Year 12 Science: Investigating cells under the light microscope

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. What is the total magnification with a ×10 eyepiece and a ×10 objective?

2. The field of view at ×100 is 1.8 mm. What is it at ×400, in µm?

3. Six cells fit across a 1.8 mm field of view. How long is one cell, in µm?

4. A 50 µm guard cell is drawn 75 mm long. What is the magnification of the drawing?

5. A drawing at ×2000 needs a 10 µm scale bar. How long should the bar be, in mm?

6. Name the convention error: the student labelled each organelle with an arrow drawn freehand that crossed another label line.

7. Your onion epidermis slide shows no chloroplasts. Write an Achieved annotation linking this to where the tissue grows.

8. Write a Merit annotation explaining how the contractile vacuoles help Paramecium survive in pond water.

9. A drawing of Elodea cells has gaps between the cells and no chloroplasts drawn. Is each a convention error or a representation error?

Fix the mistake

10. Correct this statement: "I shaded the chloroplasts in green so they stand out."

11. Correct this statement: "I focused at ×400 using the coarse focus knob."

12. Correct this statement: "The field of view is 4.0 mm at ×40, so it is 40 mm at ×400."

13. Correct this statement: "I drew the cell with mitochondria and ribosomes because textbook cells have them."