Lesson Plan #4
Title: Oils Well That Ends Well

Introduction:
One of the problems in the world today is the cleanup of oil/gasoline spills. This particular lesson will give students a chance to recognize the problems associated with a tanker spill in the ocean.

Before students start on this lesson, begin a **KWL chart** (an overhead transparency could be used) explaining what they know about oil spills, and what they want to know. When the lesson is completed, the students could complete the chart by telling what they have learned.

Objectives:
During this activity, students will learn to:

1. Understand the difficulty of cleaning water after it has been contaminated with oil and/or gasoline.
2. Predict which material will clean the "spill" successfully.
3. Utilize the scientific method.

Session Time: 45-60 minutes

Materials:
*(For student safety, gasoline will **not** be utilized in this lesson. Each student should be equipped with a pair of rubber gloves.)*

- Two large pans or clear Rubbermaid containers (one for fresh water and one for salt water)
- Water
- Rocks and/or sand
- Paper towels
- Plastic wrap
- 3” X 5” pieces of cotton cloth
- Dishwashing liquid
- Cotton balls
- Cooking oil (about 4 oz. for each group)
- Cocoa powder
- Sponge (about the size of half an index card)
- Aluminum foil to make a boat (you can also use a toy plastic boat)
- Plastic toy animals (as desired)
- Newspaper
- Blue food coloring
- Cup
- Popsicle stick
- Salt

Methods: guided discussion, cooperative learning, interactive participation, written response

Procedure:

1. Divide the class into teams.

2. Cover the classroom floor with newspapers.

3. Each team will create an ocean environment. Half of the teams will create a freshwater environment and half will create a salt-water environment. Give each team a pan, rocks, and/or sand. Have them add fresh water or salt water and a few drops of blue food coloring to complete it. Plastic boats, toy animals and birds can be added as the team desires.

4. Make a boat out of the aluminum foil (or a toy plastic boat may be used).

5. To avoid the problem of disposing of motor oil/crude oil, your team will make simulated crude oil. Place 3 tbsp. of vegetable oil in mug. Add 2 tbsp. of cocoa powder. Mix cocoa powder and oil thoroughly with a Popsicle stick.

6. Fill the boat with the “crude oil” and set it to sail in the “ocean”.

7. Make the boat tip causing an oil spill.

8. Predict the cleanup effectiveness of the materials listed on the ***Effectiveness Chart.***

9. Give each student a “lab coat” (a trash bag cut with arm holes).

10. Give each student a pair of rubber gloves to protect themselves.

11. Have the students test all the given materials and rate their effectiveness in cleaning up the oil spill.

12. Record the results on the *Effectiveness Chart.*

13. Upon completion of the chart, students answer the questions on the worksheet.

14. Based on the team results of this activity, have the students write an essay entitled, “What I would do if I were in charge of an oil spill.”

NOTE: *This lesson is included in the workshop* ***Content Across the Curriculum—Thematic Units*** *which is available through the* ***Southern Illinois Professional Development Center.***

K	W	L
What do we know about oil spills?	What do we want to find out about oil spills?	What did we learn about oil spills?

Effectiveness Chart

1. As a team, predict what you expect the effectiveness of oil clean-up to be for each material.

2. Test each of the materials below and record the results on the chart.

Ratings:

- 3--Very effective
- 2--O.K.
- 1--Not so good
- 0—Ineffective

Material	Predicted Rating	Results Rating
Paper towels		
Cloth		
Cotton balls		
Sponge		
Plastic wrap		
Dishwashing liquid		
Other (must be instructor approved)		

3. Which material(s) or combination of materials were the most effective?

   _____

4. What happened to the oil when the spill occurred? Did it sink? Float? Mix in? _____

5. How would you dispose of the oil-contaminated material in a "real" oil spill? _____

6. What happened when the detergent was added to the contaminated ocean? _____

7. Where would the oil go in a real ocean after a dispersant (like the dishwashing detergent) is used? _____

   _____

8. What dangerous effects does oil have on wildlife and the environment?

   _____

   _____

   _____

   _____

9. Did the results differ between the freshwater environment and the salt-water environment? If so, how?

   _____

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