

Pond Pollution

Pollution is all of the chemicals and wastes that poison the land, air and water. Pollution can be caused by many things: oil spills, animal waste, chemicals like fertilizers and insecticide sprays, people spilling waste into sewers and factories dumping trash into streams. Different pollutants have different effects on the ecosystems they are exposed to.

Objective

Create mini-ponds to investigate what happens when pollutants get into ponds and lakes.

Materials

- four jars of pond water
- some algae (from a pond or science supply store)
- four spoons
- a marking pen
- an eyedropper
- a microscope with some slides
- protective gloves
- some paper to draw and write observations
- small amounts of laundry or dishwasher detergent, fertilizer and vegetable oil

Safety Notice: All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

Procedure

1. Use the marking pen to number the jars from 1 to 4. Then, put on the gloves in case any of your pollutants spill. Jar number one will be pond water only. In jar two, add a spoonful of detergent to the water. Add a spoonful of fertilizer to the pond water in the third jar, and in jar four, add a spoonful of vegetable oil which will be used in place of motor oil.
2. Add a spoonful of algae to each of the jars. The algae will serve as an indicator. That means that any changes in the growth of the algae will be a sign that the mini-pond ecosystems have changed.
3. From jar one — the "Pond Water Only" jar — use an eyedropper to place a sample onto a microscope slide. Place the slide under the microscope for viewing. Sketch what you see in the box below. Record your observations.

4. Now place the jars where each will get the same amount of warmth and light. Return to this area each day for a week to observe and take notes on what's happening in each jar.
5. At the end of a week, do you see any change in their appearance? The pond water without any added chemicals hasn't changed very much. But look at the jars with the pollutants in them.

- What do you notice about each jar?

6. Take an even closer look at the water from each jar with the microscope and slides. Compare what you see under the microscope to the drawing you made of the plain pond water in step 3.

- In the box below, draw the microscopic view of water from jar two, three or four. Record your observations. How is water on the slide similar or different than the plain pond water?

Conclusions

- Were you surprised by the effect any of the pollutants had on the pond water? Explain.

- How do you think plant and animal life are affected by each of the pollutants?

- How do you think these pollutants reach ponds since they are not native to the ecosystem? What can people do to prevent further contact?
