The Microscope!

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

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

**Use your textbook:** Refer to the diagram in Figure 8.1 of Student Reference 8.

The compound light microscope magnifies objects placed very close to the objective lens. Your microscope probably has three **objective lenses** positioned on a **revolving nosepiece** and labelled with the magnification of each lens (4×, 10×, 40×). Some research microscopes have a 100×, oil immersion lens as well. The objective lens is in place when you hear it click. Each objective lens is a combination of two lenses made of different kinds of glass. If only one lens were used, the refracted (bent) light could cause distortion of the image. The second lens corrects the distortion.

The specimen, on a glass slide covered with a thin coverslip, is placed on the moveable microscope **stage**, close to the objective lens. The slide is held in place using the **stage clips**. Begin with the lowest power objective lens in position over the slide. The objective lens should never touch the slide. The stage can be moved up or down using the **coarse adjustment knob**. Watching from the side, bring the low-power objective as low as possible by using the coarse adjustment knob. You are able to observe the specimen by looking through the **eyepiece or ocular lens**. The eyepiece is labelled with the magnification it provides, usually 10×. Look through the eyepiece and bring the specimen into view by using the coarse adjustment knob. Then produce a clear, sharp image using the **fine adjustment knob**.

Below the stage is the **diaphragm** that adjusts the diameter of an opening to control the amount of light passing through the specimen. The **lamp** at the bottom of the microscope supplies the light required to view the specimen. Sometimes, a **mirror** is present instead of a lamp and is used to direct light from the surroundings through the diaphragm.

Microscopes are sensitive pieces of lab equipment and require careful care, storage and handling. When moving the microscope, remember to hold the **arm** with one hand and support the weight of the microscope under the **base** with the other hand. The microscope should always be stored with the low-power objective in position.

Fill in the chart on the function of each part of the compound light microscope.

|  |  |
| --- | --- |
| **Microscope Part** | **Function** |
| **Eyepiece or Ocular** |  |
| **Coarse adjustment knob** |  |
| **Fine adjustment knob** |  |
| **Revolving nosepiece** |  |
| **Objective lenses** |  |
| **Stage** |  |
| **Stage clips** |  |
| **Diaphragm** |  |
| **Lamp or Mirror** |  |
| **Arm** |  |
| **Base** |  |

