Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_

The Cell: Microscopes Lab: Introduction to the Compound Light Microscope

1. Examine your microscope. Review the parts of the microscope and their function.

2. Observe the lenses:

a. What is the magnification of the ocular lens (eyepiece)? \_\_\_\_\_\_\_\_\_\_\_\_x

b. What magnification is written on the scanning power objective? \_\_\_\_\_\_\_\_\_\_\_x

c. What magnification is written on the low power objective? \_\_\_\_\_\_\_\_\_\_\_x

d. What magnification is written on the high power objective? \_\_\_\_\_\_\_\_\_\_\_x

3. The total magnification using the lenses can be determined by multiplying the objective with the ocular lens (eyepiece).

What is the total magnification of a specimen viewed with each objective?

**Scanning** power obj. \_\_\_\_\_ x **Low** power obj. \_\_\_\_\_ x **High** power obj. \_\_\_\_\_ x

The Letter ‘e’

1. Place the slide of the letter ‘e’ on the stage so that the letter is over the hole and is right side up. Use the scanning power objective to view the letter and use the coarse adjustment knob to focus. Diagram the ‘e’ in the field of view below **exactly** as you see it under the objective. Repeat using the low power objective, and finally the high power objective.

Note: the pointer should not be included in diagrams.

Scanning Power Low Power High Power

2. Have your lab partner push the slide to the left while you view it through the lens. To which direction does the ‘e’ appear to move? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Colored Thread

1. Obtain a slide with 3 different colored threads on it. View the slide under scanning and then low power.

2. You should note that you can only focus on one colored thread at a time. To figure out which thread is on top:

a. Adjust the coarse objective knob to lower the stage all the way.

b. Slowly raise the stage until the thread comes into focus.

c. The first thread to come into focus is the one on top.

3. Answer the following questions:

a. Which color thread is on top? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. Which color thread is in the middle? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. Which color thread is on the bottom? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

True or False

When you have completed your work with the microscope, answer the following questions with

either “True” or “False”.

8. On high power, you should use the coarse adjustment knob. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. The diaphragm determines how much light shines on the specimen. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. The scanning power objective has a greater magnification than the low power objective. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. The fine focus knob moves the stage up and down. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. Images viewed in the microscope will appear upside down. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. If a slide is thick, only parts of the specimen may come into focus. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. The type of microscope you are using is the scanning microscope. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. For viewing, microscope slides should be placed on the objective. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. In order to switch from low to high power, you must rotate the revolving nosepiece. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. The total magnification of a microscope is determined by adding the ocular lens power to the objective lens power. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Additional Specimen

DIRECTIONS: Please follow proper microscope protocol when handling slides and adjusting the knobs. View 4 difference slides and record your observations. Be sure to include the specimen name, total magnification and accurate colored drawing.

Specimen name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Magnification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Specimen name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Magnification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Specimen name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Magnification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Specimen name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Magnification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_