

**Materials Needed per Group:**

- 3 plastic cups with caps
- 3 graduated pipets
- 3 microscope slides
- 3 coverslips

**Shared Materials:**

- Nitrate pollutant
- Phosphate pollutant
- Nitrate-Phosphate pollutant
- Water Sample

**Procedure:**

1. Label one of the containers "Control," the second "Low Concentration [N, P, or NP]" (depending on the pollutant assigned), and the third "High Concentration [N, P, or NP]" (depending on the pollutant assigned).
2. Add the correct amounts of pollutant and water sample (and algae for aged water) to the containers (refer to Figure 1).

Figure 1: Pond Water

<b>Container</b>	<b>Amount of Pollutant</b>	<b>Amount of Pond Water</b>
Control	0 mL	30 mL
Low Concentration	1 mL	29 mL
High Concentration	3 mL	27 mL

3. Swirl each container thoroughly to mix. Cap the containers loosely.
4. Place the containers on a sheet of white paper by an indirect light source for eight to ten days. (Be sure the samples are far enough away from the light to avoid overheating.)
5. Observe the containers every other day. Note the differences in color, intensity, and cloudiness. Record your qualitative data observations.
6. After eight to ten days, retrieve your samples from the light source.
7. Label three microscope slides: one "Control," one "Low [N, P, or NP]," and one "High [N, P, or NP]."
8. Mix the "Control" by swirling it gently.
9. Make a wetmount of the Control sample by placing one drop of the sample on the "Control" slide. Cover with a coverslip.
10. Observe the slide under the microscope at low power.
11. Working from the top left and continuing clockwise, count the number of algae in view. Record your observations.
12. Determine approximately how many algae cells are in one drop of sample. One drop is equal to approximately 0.05mL. Record your observations.
13. Repeat steps 8-12 for the Low Concentration and the High Concentration samples.
14. Share your information with the rest of the class and record all class data for each pollutant.
15. Create a graph to visually represent class results.