**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Core: \_\_\_\_\_\_\_\_\_**

**Comparing Plant and Animal Cells**

**Problem:** How are plant and animal cells alike? How are they different?

**Procedure:** In this virtual lab, you will view cells from your cheek (animal cells) and cells from onion, and from elodea, which is a water plant. Careful observation should reveal similarities and differences between the cells.

**Part 1 - Animal Cells**

If we did this in class, we would get cheek cells by scraping the inside of the mouth with a toothpick and then rubbing the toothpick on a drop of water with blue stain. The blue helps you see the cells which are normally a clear color. The virtual lab begins at the step where you place the slide on the microscope page.

1. Access the Virtual Microscope at http://www.udel.edu/biology/ketcham/microscope/

2. View the slide labeled cheek smear. Draw the image at Scanning, Low and High Power in the boxes below.

3. **On high power, label the CELL MEMBRANE, CYTOPLASM, and NUCLEUS.**

|  |  |  |
| --- | --- | --- |
| Scanning (4x)circle | Low (10x)circle | High (40x)circle |

4. Go to google and type "cheek cells" into the search box. Click on "images" to see all the images google has found on the web showing cheek cells (there should be hundreds).

5. What do all of these images have in common?

     How do the cells vary from one picture to the next (how are they different)?

6. Why are the google images of cells different colors? What is the natural color of a cheek cell?

7. The mouth is the first site of chemical digestion in a human. Your saliva starts the process of breaking down the food you eat .Keeping this in mind, what organelle do you think would be the most numerous inside the cells of your mouth? (Hint: what organelle is responsible for breaking things down and digesting?)

**Part 2 - Plant Cells**

Before you begin:

1. What is the function of chloroplasts?

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?

**Part A - Onion Cells**

Go to www.biologycorner.com/worksheets/plantcells.html which contains images of onion and elodea cells as they would be seen the lab. You will use these images to complete this worksheet.

Look at the images of onion cells as they would be seen under a microscope. Draw the cells at each magnification. Label the cells as they appear at high power.

|  |  |  |  |
| --- | --- | --- | --- |
| Scanning Power | Low Power | High Power |  |
| circle | circle | circle | 1. Identify the CELL WALL on your drawing.2. Identify the NUCLEUS on your drawing.3. Identify the CYTOPLASM (area) on your drawing.  |

**Part B - Elodea Cells**

Look at the images of elodea, which is an aquarium plant. When you are looking at these cells, you should find a lot more than you found with the cheek cells, and it will resemble a green brick wall. Sketch your cells under low and high power, also paying attention to scale. The nucleus of these cells will not be visible but you should see many chloroplasts within each cell. Plant cells also have a rigid cell wall, outside the cell membrane. The Cell Wall should also be visible.

|  |  |  |
| --- | --- | --- |
| Low Power | High Power |   |
| circle | circle | 1. Identify the CHLOROPLASTS on your drawing.2. Identify the CELL WALL on your drawing.3. Identify the CYTOPLASM (area) on your drawing.  |

**Post Lab Questions**

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?

 **Analysis - Venn Diagram**

4. On your own paper, create a Venn Diagram of plant and animal cells. Remember, things that they have in common go into the overlapping area, things that are different go in the non-overlapping area. Staple your Venn diagram to this sheet and turn both in.