

You are responsible for the welfare of the microscope in your numbered seat. Memorize the following steps and follow them religiously! You may also have received a set of slides numbered according to your seat. You are responsible for their welfare also. Keep them clean and in good order. Polish slides with Kimwipes if necessary. Check to see that they are in proper order and good condition, then sign your name on the label on the slide box cover to take responsibility for them.

PREPARE THE MICROSCOPE:

1. **Lower the stage** all the way with the coarse focus.
2. **Select the 4x objective** if it is not already in position by rotating the turret.
3. **Prepare the lighting:**
 - a: Turn on the power.
 - b: Set the rheostat on 6.
 - c: Ensure that the iris diaphragm is wide open.
 - d: Position the condenser an eighth of an inch below the surface of the stage.

PLACING THE SLIDE ON THE MICROSCOPE:

4. **Handle all slides by the edges** only. Pick up the specified prepared slide. Polish if smudged
5. **Clamp the slide into the slide holder:**
 - a) Open the slide retainer by pressing the jaw lever to the right.
 - b) Place the slide into the "L" shaped holder (with the label to the left if it is a prepared slide),
 - c) Release the jaw lever to clap in place.
6. **Center the specimen:** Using the mechanical stage, move the slide until the stained specimen is directly over the light of the condenser (the optic center of the stage). View alternately from side and front to get a best estimate of center.
7. **Viewing from the side, raise the stage** until until the stage stops or the objective almost touches the slide.

FOCUSING:

8. **Looking through the oculars, lower the stage** with the coarse focus until the specimen comes into focus. Use the fine focus to refine the view. If you cannot find the image, re-adjust the position of the specimen nearer the optic center, and repeat the 4x focusing procedure.
9. **Scan the specimen** to find a field that is characteristic, well spread out and stained. Move the most desirable region to the center. Does the mechanical stage function perfectly? If wobbly, tighten the silver retaining screws under the R side of the stage.
10. **Select 10x objective** by rotating the turret. (What is the power of the view?) Using *only* the fine focus, make minor focus adjustments to sharpen the image. Center the image again. If your eyes are not closely matched, focus the R ocular for the R eye, then adjust the L ocular to match your L eye. If you lose the view of the specimen, go back to the 4x objective to find it again and center more carefully.
11. **Select 40x objective** by rotating the turret. Make minor adjustments in focus with fine focus. Center the desirable region. Is the view clear and bright? Make final lighting adjustments:
 - a) the **iris diaphragm**: brighter with lever to the left, greater depth of field with it to the right
 - b) the **condenser positioning knob** (brighter closer to the slide, edges sharper slightly lowered
 - c) the **rheostat**: try to keep it no higher than 6 or 7. Below 4, the image will be dark and yellow.

Experiment with these for optimum viewing. Polish the objective if the view is cloudy.

12. When finished, prepare the microscope for storage by following the microscope storage checklist.

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BACTERIAL MORPHOLOGY FOR MICROBIOLOGY STUDENTS

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http://biology.clc.uc.edu/fankhauser/Labs/Microbiology/Bacterial_Morphology/Bacterial_Morphology.htm

Slide 2 in your slide collection. It contains stained examples of the three morphologies of bacteria, **bacilli** (rods), **cocci** (grain or berry-like, called sarcinae when in cubes of eight) and **spirilla** (coiled or wavy).

1. Focus on the center specimen with the 4x objective. It is the one stained purple, and may look like a mass of tangled dark threads. Examine next under the 10x lens, find an area which is not too densely packed with cells. Then view with the 40x lens. What is its morphology? Do you see occasional transparent areas within the bacteria? These are spores. Illustrate this view large enough to fill 1/3rd of the page. Make the cells about 3 mm wide (1/8th inch), and make the length proportional to their width. Label the illustration according to morphology, color and power of magnification (400x). Include several spores.
2. Move the slide laterally to the left (view the right hand specimen). Illustrate and label as in step 1. Note the arrangement of the cells. Try to keep the same scale as the previous illustration.
3. Move the slide the opposite direction (to the right), past the center specimen, Carefully adjust for optimum lighting and repeat the illustration process for the remaining (difficult) specimen.