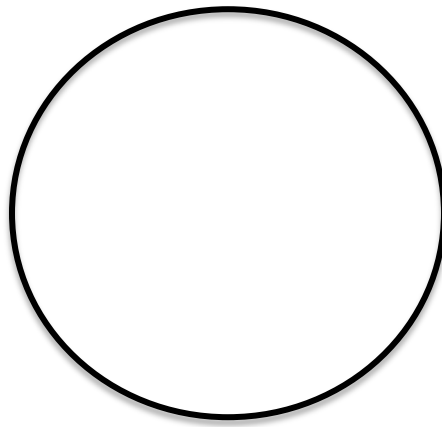
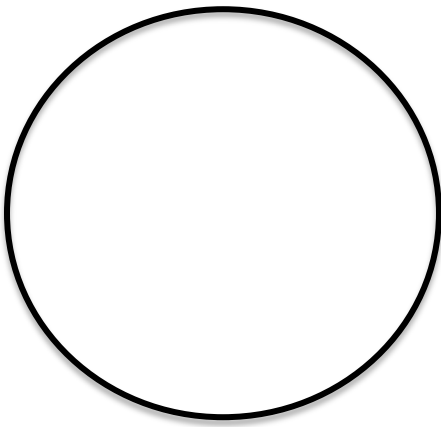
2. Name two structures found in plant cells but not animal cells.

3. Name three structures found in plant cells AND in animal cells.

4. What structure surrounds the cell membrane (in plants) and gives the cell support.

II. ONION CELLS LAB. *You will prepare a wet-mount slide (and then stain that slide) of an onion cell and make clear, detailed observations from viewing the slides, with a microscope at different magnifications. You will identify some structures visible in onion plant cells and observe the effect of adding biological stains to specimens. DO NOT RUSH THROUGH THIS LAB!*

1. Follow the instructions to prepare a wet-mount slide- small drop of water on center of slide; place the small, thin layer of onion tissue flat (not folded) in the water; place cover slip on the drop of water; lightly tap the cover slip.
2. Place the onion slide on the stage of the microscope. Examine it under low, medium, and high power, looking for a group of clearly visible cells (look for Cell Walls).
3. Draw what the cells look like on low, medium, and high power. Show as much detail of WHAT YOU CAN SEE for each magnification. Label what you see. Answer the following question:
 - a. You are looking at onion tissue. Are the cells mostly the same shape? Describe the shape of the cells.



Name: Onion Cells

Name: _____

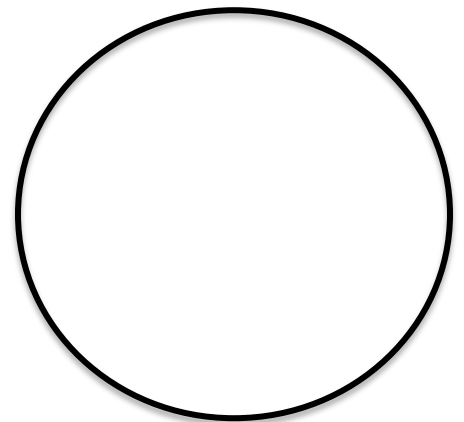
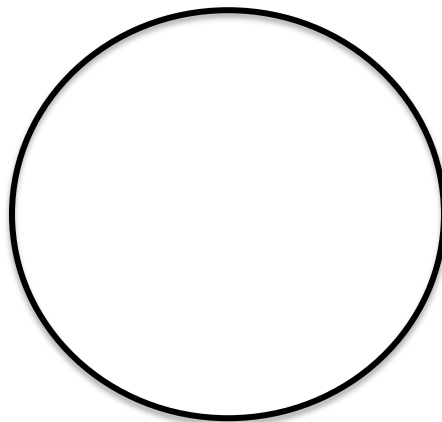
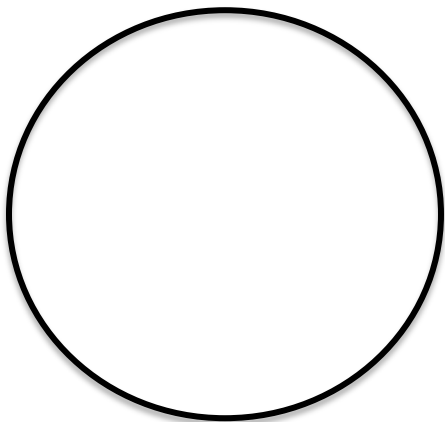
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Magnification: _____ X

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4. Carefully remove the wet-mount slide of the onion tissue from the stage of your microscope.
5. Add one drop of the Lugol solution on one side of the slide cover where it meets the slide. Take a small piece of paper towel and insert it on the opposite side of the slide cover to “pull” the Lugol solution across the onion tissue. **LUGOL SOLUTION STAINS EVERYTHING!**
6. Examine your cells under low, medium, and high power.
7. For each magnification, draw what you see and label what you can see well: cell wall, nucleus, cell membrane, and cytoplasm.
8. Add color pencil to your drawings, and be sure that they are DETAILED.



Name: Onion Cells with Lugol

Name: _____

Name: _____

Magnification: _____ X

Magnification: _____

Magnification: _____

9. Answer the following questions in COMPLETE SENTENCES.

a. What is an advantage of using Lugol solution. _____

b. Describe the parts of the cell that became visible and easier to see AFTER the cells were stained with Lugol solution. _____

III. ELODEA LEAF LAB. *You will prepare a wet-mount slide of an Elodea Leaf and make clear, detailed observations from viewing the slide, with a microscope at different magnifications. You will identify some structures visible in the cells and observe the effect of adding salt water to specimens. DO NOT RUSH THROUGH THIS LAB!*

1. You will complete the lab sheet entitled Elodea Lab and once finished with the lab, answer the *Analysis Questions* that conclude the Elodea Lab in the space below.

1. *What happened when salt was added to slide.* _____

2. *Chloroplasts in ONE leaf cell.* _____

Estimate number of leaf cells in leaf observed (the leaf is 3 cell layers thick) _____

How many chloroplasts in the elodea plant pictured on front of Elodea Lab _____

SHOW YOUR MATH BELOW.

3. Explain why plants have so many leaves. _____

4. Function of Cell Wall. _____

Function of Cell Membrane. _____

Why these two functions necessary? _____

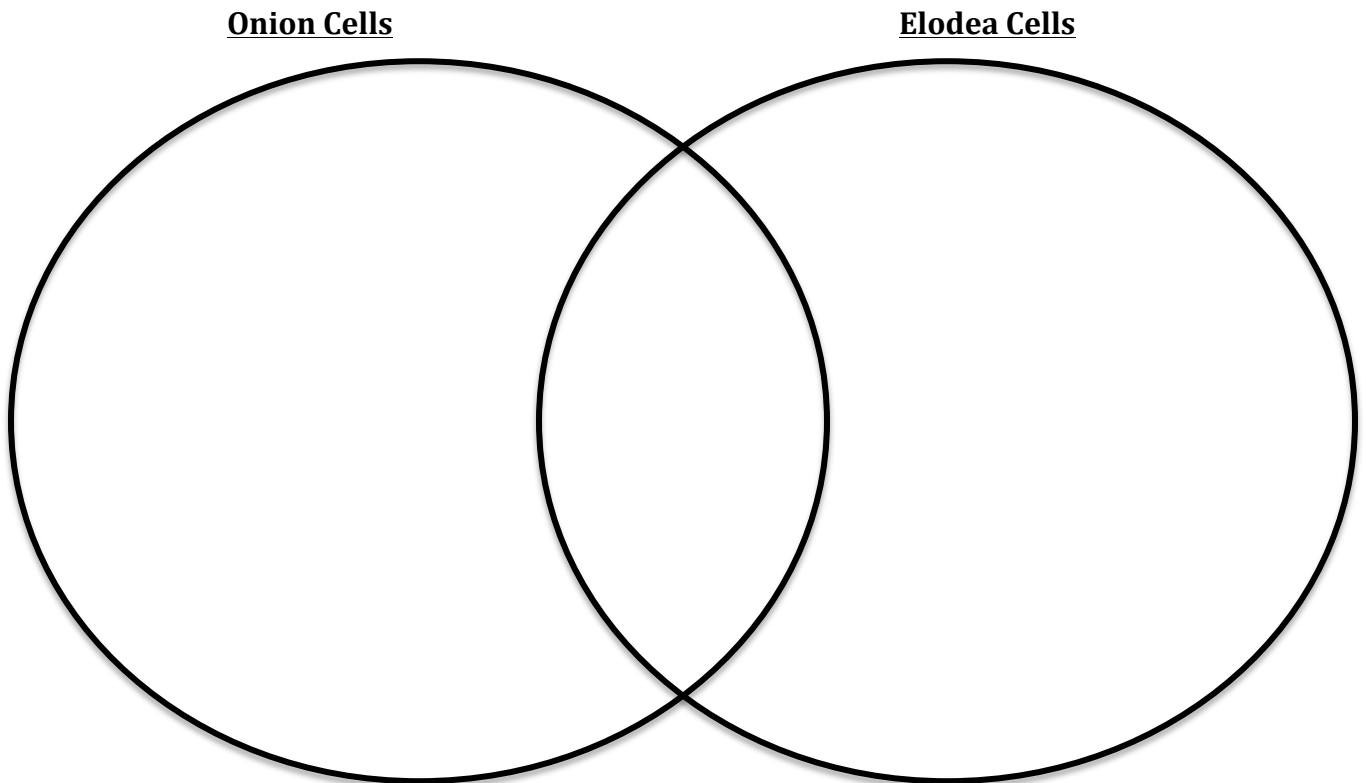
IV. POST-LAB (Onion and Elodea) QUESTIONS. *Answer all Questions in COMPLETE SENTENCES.*

1. Describe the shape and the location of chloroplasts.

2. Why were no chloroplasts found in the onion cells? (hint: think about where you find onions)

3. Which type of cell was smaller - the onion cells or the elodea cells?

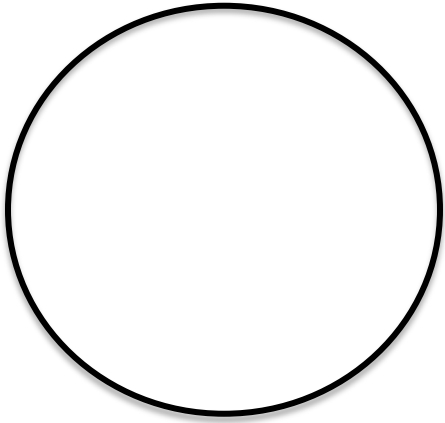
4. Fill out the Venn Diagram below to show the differences and similarities between the onion cells and the elodea cells.



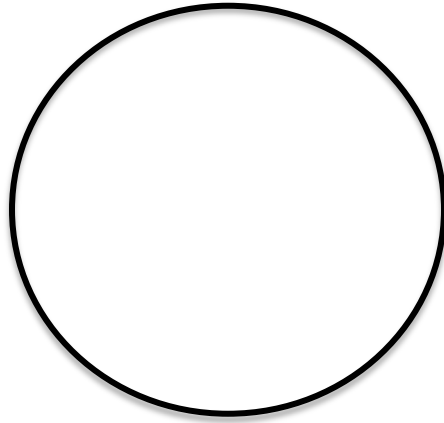
V. CHEEK CELL LAB. *You have observed Plant Cells, now you will prepare and observe an Animal Cell- your own cheek! Once you have completed the Cheek Cell Lab, you will answer questions comparing your results from the Cheek Cell Lab and the Onion Cell Lab.*
DO NOT RUSH THROUGH THIS LAB!

1. You will prepare a wet mount slide of your cheek cells, stained. Place a drop of water onto the middle of the glass slide.
2. Use a coffee stirrer/toothpick to lightly scrape the inside of your cheek and then roll the coffee stirrer/toothpick around in the drop of water. Drop the slide cover onto the water and lightly tap the slide cover.

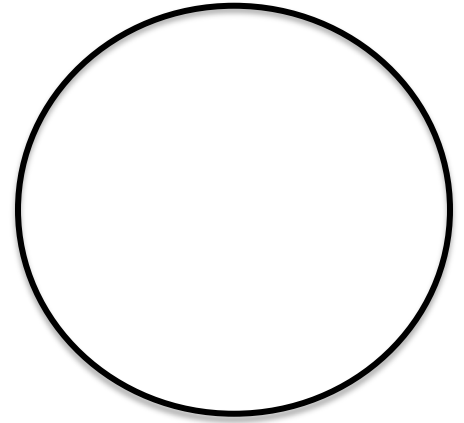
3. Add ONE drop of the Lugol solution onto one side of the slide cover and using a small piece of paper towel "pull" the stain to the other side of the slide cover.
4. Place the slide on the microscope and STARTING with the LPO lens, focus and look at the stained slide under the microscope. You probably will not see the cells at this low power, however sketch what you see and write the magnification below the drawing.



Name: Cheek Cells with Lugol
 Magnification: _____ X _____

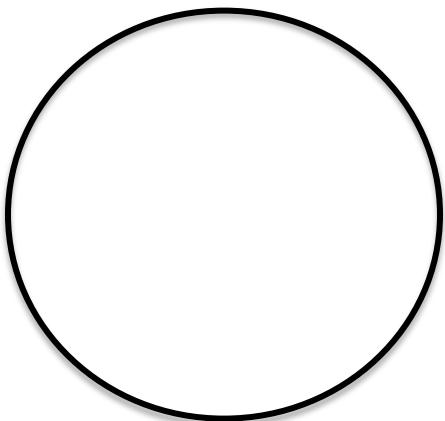


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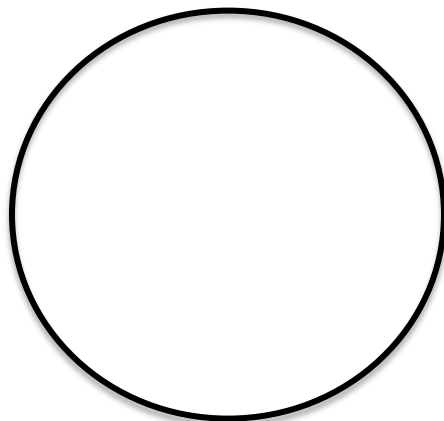


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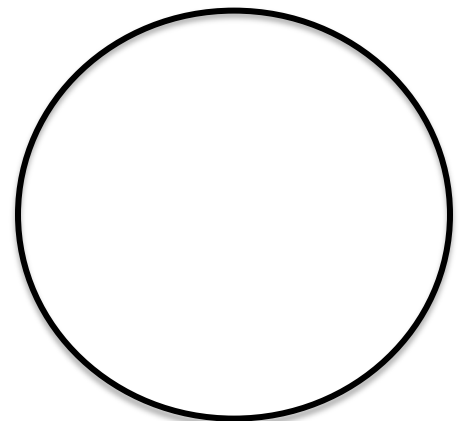
5. Switch to medium power. Magnify and focus your microscope. Cells should be visible, but they will be small and look like nearly yellowish-clear (from the stain) blobs. Label and sketch what you see, in color, in the middle circle above- include name and magnification.
6. Once you think you have located a cell, switch to the HPO lens and refocus. Label and sketch what you see in the last circle above. Consider using the electric light microscope. While using the HPO lens, can you label the nucleus, cytoplasm and cell membrane?
7. Once you are finished with your observations and looking at the cells, clean up after yourself- throw away your coffee stirrer/toothpick and your slide.
8. Transfer your sketches of the ONION CELLS (from Monday) to the circles below.



Name: Onion Cells with Lugol
 Magnification: _____ X _____



Name: _____
 Magnification: _____



Name: _____
 Magnification: _____