

**Project FOCUS
Best Lessons
SECOND GRADE**

Title of Lesson: Uh Oh Oil Spill!

Theme: Physical Science

Unit Number: 1 **Unit Title:** Properties of Matter

Performance Standard(s) Covered (enter codes):

S2P1

S2CS4a

S2CS4b

S2CS5

Enduring Standards (objectives of activity):

Habits of Mind

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

Content (key terms and topics covered):

Essential Questions: (1) How do we classify matter?

(2) How can we describe matter?

Content: Ho to investigate changes in matter based on differences in dissolving.

Key terms: matter, dissolve

Learning Activity (Description in Steps)

Abstract (limit 100 characters): The purpose of this activity is to teach students about the property of dissolving.

Details:

In particular, this lesson is designed to show students the reasons and mechanisms behind the oil spills they hear about in the news. It demonstrates that oil and water do not dissolve in one another and create a crisis when oil spills occur. This activity teaches students about the difficulty of cleaning up oil spills. The hands-on experiment demonstrates oil separation from water, oil spills in ocean currents, different methods of cleaning up the oil, and inquiry about how the oil spills affect the ocean. The activity also gives the students practice with using tools in science.

Background Information:

Before the activity, we read the book, Oil Spill! by Melvin Berger. This story is found in the 2nd grade Literature Works textbook. The book mentions three important ways to clean up oil spills: soaking up oil with a pad, using a skimmer to scoop up the oil, and using a boom to contain the oil.

Preparation:

Fill each plastic container about half way with water. Place a few drops of blue food coloring into the water and stir until the color is even throughout. Pour a small amount of oil into the water (about 3 parts water, 1 part oil). Repeat the same procedure with the small, clear container. Place the cap tightly on the top. Create a boom by folding a pipe cleaner into a circle with a vertical handle.

Procedure:

The activity should be lead in small groups of 5-7. Start out discussing what crude oil is and how it affects wildlife when spilled. Explain that oil does not mix with water, and that the oil is on top because of density. Demonstrate this by showing how the layers separate with the oil and water in the small, clear container. With the cap on, shake the container and show that after a while the oil will separate back into the layers. Have the children recall the methods of cleaning oil spills as read in *Oil Spill!*. Carefully shift the container from side to side to demonstrate the motion of currents and how they affect oil spills. Using the pipe cleaner, demonstrate how a boom can contain oil. Simply place the circular part on the top layer of the water. Observe how the oil does not leave the inside of the pipe cleaner circle. Now demonstrate how to carefully soak up the oil with a paper towel. This is the pad method of oil spill clean up. Give the students a paper towel folded into a square. Have them use this to try to soak up as much oil as they can. Make sure to explain that they do not want to simply place the towel in the container because that would absorb the water as well. When they get tired of this method, give the students spoons to be used as skimmers. Have them scoop up the oil without getting water in the spoon as well. Put the scooped up oil into the plastic cup. Tell the students that they should have as little blue water in their plastic cup as possible. Many of the students had so much oil that it rested as a complete layer on top of the water. Tell the students that a trick to seeing if they have oil on top is to look at the sides of the container. If they see a clear portion above blue in the corner of the container, then there is oil.

Possible Assessment Questions:

1. Which method of clean up was easiest? The hardest?
2. How hard would the oil be to clean if the water currents were constant like in an ocean?
3. Why is it important to not soak or skim up any of the water along with the oil?
4. What would happen to a fish if it were covered in oil?

Have the students discuss their feelings on this activity. Have them relate it to oil spills. Would it be harder to clean up in the ocean than in their container? Have them answer the questions above. This experiment is really to demonstrate oil separation from water and to get the students to think critically about the effect of oil spills on ecosystems and the methods of cleaning up the oil.

Safety Issues:

Tell the students not to move the containers because they can spill easily. Remind the students not to drink the liquid. A student during this experiment accidentally touched her eye with the oil on her fingers and was sent to the clinic. Make an announcement for the students not to touch their eyes or any other students.

Materials Needed (Type and Quantity):

The activity takes 30 minutes for each group in addition to reading the book.

- Shallow, plastic container for each child
- Water
- Vegetable or cooking oil

- **Blue food coloring**
- **Many paper towels**
- **1 spoon for each student**
- **1 plastic cup for each student**
- **Small, clear container with a cap**
- **1 pipe cleaner**
- **Oil Spill! by Melvin Berger**

Notes and Tips (suggested changes, alternative methods, cautions):

Sources/References:

- 1) <http://www.mms.gov/alaska/kids/index.htm>.
- 2)
- 3)