

OIL SPILL SOURCES AND EFFECTS TEACHER INSTRUCTIONS

See Lesson 4 for all activity materials.

Water and Oil Activity

Before activity:

- Make “crude oil” by mixing vegetable oil and cocoa powder
- Make salt water if necessary

Procedure:

1. Using the freshwater and saltwater jars, add equal amount of crude oil to each jar and shake jars for 20 solid shakes (demonstrate to students) to simulate the typical PWS storm.
2. Have students then stir their oil/water mixtures. After shaking and stirring, start the timer (1-2 minutes), watch the oil settle.
 - a. Discuss how the oil acts in freshwater versus saltwater.
 - b. Review buoyancy concepts of water– why does oil act the way it does in water?

Oily Soil Penetration Activity

Before activity:

- Gather different kinds of sediments

Procedure:

- 1) Fill each container about 2/3 full with one of three sediments
- 2) Make 2 wells in first container
- 3) Measure equal portions and pour molasses in one well and oil in the other
 - a. Observe immediate behavior of liquids and answer questions below
- 4) Repeat for other two sediments
- 5) Compare results with class
- 6) Wrap-Up Questions:
 - a. Does either substance penetrate the sediment?
 - b. How fast does this happen?
 - c. What differences do you see between the substances?
 - d. How do you think weathering processes affect how the oil will react with different sediments?
 - e. What are some direct effects of oil on animals?
 - f. What are some indirect effects of oil on animals?
 - g. How does the timing of an oil spill affect animals?

Ecosystem Chorus Activity:

Adapted from Alaska Oil Spill Curriculum K-12: <http://www.pwsrca.org>

Procedure:

1. Ask students "Can someone name something that is not alive today, has never been alive and will not be alive in the future?" (You are looking for an abiotic answer, such as soil or sunlight.) Have the child who answers first go to the middle of the circle. Ask for another non-living element and continue to ask until water, air, soil and sunlight have been identified. Have these children stand together. Explain that these non-living factors (abiotic) are the foundation and pulse of the ecosystem. Have the children begin **humming** quietly.
2. Ask the remaining students: "What's green, moves very, very slowly, eats up all the sunlight it can get, and makes food?" (plants). Continue to ask for types of plants (producers) until a sizable number of children are chosen. The largest group of living factors should be plants, since they produce the food and support the animals. Have the plants form a circle around the non-living factors, which they depend on for their survival. Explain that plants (biotic) use the non-living factors to produce sugars (food) and grow. Quietly have the "plant-children" practice their part in the chorus "**Grow, grow, grow.**"
3. Ask the remaining children to describe or name some creature that consumes plants, animals or both (animals). Have these children form a loose circle around the producers. Animals eat plants and other animals, and they do it noisily. Have the "animal-children" practice their part loudly in the chorus: "**Crunch, munch, crunch, munch.**"
4. Wrap-up questions:
 - a. Based on what you experienced today, how do you think the oil spills interact with our coastlines?
 - b. What are the biggest threats of an oil spill?