LESSON PLAN

Eileen Tramontana -- Suwannee River Water Management District, Live Oak, FL

Lesson Title: Water Pollution Inspection Activity

Grade Level: 6-12

Topic: Water Pollution

Time Required: 30-40 minutes (whole class group activity)

Objectives: Students will understand that contaminants may not be detected by seeing, smelling, or feeling.

Materials:

Approximately 6 baby food jars
1 teaspoon of salt
1 tablespoon of vinegar
5 drops of tobasco sauce
Milk
River water or local well water (this is especially effective if you can find well water that has yellow staining and sulfur odor)
Motor oil
Paper towels

Preparations:

The teacher will need to prepare the baby food jars by thoroughly cleaning them to eliminate any trace odors left by the baby food. Place one ingredient in each jar along with water. In the sample containing river or well water, you would not add water. Label each jar as sample A, B, C, D, E, or F. Keep a record of what ingredient was added to each sample.

Prepare a sampling data sheet on which the students can answer the following questions:

1. What color is the sample?
2. What does it smell like?
3. What might be in the sample?
4. Is the sample drinkable to humans? to wildlife?
5. Can the sample be made drinkable?

6. How? (Note: Do not allow the students to say it can be cleaned by just running it through a treatment plant -- make them give specifics, such as charcoal treatment, reverse osmosis, etc...)
7. Is it expensive?
8. Is the sample really undrinkable just because it may look or smell bad?

Procedure:

1. Break the class into teams.
2. Give each team a sample to examine. Caution the students not to taste the samples. Remind them to use all of their senses except taste to examine the sample. They make shake the sample if the lid is placed on properly.
3. Have the students answer the above questions and make notes of their observations.
4. Let each team examine each sample.
5. When every team has examined each sample, review the samples as a class. Ask various teams to give their findings and conclusions about the samples. Remind them that there are no wrong answers, each person's observations are valid and each member does not have to agree with the other team members if they have a reason for their disagreement.
6. After examining each sample, tell them what was placed in each sample and discuss the "drinkability" and possible water treatment processes.

Conclusion:

Students should begin to realize that not all contaminants have a smell or are visible. Some samples that may not be aesthetically pleasing are perfectly drinkable. All wildlife has to depend on whatever water source is available to survive no matter what the condition of the water.

More...

Have students place the contents of each jar on a flat disk or tray and allow to evaporate. In some samples, a residue will be left. Ask students where the residue came from. Review their observations of each sample -- color, smell, etc...

Have students develop samples to stump the class with, or leave samples in jars over a period of time and observe what changes happen.

Have the students research the various processes for treating water in their community, state, and country.