

Lab module 1 essay sample



A. List the following parts of the microscope, AND

Briefly describe the function of each part.

A. Eyepiece - transmits and magnifies the image from the objective lens to the eye. B. Main tube - moves vertically for focusing

C. Nosepiece- holds the objective lenses and rotates them. D. Objective lens - Objective lenses provide different focal lengths. E. Stage - holds the object to be viewed

F. Diaphragm - controls the amount of light reaching the slide G. Light source - a mirror, lamp, or bulb for illuminating slide work. H. Course adjustment - used for the initial focusing of field I. Fine adjustment - used for the final focusing of field

J. Arm - connects base to the viewing tube

K. Stage knobs or clips - secures and adjusts the slides position on the stage

L. Base - connects the arm and provides stability

B. Define the following microscopy terms:

a. Focus: positioning the objective lens at the proper distance from the specimen. The point at which the light from a lens comes together. b.

Resolution: The closet two objects may be before they can no longer be viewed as separate objects. This is usually measured in nanometers. c.

Contrast: The difference in lighting between adjacent areas of the specimen.

Using chemical stains or adjusting the light source can adjust this.

C. You do not need to prepare a fresh yogurt slide for this lab, but you do need to observe a microscopic image of fresh yogurt. You can use a

microscopic image in your textbook, or in your lab manual, or you can search online for microscopic images of yogurt.

D. Are there observable differences between fresh yogurt under the microscope and the prepared yogurt slide? If so, briefly describe them. There is an observable difference. The fresh yogurt slide has less bacterial growth than the prepared yogurt slide. By leaving the prepared yogurt unrefrigerated the bacterial were given the chance to proliferate as refrigeration retards bacterial growth.

E. What are four primary bacterial shapes? Cocci, bacillus, spirillum, vibros

F. Bacteria occur in several common arrangements with each other. What are they? They occur as single bacterium, which uses the names cocci, bacillus, spirillum, vibros. They occur as pairs, which add the prefix diplo, such as diplococci. They appear as linked chains, with the prefix strepto, as in streptobacillus, and they occur in clusters with the prefix staphlo, as an example, staphylococci.

G. Can you identify specific bacterial morphologies on either the fresh or prepared yogurt slide? If so, which types? Yes, there observable shapes in the slide that would seem to indicate the presence of bacillus and cocci. The cocci appear to grow in clusters, which would indicate that they are staphylococci, and there also indicates that streptococci chains are presented. As *Lactobacillus bulgaris* and thermophillic *Streptococcus* are the most common types of bacteria in yogurt, one could imagine that they are the specific bacteria present in the slide.

H. Observe the images of a blood smear. Describe the cells you were able to see in the blood smear. (You can use the images we provided, or images in your textbook or lab manual, or you can search online for blood smear images by entering Microscopic images of blood into your search engine.) Red blood cells, Monocytes, Lymphocytes, Neutrophils, Eosinophils, and Basophils were observed.

I. Are the cells you observed in an image of a blood smear different than the bacterial cells you have observed? How do they differ? (Hint: Bacterial cells are prokaryotic. All other cells including blood cells are eukaryotic. This is an important difference when it comes to using antibiotics to treat various diseases.) The blood cells all have observable outer membranes and visible interior structures. These traits are indicative of eukaryotic cells. The bacteria in the yogurt slide were also much smaller at the same magnification than were the blood cells.

K. What is the purpose of immersion oil that is used with the 100x objective lens? (What does the oil do that makes it important to use with the 100x oil objective?) Immersion oil raises the resolution of the objective lens. The oil has nearly the same refractive index as the objective lens reducing the refraction and thereby increases the resolution resulting in more detailed and clear images.