Name _____ Pd _____ Date _____

Virtual Lab: Introduction to the Microscope

THIS LAB REQUIRES FLASH TO RUN. If you have difficulty opening the link ensure that you have unblocked Flash (click on the "puzzle piece" and "allow") or try a different browser.

Procedure:

1. Begin by accessing this link: Virtual Microscope (http://www.udel.edu/biology/ketcham/microscope/scope.html)
2. Make sure volume is on. Click on the **"Start Tour"** at the bottom right of the **"Getting Started"** box.
3. Run the tutorial. Be sure to complete the checklist and answer the following questions as you go.

What 2 structures regulate the light?

4. When asked to pick a slide, begin with the letter "e" (top slide)

How many objectives are on the virtual microscope?

If the ocular lens magnifies 10x, what is the highest total magnification possible with this microscope?

5. Click on the **"Switch Objectives"** tutorial under the **"Getting Started"** box. *LISTEN!*

Which objective lens does the tutorial tell you to start with? _____x

6. Follow the tutorial prompts to learn how to center the slide and focus your specimen.
(**HINT!!! Use the checklist box on the left side of the screen to monitor your progress.)**

What direction does the letter "e" when you move the stage clip adjuster knobs to the right?

What happens to the brightness when you adjust the iris diaphragm lever to the right?

7. Once your specimen is in focus using the 4X (low power) objective lens, use the revolving nosepiece at the bottom left of your screen to move the 10X lens into place. Use the fine focus to adjust.

What happens if you try to use the coarse adjustment when the 10X lens is in place?

Why must you center your image (red circle) before switching from low power to a higher power of magnification?

The diameter of your low power field of view is 10mm. Calculate the size of the letter "e" under low power. Record your answer in um. SHOW YOUR WORK!

Calculate the diameter of the field of view with the 40x objective in place. SHOW YOUR WORK!

8. View the *Onion Root Tip* under 400x magnification. Many of the cells are undergoing mitosis.

How many cells are anaphase? _____ Telophase?_____

Are these plant cells or animal cells? How do you know (2 reasons)?

9. View the *Bacteria Capsule* under 1000x magnification.

Are these prokaryotic or eukaryotic cells? How do you know (2 reasons)?

10. View the *Cheek Cell*s under 400x magnification.

Name 2 organelles that are not visible but should be present in this cell.

11. Following the “Guidelines for Microscope Drawings” prepare a formal biological drawing of 2-3 cheek cells as viewed under 400x magnification in the space below. Label the **cell membrane, nucleus**, & **cytoplasm** on one cell. Be sure to use the proper components & format.