

Microbiology Study Guide

C3 / Observing Microorganisms Through a Microscope

1. List the metric units of measurement that are used for microorganisms. If a microbe measures 10 μm (micrometers) in length, how long is it in nanometers?
2. Diagram the path of light through a compound microscope.
3. What does it mean when a microscope has a resolution of 0.2 nm?
4. Why do electron microscopes have greater resolution than light microscopes?
5. Differentiate an acidic dye from a basic dye. Why doesn't a negative stain color a cell?
6. Why is fixing necessary for most staining procedures?
7. What are the steps in preparing a Gram stain? Why is the Gram stain so useful and what does it tell us about the microbe if the procedure is positive or negative?
8. What is the difference between the Gram stain and the acid-fast stain? Which stain would be used to identify microbes in the genera *Mycobacterium* and *Nocardia*?
9. What is the function of the following staining procedures: capsule stain, endospore stain, flagella stain?