**Microscope Lab –** Prokaryotes and Eukaryotes

Objectives:- Explain the difference between prokaryotic and eukaryotic cells and distinguish each type under the microscope.

Introduction: Biologists recognize two major categories of cells – prokaryotes and eukaryotes. Prokaryotes lack membrane-bound organelles including the nucleus. They are much smaller than eukaryotes. Prokaryotes are bacteria. Eukaryotes are all other living organisms and contain membrane-bound organelles such as the nucleus. Note the size difference between these two types of cells as you complete the lab. You can identify the cells due to the fact they were stained. Look for the colored structures on the slides. Take TIME on your drawings! You don’t have to be an artist to draw an accurate representation of what you see. But you do need to take your time and draw carefully!

**Prokaryotes/Bacteria Procedure**

1. Make sure your objective lens is on lowest power (4X) before you begin.
2. Focus, place image in center of view finder and turn objective lens to next higher power (10X).
3. Repeat for 40X. Do NOT use course adjustment on 40X! Only use the fine adjustment knob.
4. Draw a prokaryotic (bacterial) cell at 40X in your notebook. Label the cytoplasm and the cell membrane/wall.
5. Make sure your objective lens is on lowest power (4X) before you remove the slide.

**Unicellular Eukaryote – Amoeba**

1. Make sure your objective lens is on lowest power (4X) before you begin.
2. Focus, place image in center of view finder and turn objective lens to next higher power (10X).
3. Repeat for 40X. Do NOT use course adjustment on 40X! Only use the fine adjustment knob.
4. Draw an amoeba cell at 40X in your notebook. Label the cytoplasm and the cell membrane and the nucleus.
5. Make sure your objective lens is on lowest power (4X) before you remove the slide.

**Unicellular Eukaryote - Paramecium**

1. Make sure your objective lens is on lowest power (4X) before you begin.
2. Focus, place image in center of view finder and turn objective lens to next higher power (10X).
3. Repeat for 40X. Do NOT use course adjustment on 40X! Only use the fine adjustment knob.
4. Draw a paramecium cell at 40X in your notebook. Label the cytoplasm and the cell membrane and the nucleus.
5. Make sure your objective lens is on lowest power (4X) before you remove the slide.

**Multicellular Eukaryote – Animal Cell**

1. Make sure your objective lens is on lowest power (4X) before you begin.
2. Focus, place image in center of view finder and turn objective lens to next higher power (10X).
3. Repeat for 40X. Do NOT use course adjustment on 40X! Only use the fine adjustment knob.
4. Draw an animal cell at 40X in your notebook. Label the cytoplasm and the cell membrane and the nucleus.
5. Make sure your objective lens is on lowest power (4X) before you remove the slide.

**Multicellular Eukaryote – Plant Cell**

1. Make sure your objective lens is on lowest power (4X) before you begin.
2. Focus, place image in center of view finder and turn objective lens to next higher power (10X).
3. Repeat for 40X. Do NOT use course adjustment on 40X! Only use the fine adjustment knob.
4. Draw a plant cell at 40X in your notebook. Label the cytoplasm and the cell wall and the nucleus.
5. Make sure your objective lens is on lowest power (4X) before you remove the slide.