

Plant Cell Lab

Background Info: Eukaryotic cells are classified as plant cells or animal cells. Plants cells and animal cells have parts that are similar and some parts that are different. Organelles found in plant cells that can be seen using a light microscope are the **cell wall, cell membrane, cytoplasm, nucleus, and the chloroplast**. The cell wall provides support and protection. The cell membrane allows material to enter and leave the cell. The cytoplasm is the jelly like fluid inside of the cell. The nucleus is the control center of the cell. And finally, the chloroplasts are the green structures that make food for plant cells through photosynthesis.

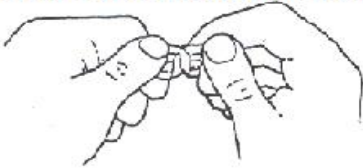
Materials:

microscope
eye dropper
slide

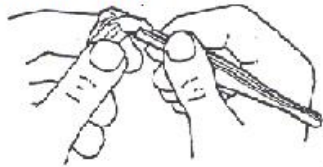
cover slip
methylene blue
onion/elodea cells

Part 1 - Onion Skin Cells:

1. Pull the onion slice apart.



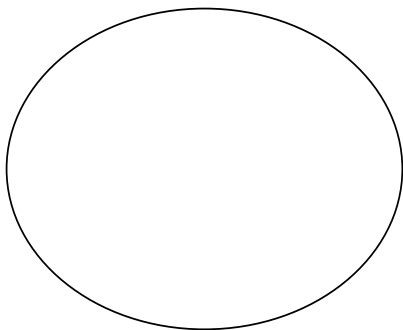
2. Peel off a thin piece of the onion skin.



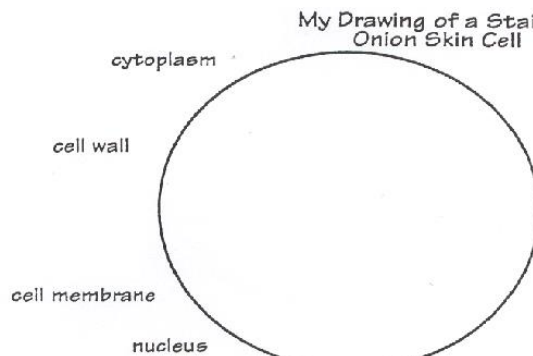
3. Place the onion skin piece on the center of the slide. Add one or two drops of methylene blue and slowly lower the cover slip.

4. **Observe the specimen with the microscope.** Use the low objective first then switch to the medium power, and eventually to the high power.

5. **Draw what you see below.** Label the **cell wall, cell membrane, cytoplasm, and nucleus** for the high power.



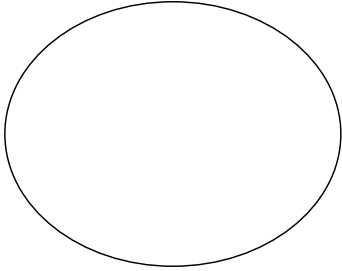
Low Power: _____



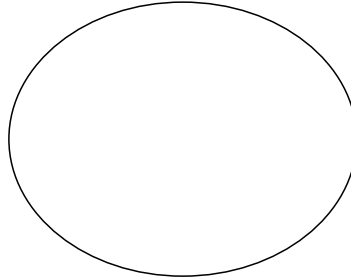
High Power= _____ x

Part 2 - Elodea Cells:

1. Place a single *Elodea* leaf on the slide.
2. Place the cover slip gently over the *Elodea* leaf.
3. Place the slide on the microscope.
4. Look for and observe ***cytoplasmic streaming***. This will be evidenced by the movement of the chloroplasts.
5. Draw what you see below. Label: ***cell wall, cell membrane, cytoplasm, and chloroplasts*** on the high power.



Low Power: 4x



High Power: 40x

Analysis:

1. What is the organelle responsible for the green color found in the elodea leaf? What is its function?
2. Why were no chloroplasts found in the onion cells? (Hint: think about where you find onions)
3. Describe the shape of a single cell of an onion skin.
4. All plant cells have a cell wall. What is the function of the cell wall?
5. Fill out the Venn Diagram below to show the differences and similarities between the plant and animal cell.

PLANT CELL

ANIMAL CELL

