

Name _____ Pd _____ Date _____

Virtual Lab: Introduction to the Microscope

Objectives:

- I can understand and explain the three parts of cell theory.
- I can identify the different parts of a microscope.
- I can explain why the microscope was invented and how it helped develop the cell theory.

Internet Resources:

(also available on Mrs. Sechrist's Derry web page)

[The Wacky History of Cell Theory](#) OR <http://ed.ted.com/lessons/the-wacky-history-of-cell-theory>
[Virtual Microscope](#) OR <http://www.udel.edu/biology/ketcham/microscope/scope.html>

History of The Cell Theory

Procedure:

1. Watch the following video: [The Wacky History of Cell Theory](#)
(<http://ed.ted.com/lessons/the-wacky-history-of-cell-theory>)

2. After watching the video, answer the following questions.

(HINT!!! You may need to watch the video more than once.)

a. What are the three parts of the cell theory?

- _____
- _____
- _____

b. How did Leeuwenhoek discover bacteria?

c. Before it was called "bacteria," what was it called? _____

d. Who came up with the term "cell?" _____

The Virtual Microscope

Procedure:

1. Begin by accessing this link: [Virtual Microscope](http://www.udel.edu/biology/ketcham/microscope/scope.html)
(<http://www.udel.edu/biology/ketcham/microscope/scope.html>)
2. Make sure the volume is on.
Click on the "Start Tour" at the bottom right of the "Getting Started" box.
3. When asked to select a slide, begin with the green specimen- Onion Root Tip. This is the easiest to observe (2nd from top).
4. Click on the "Switch Objectives" tutorial under the "Getting Started" box. *LISTEN!*

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

5. 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.)

CHECKPOINT: Describe the difference between the coarse focus and the fine focus.

CHECKPOINT: What are you supposed to do with the coarse focus?

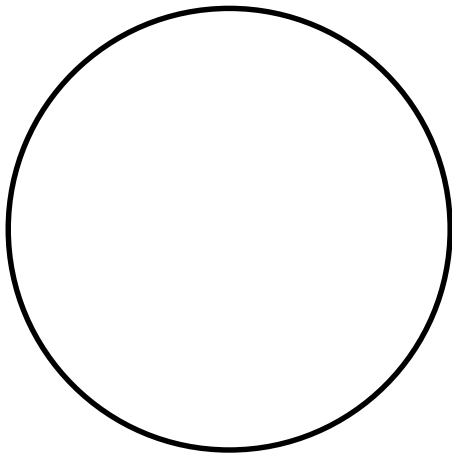
6. Once your specimen is in focus using the 4X lens, use the revolving nosepiece at the bottom left of your screen to move the 10X lens into place. Use the fine focus to adjust.

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

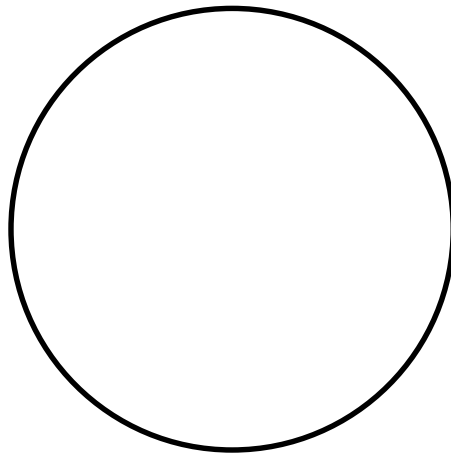
CHECKPOINT: What happens to your image if you try to magnify it using 40x or 100x?

7. Draw the Onion Root Tip using 10x magnification in the appropriate circle below.

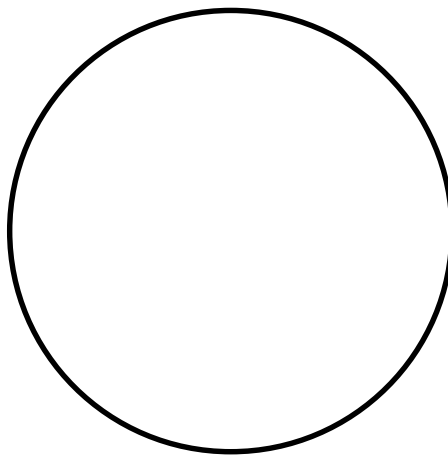
8. Follow the same procedure for the Bacterial Capsules and Cheek Cells Slides.
Draw the images using the total magnification shown under the circle.



Specimen: Onion Root Tip
100 x Magnification



Specimen: Bacterial Capsule
1000 x Magnification



Specimen: Cheek Cells
400x Magnification

CHECKPOINT: Click on “Try This” to test your microscope skills. Do P1 through P6.

Analysis and Review:

1. Use the information from “History of The Cell Theory” and “Virtual Microscope” lab activities to answer the questions below.
2. Answer using complete sentences.
3. Use “quotation marks” to cite specific evidence from the information you collected.

What objective lens you should have in place to begin looking at your specimen? Explain why.

Explain why this statement is **right** or **wrong**.

(Yes, make a decision and defend your choice.)

“You only use the coarse focus knob when you have the 4X scanning objective in place.”

Assuming the light is on and the oculars are in place, what are the next **2** steps?

Describe what to do if more light is needed to view the specimen.
