Student Sheet Name_____Period_____

Title: Microscopic Life

Introduction: Pond living microorganisms called **protists** are a good way to see how cells perform all the functions of life. These organisms are made of only one cell that must get energy from food, remove waste, and, for some, produce their own food. In this activity, you will observe them and then change an abiotic factor in their environment.

Materials: Microscope, pond water, slide, cover slip, dropper

Procedures:
Day 1

1. Place a SMALL drop of the pond water on a slide. Include a piece of the plant material to give you something visible to focus on.
2. Add the cover slip and soak up any extra water with a small piece of paper towel.
3. Focus the microscope on the slide on the piece of plant material. Start on LOW power and look for moving organisms. When you find some, you can switch to medium power. If the organisms are holding still enough, you might try high power but it is easy to lose them on this power.
4. Draw the types of microorganisms that you see. Under each one, write approximately how many of them there are. (lots, a few, one) Draw all the cell organelles that you see in each one.
5. Watch the behaviors of the microorganisms. Can you see them get energy, remove waste or produced their own food? Record these in your data.
6. With your group, design an experiment you would like to test on your pond. You need to change one variable.
7. Write your hypothesis on the board and wait to see if your teacher approves.
8. Make the changes to your pond that you proposed.

Observation Days:

1. Observe your pond and draw and record the number and behaviors of each protist.

Final Day

1. Make your final observation and be prepared to report your results to the class.
2. Answer the analysis questions and write a conclusion that is based on your hypothesis.

Variable we are changing:

Hypothesis:

Data:

Day/Date	Drawings	Behaviors

Analysis:

1. Which protists were most common at the beginning of the experiment? (describe them)

2. How did the populations of protists change as time went by?

3. What evidence did you have that the protists were using energy?

4. Did you see any organisms that produced energy? How did you know?

5. Do you have any evidence that the organisms were producing wastes?

6. Overall, did the change you made to the pond environment create more abundant pond life or less?

7. When would it be good for a pond to have many protists?

8. When would it be harmful?

Conclusion: (Did your hypothesis predict the results?)