

## ***Protists - Euglena***

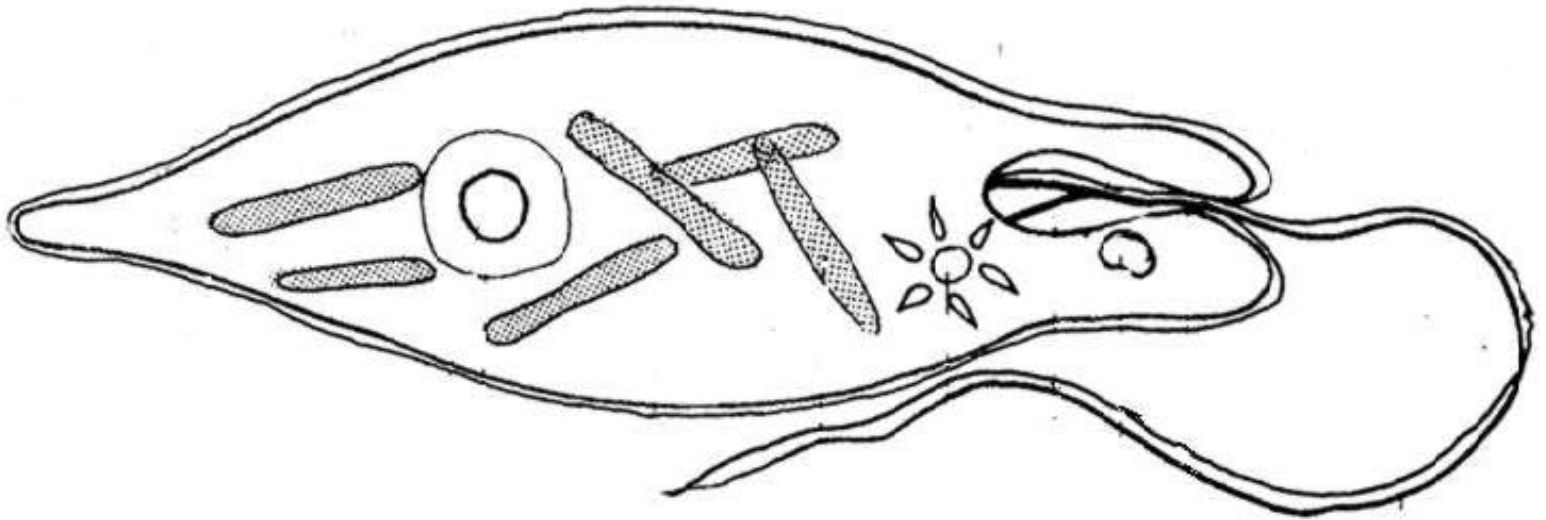
### **Euglena**

Euglena are unicellular organisms classified into the Kingdom Protista, and the Phylum Euglenophyta. All euglena have chloroplasts and can make their own food by photosynthesis. They are not completely autotrophic though, euglena can also absorb food from their environment. Euglena usually live in quiet ponds or puddles. Euglena move by a flagellum (plural = flagella), which is a long whip-like structure that acts like a little motor. The flagellum is located on the anterior (front) end, and rotates in such a way as to pull the cell through the water. *Color and label* the flagellum black. It is attached at an inward pocket called the reservoir. *Color and label* the reservoir gray.

The Euglena is unique in that it is both heterotrophic (must consume food) and autotrophic (can make its own food). Chloroplasts within the euglena trap sunlight that is used for photosynthesis, and can be seen as several rod-like structures though out the cell. *Color and label* the chloroplasts green. Euglena also have an eyespot at the anterior end that detects light, it can be seen near the reservoir. This helps the euglena find bright areas to gather sunlight to make their food. *Color and label* the eyespot red. Euglena can also gain nutrients by absorbing them across their cell membrane; hence, they become heterotrophic when light is not available and they cannot photosynthesize. The euglena has a stiff pellicle outside the cell membrane that helps it keep its shape, though the pellicle is somewhat flexible and some euglena can be observed scrunching up and moving in an inchworm type fashion. *Color and label* the pellicle blue.

In the center of the cell is the nucleus, which contains the cell's DNA and controls the cell's activities. *Color and label* the nucleus purple. The nucleolus can be seen within the nucleus. *Color and label* the nucleolus pink. The interior of the cell contains a jelly-like fluid substance called cytoplasm. *Color and label* the cytoplasm light yellow. Toward the posterior of the cell is a star-like structure, the contractile vacuole. This organelle helps the cell remove excess water, and without it, the euglena could take in some much water due to osmosis that the cell would explode. *Color and label* the contractile vacuole orange.

## *Euglena*



### **Questions:**

1. Are euglena unicellular or multicellular?
2. What Kingdom do euglena belong to? What Phylum?
3. What organelle carries out photosynthesis?
4. On which end is the flagellum located?
5. Define autotrophic.
6. Define heterotrophic.
7. Describe the two ways in which the euglena get their nutrients.
8. What is the eyespot used for?
9. What is the function of the nucleus?
10. What is the function of the contractile vacuole? What would happen if the cell did not have this organelle?