

## Technical Intro: Microscope Basics

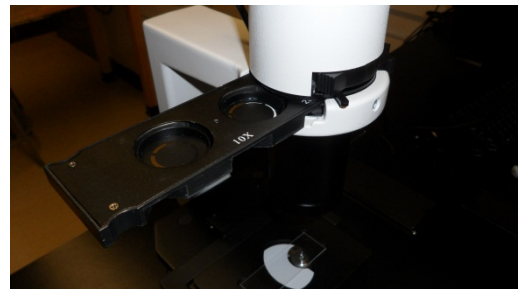
### Eyepieces:



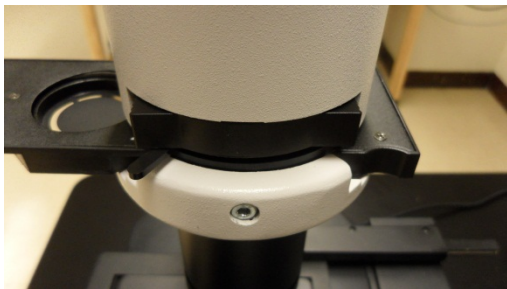
- Adjustable to fit both eyes
- Sometimes easier if one eye is closed
- If eyelashes obstruct view, move closer to the eyepieces

### Light Source, Condenser, Phase Contrast Panel:

- Condenser concentrates light from illumination source
- Phase rings in front of the light source allow the microscope to translate phase shifts in light that goes through a transparent sample into brightness changes in the observed images. This allows for very useful imaging of transparent samples that would be difficult with standard bright field imaging.
- The light intensity can be controlled by adjusting the orange wheel on the bottom left of the machine.



### Diaphragm:



- Lever controls an iris, allowing the user to control the amount of light hitting the sample
- Very often, higher detail can be observed by allowing less light through the iris

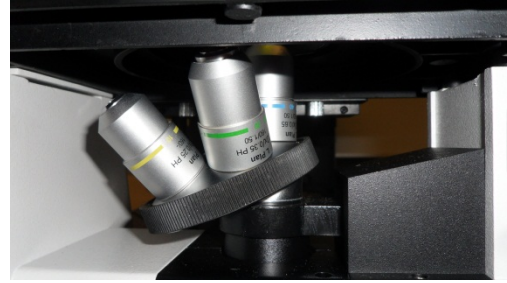
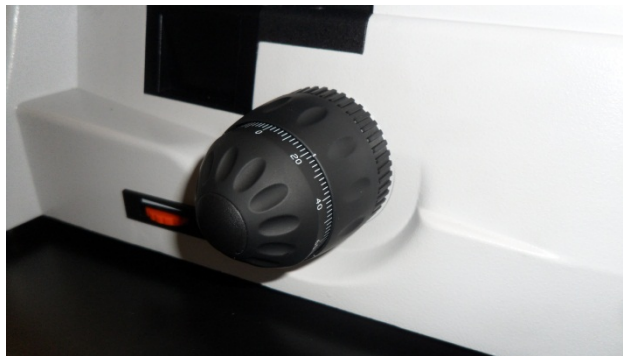
### Stage:



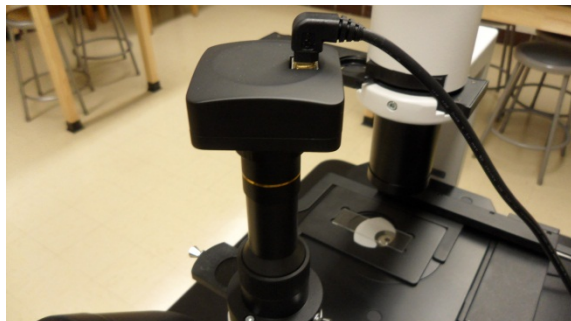
- Place the sample slide on the microscope stage carefully
- The stage can be moved relative to the objectives using the dials below the stage to the right
- Align the sample directly over the objective, so the light is shining directly on the sample

**Objectives:**

- Objectives collect the light from the samples and focus it to form an image in the eyepiece or CCD camera.
- Rotating turret holds four different objective lenses: 4X, 10X, 20X, and 40X
- Always start with a low magnification objective: find, center and focus on the sample before moving on to a higher magnification.
- Always lower objectives using the coarse adjustment knob before rotating the turret

**Coarse and Fine Focusing Knobs:**

- Bring sample into view using the coarse adjustment knob (inner knob)
- Once sample is in view, use the fine adjustment knob (outer knob) to achieve the sharpest possible image.
- Be careful when using the coarse adjustment knob, hitting the slide with the objective can scratch the objective or crack the slide.

**CCD Camera:**

- Camera can be rotated using the adjustable pin below the lens.