

Activity 2:

The Effects of Fertilizers Such as Phosphorous on Phytoplankton Growth

For this activity you will need to predict what effects fertilizers might have on phytoplankton growth in sample jars of water.

Materials:

Two identical clear containers for water samples.

Two water samples from natural sources either pond, lake, or stream.

Liquid fertilizer

Distilled water

Procedure: Collect the same volume of sample water in each jar. Place each jar near a window where there is sufficient light for photosynthesis to occur. Label each jar: control and experiment. Be sure to record the amount and to which jar you add the liquid fertilizer.

To determine the productivity in the jar you will measure the water's clarity. Mark an X on an index card and place it behind the sample jar. Measure how far away the x is from the jar at the point where you can still see it. Do this each day of your experiment. You may need to add a few drops of distilled water to the jar each day to bring the water level up. Record your data twice a day over a period of two weeks. Plot your data on a graph.

State hypothesis

Graph Your Data

Conclusion: Does your data support your hypothesis? Why or why not?

Questions:

- 1) What does the clarity of the water tell you about the effects of fertilizers on phytoplankton growth?

- 2) At what point did the clarity of the water remain unchanged?

- 3) Why do think this happened?

Extension: Compare the samples from a pond, lake and stream and determine which has more productivity. Explain reasons why there may be differences. Or takes samples at different times of the year and determine if there is a difference in productivity.

Source: Betsy T. Stevens "Sea Soup: Teacher's Guide" 1999