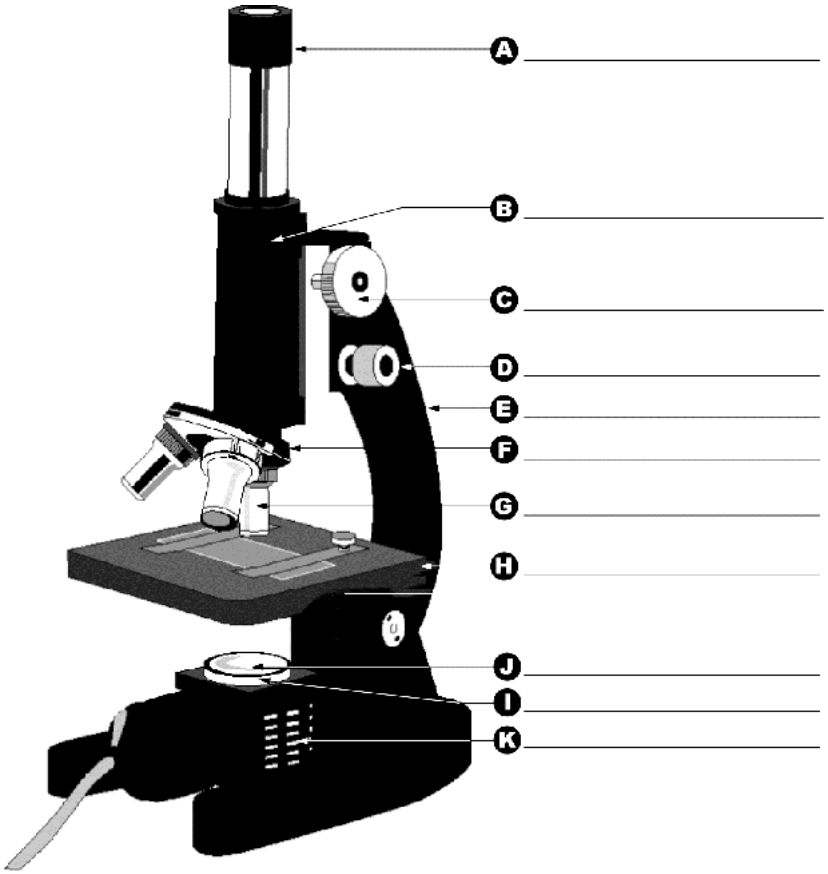
The Microscope

Microscopes have allowed scientists to observe the detailed structures within cells and understand how their internal structure is linked to their functions.
Many of the activities of biology require the use of a microscope.
Microscope is an instrument consisting of a lens or combination of lenses that produce an enlarged image of small objects. The object is magnified by two lenses: the ocular (a.k.a. eyepiece), and the objective lens.
Each part of the microscope can be classified in one of four different categories, according to the function for which it is used:

1. Optical parts, or lenses, for magnifying the object,
2. Illuminating parts to provide light or to regulate the amount of light (condenser lamp: focuses light onto the specimen)
3. Moving parts for raising, lowering, or revolving the lenses; and
4. Supporting parts.

1. Study the following diagram of a **compound microscope** and label the parts indicated



2.
a. The two parts of the microscope that determine the total magnification are the _____ and the _____ _____.
b. The ocular usually magnifies the object _____ times.
c. The_____ controls the amount of light reaching the object being viewed.
3. The proper way to carry a microscope is by holding its _____ and _____.
4. To start viewing a slide, I should use the _____-power objective lens.
5. The coarse -adjustment knob should only be used when using the _____-power objective lens.
6. When putting away the microscope, the _____-power objective lens should be placed over the stage.
7. By turning the coarse-adjustment knob allows the _____ to move up and down so that you can focus on the object.
8. The greater the length of the objective lens, the _____ the magnifying power of the microscope.
9. The structure that allows you to change the objective lens is the _____ (a.k.a. the revolving nosepiece)

10. On the chart below explain the function of each of the parts of a microscope, using one of the four categories listed above as a general guideline.

Microscope Part	Function
arm	
base	
body tube	
coarse adjustment knob	
diaphragm	
eyepiece or ocular lamp	
fine adjustment knob	
high-power objective lens	
lamp	
low-power objective lens	
mirror	
Revolving nosepiece	
stage	
stage clips	
stage opening	

The circle of light seen through the microscope is called the **field of view**.
It is the area of a slide that you can observe.

Lab activity: Practice in focusing

For this activity you will practice focusing using prepared slides: Letter **e** and **amoebae** slides
Use the Microscope "Focusing –Review" sheet provided in the lab.

<u>The correct procedure for using the highest powered objective lens</u>

1. Use low power to get the specimen in the field of view.
2. Focus using first the coarse-adjustment knob, then the fine-adjustment knob.
3. Switch to high-power objective lens.
4. Move specimen if necessary.
5. Focus using fine-adjustment knob only.

<u>Steps to prepare a wet-mount slide</u>

1. Clean the slide
2. Place the specimen in the centre of the slide.
3. Place a drop of water on the specimen.
4. Place a cover slip over the specimen.