

PROTIST LAB

Background:

The Protist Kingdom is made up of a variety of unicellular organisms, which are sometimes referred to as protozoans or algae. Some of these one-celled organisms are capable of making their own food by photosynthesis. Others have developed methods of ingesting food by means of specialized organelles. (Some protists make their own food and eat other food.) Protists have a variety of appearances and methods of locomotion.

Materials:

Cultures of: *Ameba*, *Paramecium*, *Euglena*, and other assorted Protists; microscopes, slides, cover slips, droppers, and methyl cellulose

Special Note:

This lab is made up of **Four Main Sections**, which can be done in any order. In order to avoid extra waiting time, it is a good idea to not work on the same section of the lab that other groups near you are doing. You may begin with any of the four sections.

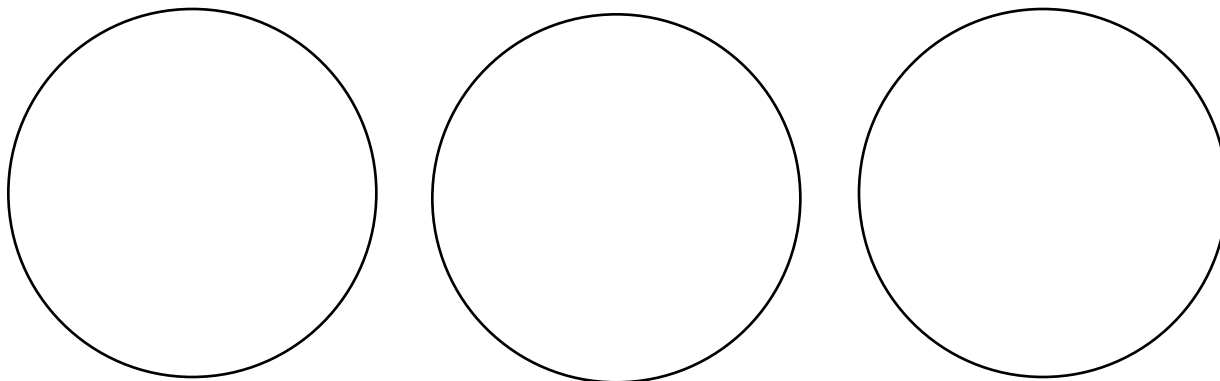
Section I : The *Ameba* (large; colorless; no definite shape; move slowly by pseudopods)

a. Look up the word *pseudopod* in your textbook, and define it in your own words:

1. Allow the teacher to place an *ameba* on a slide for you. (This may take a few minutes, so please be patient.)

2. Find the *ameba* under low power and observe it. Reduce the light by adjusting the diaphragm. (You may want to use medium power so that the *ameba* fills up a large portion of the field of view. This will depend on the size of the *ameba* that you are observing.) Watch the *ameba* for signs of movement.

3. Sketch the *ameba* in the first circle below. Wait about one minute, then sketch it again in the second circle. Wait again, then carefully draw the *ameba* in the third circle.



b. Label each drawing with arrows to show the direction that the cytoplasm was flowing.

c. Look up *contractile vacuole* in your textbook, and define it in your own words:

4. The *ameba*'s contractile vacuole appears as a clear circle. Look at your *ameba* and try to find what looks like a small bubble inside.

5. To eat, an *ameba* uses its pseudopods to trap and engulf food. When it has eaten, a food vacuole is formed. Look at the *ameba* in the microscope, and try to find a vacuole with material inside. (Do not confuse it with the nucleus, which is the largest dark object in the *ameba*.)

d. **On your third drawing of the *ameba*, label the following:** *pseudopod, nucleus, cell membrane, cytoplasm, contractile vacuole* and *food vacuole*.

6. **Return the slide with the *ameba* to your teacher.**

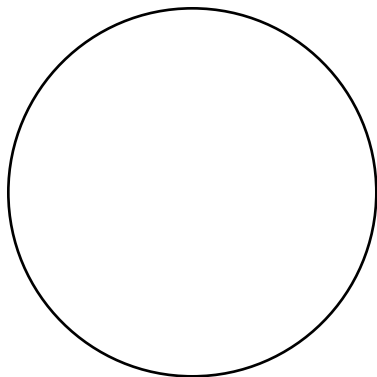
Section II : The *Paramecium* (medium size; clear; slipper-shaped; move quickly by cilia)

a. Look up the word *cilium* in your textbook, and define it in your own words:

1. Use the dropper in the *paramecium* culture to get a drop of "scum" out of the container, and place it on a microscope slide. Add one drop of methyl cellulose on top of the *paramecium* (this is a "syrup" to slow down the organisms). Place a cover slip on top of the mixture.

2. Find a *paramecium* under low power and observe it. Then, change to medium power to see the details of the *paramecium* better. Reduce the light by adjusting the diaphragm. You may need to move the slide to keep the *paramecium* in the field of view.

3. Carefully draw the *paramecium* in the circle below.



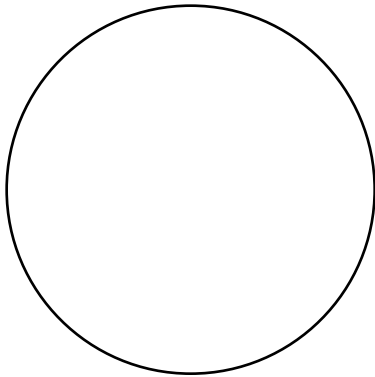
b. Look up *contractile vacuole* in your textbook, and define it in your own words:

4. The *paramecium*'s contractile vacuoles appears as star shaped structures at each end. Try to find the contractile vacuoles in your specimen.

5. To eat, a *paramecium* collects food in its oral groove. When it has eaten, a food vacuole is formed. Look at the *paramecium* in the microscope, and try to find a vacuole with material inside. (Do not confuse it with the nucleus, which is the largest dark object in the *paramecium*.)
- d. On your drawing of the *paramecium*, label the following: *cilia*, *nucleus*, *cell membrane*, *cytoplasm*, *contractile vacuole* and *food vacuole*.
6. Wash the *paramecium* down the drain. Wash and dry the slide and cover slip.

Section III : The *Euglena* (small; green; oval; move quickly by flagellum)

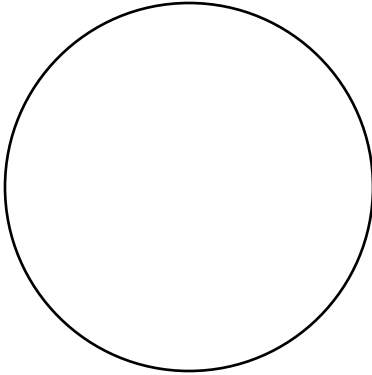
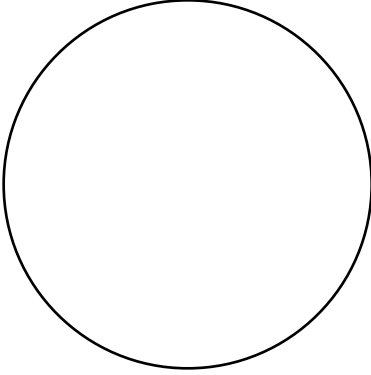
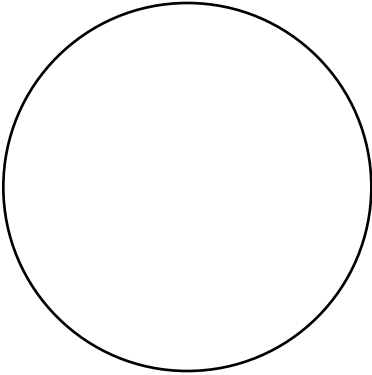
- a. Look up the word *flagellum* in your textbook, and define it in your own words:
 1. Use the dropper in the *euglena* culture to get a drop out of the container, and place it on a microscope slide. Place a cover slip on top of the drop.
 2. Find *euglena* under low power and observe them. Shift to high power, and get a closer look.
 3. Carefully draw a few *euglena* in the circle below.



- b. Look up *chloroplast* in your textbook, and define it in your own words:
 4. The *euglenas*' chloroplasts appear as green objects inside the cells. *Euglenas* make their own food by photosynthesis, but may also eat if they choose to.
 - c. On your drawing of the *euglena*, label: *flagellum*, *nucleus*, *cell membrane*, & *cytoplasm*
 5. Wash the *euglenas* down the drain. Wash and dry the slide and cover slip.

Section IV : Various Protists

1. Obtain a drop from one of the specimen containers (other than *ameba*, *paramecium* or *euglena*). Add the drop to a slide, and place a cover slip on top.
2. Find the protist under low power (look for movement of larger particles), then shift to higher power if appropriate.
3. Draw the specimen in one of the circles below, labeling any visible parts. (Also, write the name of the protist and the magnification level below the drawing. Then repeat these three steps for another specimen until you have done three different protists.

		
protist name:	protist name:	protist name:
magnification:	magnification:	magnification: