

The Enormous Letter 'E'

Introduction to Compound Microscope

Edgenuity Unit: Cell Biology

Lesson: Plant and Animal Cells

Time: 30-60 minutes



Learning Target

1. I can identify the functional parts of a compound microscope
2. I can demonstrate how to prepare a wet mount slide

Materials

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| <ul style="list-style-type: none">• Compound microscope• Small tweezers• Letter 'e's• Clear microscope slides | <ul style="list-style-type: none">• Cover slips• Eyedropper• Hand lens |
|--|--|

The compound microscope was first used in the late 1500s, but was not used in biology until a hundred years later. At first it was just a novelty, but in 1660, Italian Marcello Malpighi used the microscope to view blood **capillaries** in the tails of live fish.

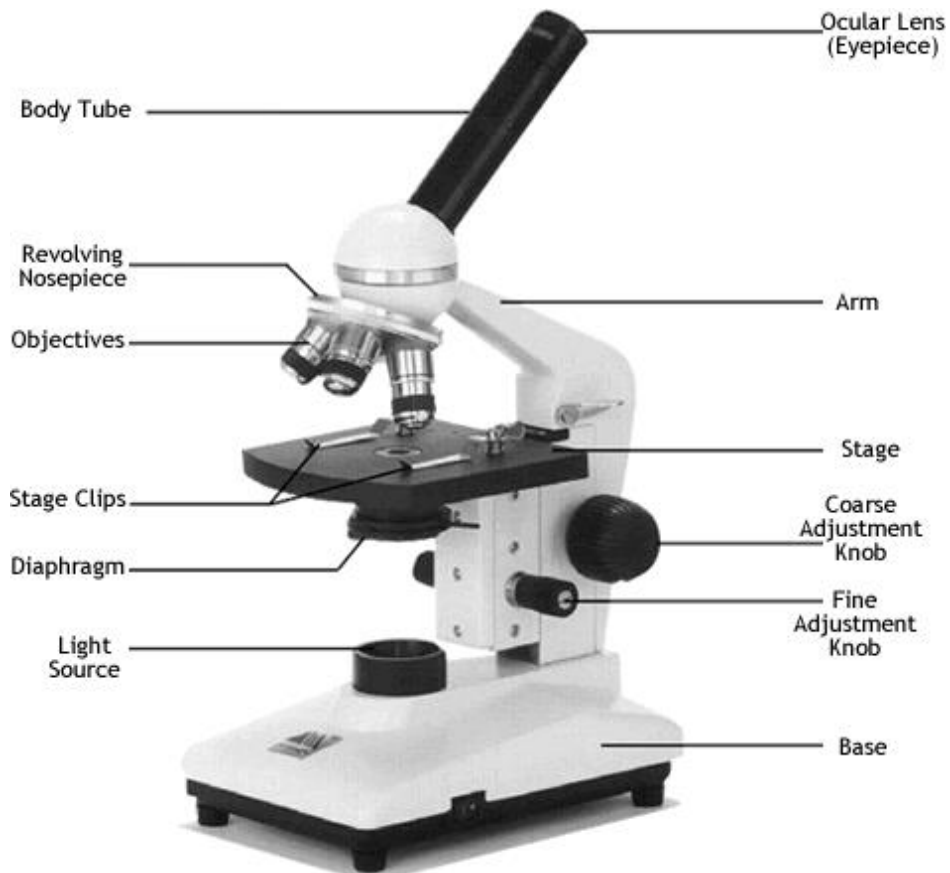
The first compound microscopes could magnify over 100x, but the quality of the glass in lenses was poor and objects could not be seen clearly. An optical compound microscope developed in 2011 can magnify an object over 6,500x.

Procedures:

Begin by becoming familiar with all labels on the microscope. (Always carry microscope with 2 hands by holding the arm and base.)

Turn microscope light on and set magnification to lowest power:

- a. RED – 4x (lowest)
- b. YELLOW – 10x
- c. BLUE – 40x
- d. WHITE – 100x (highest)



Credit: www.biologycorner.com

The largest knob controls major adjustments (start with stage as low as possible and then adjust), the smaller knob controls fine-tuning.

Clean a microscope slide with water and tissue. (CAREFUL! They break easily.)

Use an eyedropper to place one single drop of water in the middle of the slide.

Use tweezers to place the letter 'e' right side up on top of the drop of water.

Gently place the cover slip on the edge of the drop of water and then lower the cover slip over the letter 'e' (Watch the video a couple times for this one!)

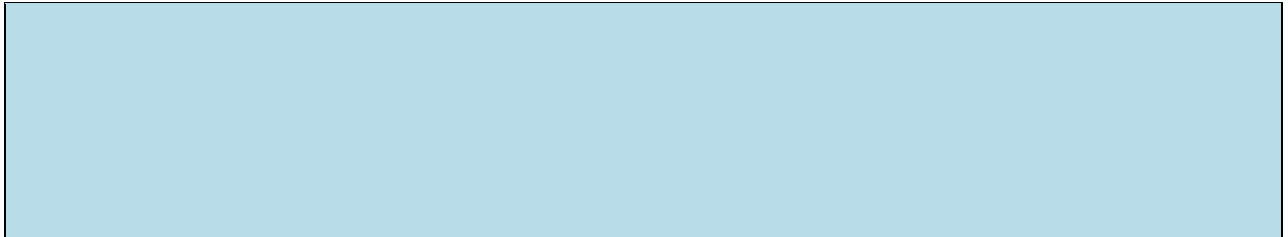
Before you use the microscope, use a hand lens to observe the slide.

Draw a picture of what you observe below:



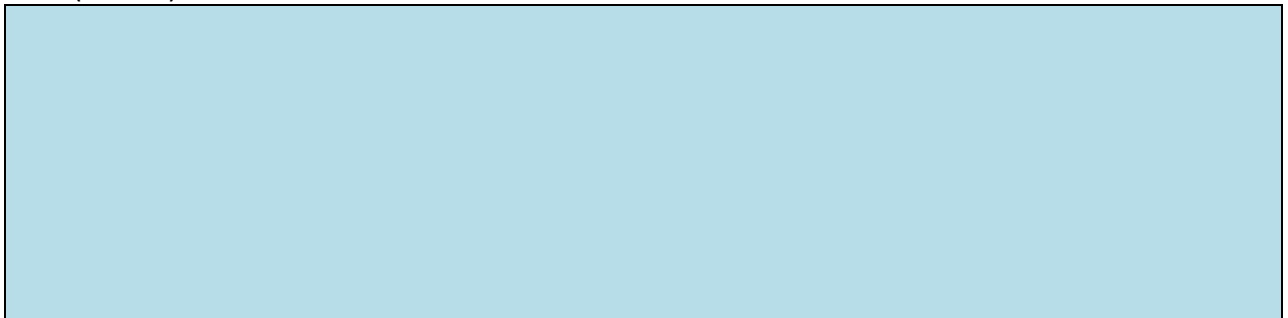
Place the slide onto the microscope stage and focus the image on the lowest power (4x).

Draw a picture of what you observe:

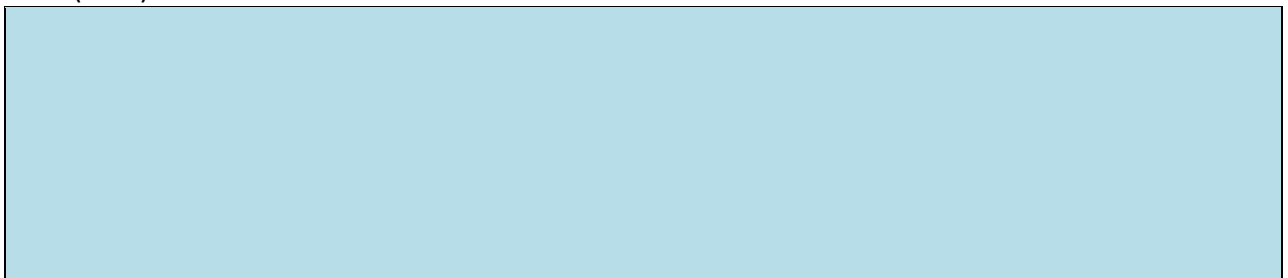


View the letter 'e' with a higher magnification. (Change the power to yellow, blue, or white.)

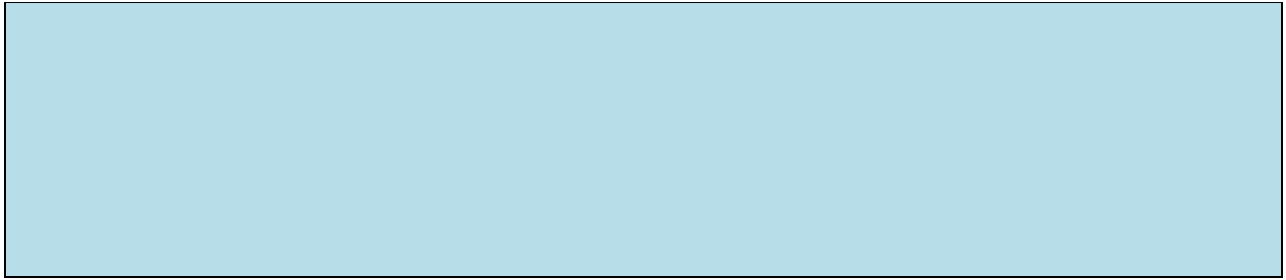
10x (Yellow):



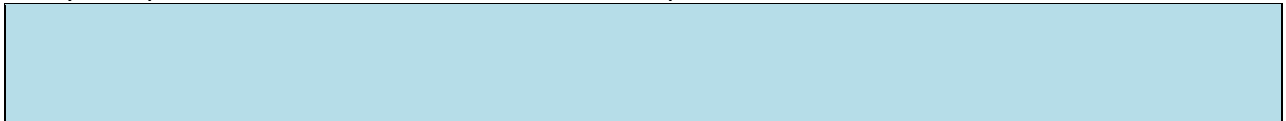
40x (Blue):



100x (White):



Why is important to use a clean slide and cover slip?



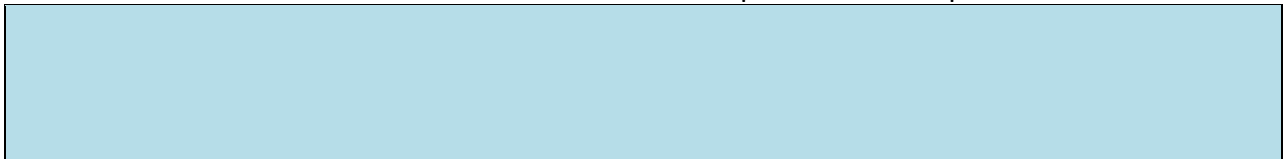
Which magnification (power) gave you the clearest image of the letter 'e'?



What is the difference between a compound microscope and a simple microscope?



What are some reasons that scientists would use a compound microscope?



Source: *Magnificent Microworld Adventures*, AIMS Education Foundation