Life Science – Microscope: Plant and Animal Cells **Binder Page _____**

Name _____ Date _____ Period _____

BACKGROUND INFORMATION: As you already know, all living things are made of cells. In this lab we will use the microscope to examine a variety of cells. Some of these cells will still be alive when we examine them and others will be previously prepared slides. We will look at plant cells such as cork, onion, and Aloe. Then we will look at frog blood cells and your own check cells.

MATERIALS

prepared cork slide	clean glass slide	toothpick
prepared frog blood slide	clean coverslip	forceps
iodine stain	piece of onion	paper toweling
methylene blue stain	Aloe leaf	

PART I - OBSERVING PLANT CELLS

A. CORK CELLS

1. Who was the first person to look at cork and use the word "cells"? _____

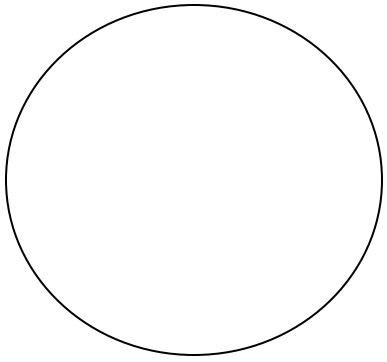
   a.) How long ago did he do this? _____

   b.) Are the cork cells dead or alive? _____

2. Get the prepared slide of cork.

3. View the cork under 40X and then 100X. Try to focus on a thin edge.

4. Change to 400X CAREFULLY. Perfectly focus the image, take a picture with your iPad, then crop and import it into the circle provided.



5. **Label the cell wall** and fill in object and magnification.

Object: _____

Magnification _____

B. ONION CELLS

1. You know that an onion is part of a plant, but where does the onion grow? Above the ground or below the ground? _____

2. The onion part of the onion plant does not perform photosynthesis. Do you expect to see any little green chloroplasts in the onion cells? _____

3. Carefully peel a thin layer of onion skin from the inside curve of the onion slice. (Your teacher will demonstrate this.)

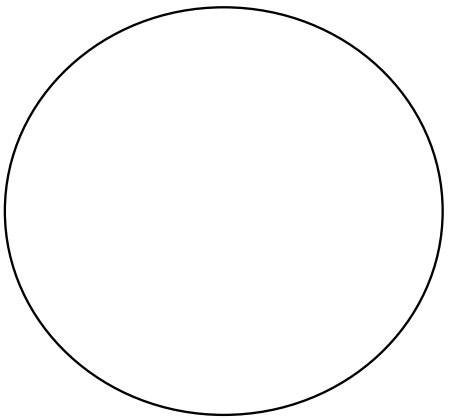
4. Place the onion skin on a clean slide trying to avoid any wrinkles.

5. Place a drop of iodine on the onion.

6. Put a coverslip on top of the onion.

7. Focus on 40X and then 100 X. You should see a whole sheet of cells.

8. Now switch to high power and perfectly focus the image, take a picture with your iPad, then crop and import it into the circle provided.



9. **Label the cell wall, nucleus, and cytoplasm of one cell**.

10. Clean off your slide.

Object: _____

Magnification: _____

C. ALOE LEAF

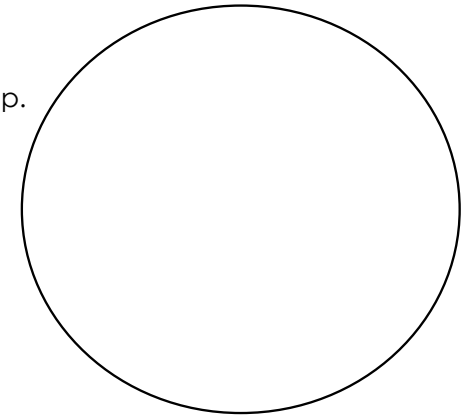
1. Add a drop of water to your clean slide.

2. Remove a piece of a leaf from the Aloe plant and place it in the drop.

3. Add another drop of water and then the coverslip.

4. Observe leaf under 40X and 100X focusing on an area near the edge of the leaf.

5. Now switch to high power and perfectly focus the image, take a picture with your iPad, then crop and import it into the circle provided.



6. **Label the cell wall, cytoplasm, and some chloroplasts.**

Object: _____

Magnification: _____

7. Place your Aloe slide in the palm of one hand and gently blow on it to warm it up. Examine again under 100 X.

8. Keep looking at the same cell. Do you notice anything happening? If so, describe what you see.

_____

_____

_____

9. Take your slide to your teacher for a drop of salty water.

10. Observe under 100X. Describe any changes you see.

_____

_____

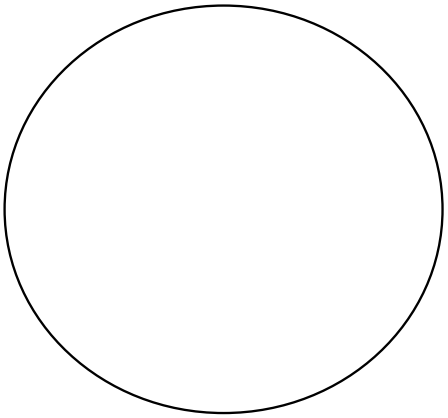
_____

Part II - OBSERVING ANIMAL CELLS

A. FROG BLOOD CELLS

1. Look at the frog blood slide under 100 X.

2. Now switch to high power and perfectly focus the image, take a picture with your iPad, then crop and import it into the circle provided.



3. **Label the cell membrane, cytoplasm, and nucleus**.

Object: _____

Magnification: _____

B. HUMAN CHEEK CELLS (YOURS!)

1. Put a drop of methylene blue stain in the center of a clean microscope slide.

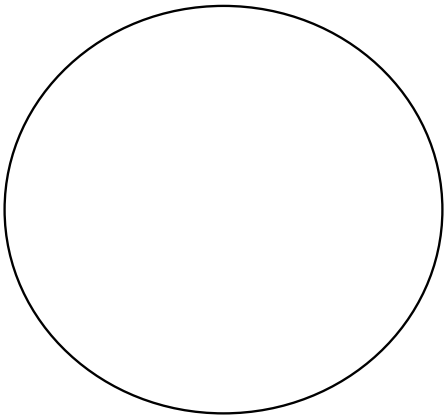
2. With the round end of a clean toothpick, gently scrape the inside lining of your cheek.

3. Stir the toothpick in the methylene blue drop. Place a coverslip over the drop.

NOTE: Break the toothpick and throw it away NOW!

4. Look at the cheek cells under 100 X. Move the slide until you find some cells that are separated and center on one good cell that is by itself.

5. Switch to high power and examine the cell.



6. Now switch to high power and perfectly focus the image, take a picture with your iPad, then crop and import it into the circle provided.

Object: _____

Magnification: _____

7. **Label the cell membrane, cytoplasm, and nucleus**.

8. Throw your slide away in the container provided by the teacher.

Turn over for some questions

Questions and Conclusions

1. Indicate whether the words or phrases refer to cork, onion, Aloe , frog blood, or cheek cells by circling the proper choice(s). More than one choice may be used.

a) roundish in shape	cork	onion	Aloe	frog blood	cheek
b) green chloroplasts present	cork	onion	Aloe	frog blood	cheek
c) a plant cell	cork	onion	Aloe	frog blood	cheek
d) cell wall	cork	onion	Aloe	frog blood	cheek
e) an animal cell	cork	onion	Aloe	frog blood	cheek
f) nucleus	cork	onion	Aloe	frog blood	cheek
g) cytoplasm	cork	onion	Aloe	frog blood	cheek
h) no cell wall	cork	onion	Aloe	frog blood	cheek

2. IN COMPLETE SENTENCES, explain five differences between plant cells and animal cells.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____