

## Microcommunities

Usually when a community and the organisms associated with it are described, observable (macro-) organisms such as trees, grass, pigeons, and squirrels are listed. However, a community also has many microorganisms. Microorganisms can make up their own microcommunities. These microcommunities are small and inconspicuous. With a microscope, you can examine communities which would ordinarily go undetected. It is also possible to identify and classify many of the organisms found in microcommunities.

In this investigation, you will

- examine the microcommunity in bean water and in pond water.
- identify the organisms found in these two microcommunities.
- determine if each organism is motile or sessile (moves about or does not move about).
- determine if each organism is a producer or a consumer (is green or not green).

### • Pond-Water Microcommunity

- Prepare a funnel with filter paper.
- Filter 100 mL of pond water using Figure 80-2 as a guide. This procedure will concentrate any organisms present in the water and make them easier to find.

**FIGURE 80-2**



- Remove the filter paper from the funnel after the last of the pond water has drained through.

- Turn the filter paper inside out and touch the moist end which used to be the tip of the paper cone to a glass slide.
- Add a coverslip to the slide and observe this wet mount under low and high powers.
- Using the diagrams in Figure 80-3 for comparison, identify the organisms in your pond-water microcommunity.
- Record in Table 80-1 the names of the organisms observed in the pond water microcommunity.
- Determine and record in Table 80-1 whether each organism is motile or sessile.
- Determine and record in Table 80-1 whether each organism is a producer or a consumer.

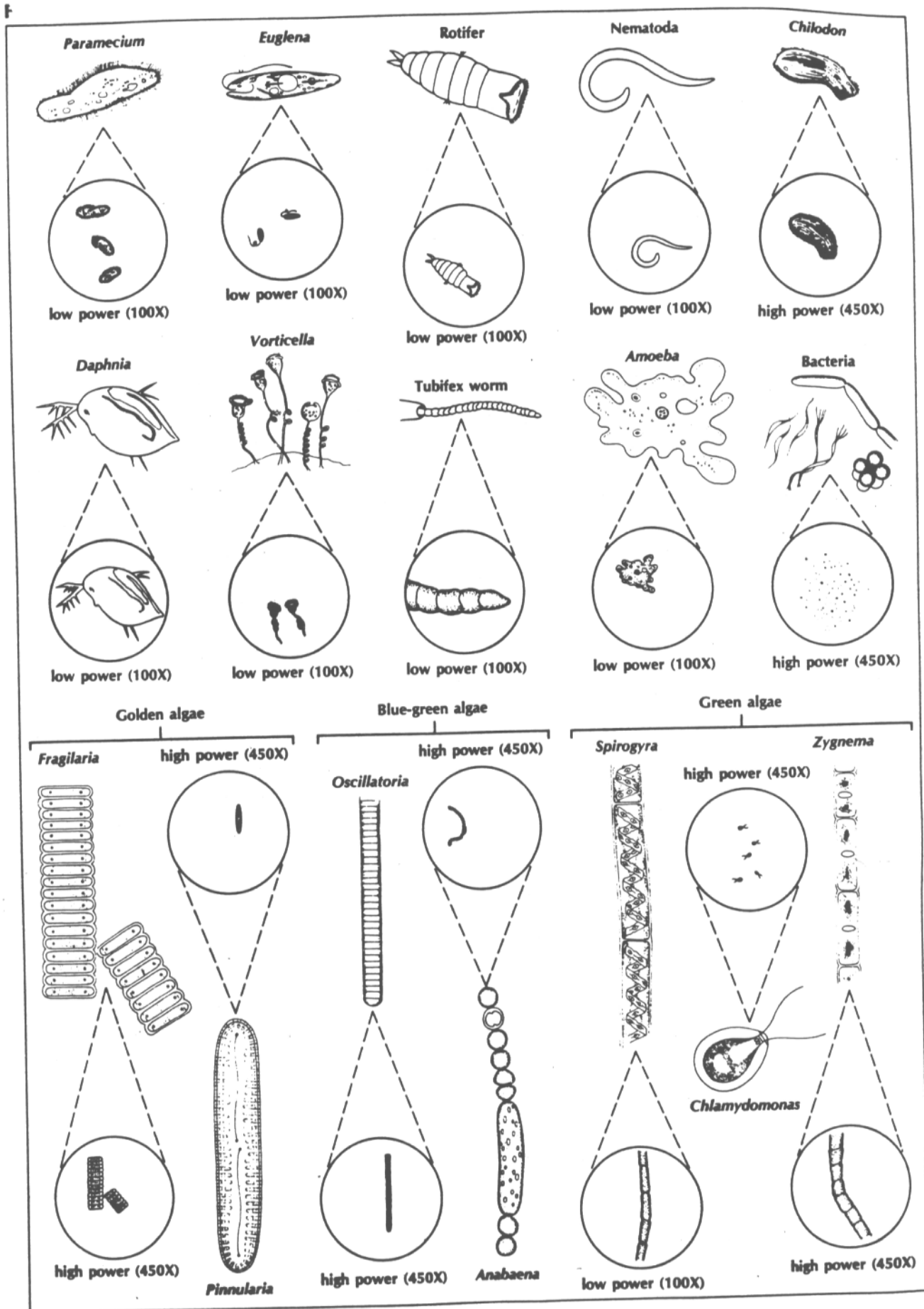
**TABLE 80-1. ORGANISMS IN MICROCOMMUNITIES**

[illegible]

Wet Mount Instructions on the last page.

## Analysis

1. Explain the color difference between producers and consumers in pond-water microcommunities.  
\_\_\_\_\_
2. (a) Did you find a relationship between motility and whether an organism is a consumer or a producer? \_\_\_\_\_  
(b) Explain. \_\_\_\_\_  
\_\_\_\_\_
3. Producer organisms carry on photosynthesis when light is available. They also carry on respiration all the time but at a slower rate than photosynthesis.
  - (a) During times when light is available, which gas is given off in large amounts by producers?  
\_\_\_\_\_
  - (b) Which gas is given off in small amounts by producers during light conditions? \_\_\_\_\_  
\_\_\_\_\_
  - (c) Which gas is given off in small amounts by producers during dark conditions? \_\_\_\_\_
  - (d) During times when light is available, which gas is used in a community in large amounts by producers? \_\_\_\_\_
  - (e) Which gas is used in small amounts by producers during light conditions? \_\_\_\_\_
  - (f) Which gas is used in small amounts by producers during dark conditions? \_\_\_\_\_
  - (g) Describe the major contribution made by producers in a community with regard to gas exchange. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. What other major contribution is made by producers to communities? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Microscope Review

1. Explain how to find total magnification on a compound microscope. Demonstrate examples of this method for each setting of your microscope.
2. List 5 rules regarding care and handling of the microscope.
3. Describe the steps taken when focusing a specimen under the microscope.
4. Pretend you are peering through the microscope and the diagram below is your field of view. How would you have to move the specimen to get it centered in your field of view?



5. Explain the difference between a compound, a dissecting and an electron microscope.

## WET MOUNT PROCEDURE FOR PLANT SPECIMENS

### BACKGROUND:

The green parts of plants are made up of cells that contain specialized organelles (small "organs" performing a special function) known as chloroplasts. These help the plant to convert sunlight into carbohydrates that the plants use for energy. Plants often store unused food in the cells of their roots that are not green. The organelles in the root cells that are specialized for storage are known as plastids.

Elodea is a fresh water green plant (commonly known as an aquarium plant).

If you have ever seen a "bunch" of small green onions at the store, you are looking at the leaves and roots of the entire plant. Single onions that we purchase at a grocery store are the storage root of the green plant which is found above the ground.

### PROCEDURE: Elodea plant

1. Take a leaf from the elodea plant
2. Place the leaf on a slide and add a drop of water.
3. Place a cover slip at a 45 degree angle to the specimen, and let it drop onto the specimen.
4. You are now ready to proceed with observations, diagramming, labeling or measurements.

### PROCEDURE: Onion root

1. Take a slice of onion. Peel only the thin **INNER** membrane from the piece of onion.
2. Place the thin membrane on a slide and add a drop of iodine stain
3. Repeat steps 3-4