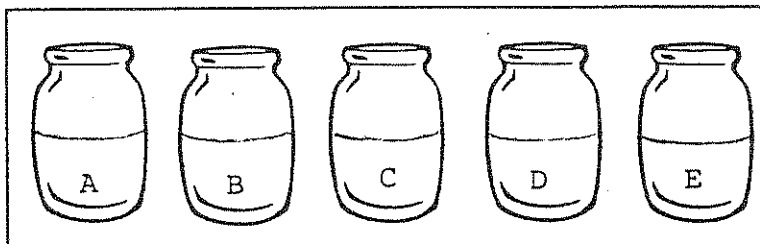


Is This Water Polluted?

Objective: Students will try to detect water pollution by looking at and smelling samples of water. Students will discuss types of water pollution and how we determine if pollution exists.

Skills Used: Analysis, communication, discussion, identification, interpretation, observation, recognition

Materials: Five clear jars
Tap water
Well water
Spoonful of soil
Rubbing alcohol
Stream water
Masking tape or labels for jars



Procedure:

1. Prepare jars ahead of time as follows (fill each jar halfway):
Sample A - Tap water
Sample B - Well water
Sample C - Well water with teaspoon of soil added
Sample D - Well water with capful of rubbing alcohol
Sample E - Stream water
2. Ask for five volunteers to each take one sample back to their seat and decide if their sample contains polluted water. Students can work as teams or in groups depending on the size of the class. Students should use both smell and visual observation. Give the students about one minute to analyze their samples and then have each report on how their sample looks, smells and whether they think their sample is polluted. They should also indicate how they reached that determination. Bring up the following points as part of the discussion.

Sample A (Tap water) - Do you consider tap water to be polluted? The water is polluted because tap water contains chlorine. Although people need chlorine in tap water to kill bacteria and other microorganisms that are harmful to people, chlorine is extremely toxic to fish and other aquatic life even below detectable levels.

Sample B (Well water) - Polluted or not? This water should be able to support aquatic life. Because it is natural and not treated with chemicals, it probably is not polluted. Is it possible for well water to be polluted?

Sample C (Water with soil in it) - This water obviously looks polluted because it is discolored. It contains soil, suspended solids. While it would not make acceptable drinking water for

humans, would soil in a stream or lake pollute water? While many people do not consider soil to be a pollutant, it causes water to become cloudy and reduces light penetration to underwater plants preventing photosynthesis, reduces the amount of oxygen in the water to support aquatic insects and fish, smothers spawning beds, and fills in streams preventing normal flow and necessitating dredging.

Sample D (Water with rubbing alcohol) - This water is obviously polluted even though it looks perfectly clear. This sample reminds us that our sense of smell is very often important in determining if a stream is polluted. Streams may look clean but smell like sewage or other pollutants.

Sample E (Stream water) - Polluted or not polluted? Can you tell just by looking at the water? If it was dark or murky, it would probably indicate suspended solids or too much sediment for aquatic life to survive. To get accurate information, tests need to be done. Quite often, you can't tell just by looking.

3. Additional discussion questions:

- a) Was it easy to tell which samples were polluted?
- b) Name some types of pollution that could pollute your stream, including those that are not visible to the naked eye.
- c) How do these pollutants get into the water?
- d) What things can be done to prevent this type of pollution?

4. Follow up this activity with introduction to nonpoint source pollution and how it differs from point source pollution.