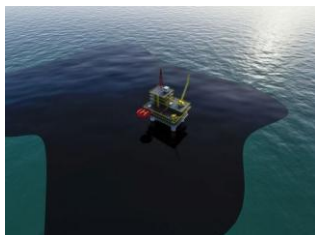


**Alejandra Arias**

**EED 480**

### **OIL SPILL CLEAN-UP EXPERIMENT Grade Level**



#### **Objective**

Students will learn the consequences an oil spill has on an ecosystem. Students will explore different ways and use different materials to clean up an oil spill.

#### **Big Idea**

What materials are the most effective when cleaning an oil spill?

**Setting the Stage:** Students need to understand why an oil spill in the ocean is devastating to wildlife. Oil spills causes a major disaster in the ecosystem killing plants and animals in the surrounding area. These disasters can take weeks months even years to clean up all of the after effects of these spills. In this lesson, students learn that oil spills are not easily fixed and getting it out of the water if a tough and challenging task.

#### **Next Generation Science Standards**

The lesson focuses on ESS3: Earth and Human Activity, ESS3.C: Human Impacts on Earth Systems things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.

#### **Science and Engineering Practices in the Next Generation Science Standards**

This lesson addresses SP 8: obtain, evaluate, and communicate information. During the investigation, students will ask their peers questions about which materials are the best to clean up an oil spill, and they will draw/write and communicate their group's results. It is important that students work collaboratively to communicate in written and oral form.

**Structure and Function**

In this lesson, the students understand that an oil spill is something caused by humans, and how drastically wildlife is affected by such spill. It is important for students to know this information because they can start becoming aware of ways in which we can protect and care for our planet and all of the wildlife.

**Background Knowledge:**

Students have already learned about what an oil spill is through the read aloud Oil Spill! (Let's-Read-and-Find-Out Science, Stage 2) by Melvin A. Berger, Paul Mirocha (Illustrator). Students have learned that oil spills occur somewhere in the world almost every day of the year. The book focuses on one of the worst spills in history the 1989 Exxon Valdez oil tanker spill. In addition, students will have background knowledge about how oils spills happen, how experts clean up after them, and what effect spilled oil has on ocean plants and wildlife. Students collaborate in groups using the scientific method and science process skills (observe, infer, form a hypothesis, predict, draw conclusions, and communicate). I establish safety procedures during all science and technology investigations.

**Materials:**

A Pan of Water

Blue Food Coloring

Vegetable or motor oil

Cotton Balls

Feathers

Dawn Dish Soap

Spoon

**Roles:**

Materials Manager/Traveler (SPY)

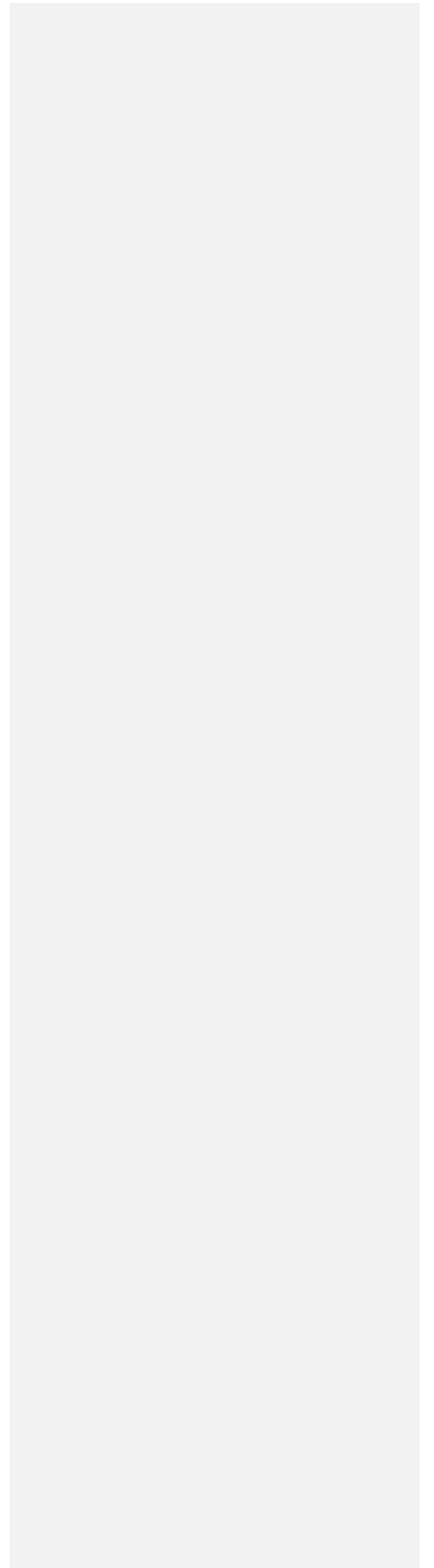
Checker

Recorder/Reporter

Observer/Illustrator

## **Oil Spills**

**Materials name: Draw a picture of what happened.**

The instructor/ facilitator begins this activity by assigning the materials manager/spy, checker, recorder/reporter, illustrator/observer. The materials managers will be provided with the oil spill lab sheet that enable their teams to follow along in their roles.

### THE 5-E FRAMEWORK

#### ENGAGE

#### CHECKER

5 MINUTES

Lead your team in recalling how the book Oil Spills talked about cleaning up the massive oil spill in 1989. Brainstorm ways using that information to come up with ways you can clean up an oil spill.

#### EXPLORE

15 MINUTES

Developing Questions

Team work in understanding that they will conduct an *investigation*: "How can we clean up an oil spill using cotton balls, feathers, spoon, and dish soap?" Students collaborate in groups.

**Observe and ask questions-** *What questions do they have about the items?* **RECORDER**

Record responses on the lab sheets. Groups are permitted to share their questions, so other groups can see and hear their peers' responses—Traveler (Spy).

**Form and record the hypothesis-** Problem-posing, "What will happen when the different materials are being used to clean up the oil spill? [Students are asked: *write/say a hypothesis using an "IF and Then" statement*].

5 MINUTES: Timed so students can stay focused on completing the task.

#### EXPLAIN

#### ALL

**Plan a fair test**

7 MINUTES

Students are asked: *What things will you need to do the test? What steps will you take to do the test?* ( [Planning Our Fair Test, student video](#) ). **Do the test.** Once the facilitator observes the steps that students will take to do the test, they are green lit to follow their plan to complete.

**ELABORATE** Inform the students that oil should be getting removed from the water.

**Comment [BSF1]:** This also needs to provide description of how students will express, extend and “own” the knowledge that they are acquiring and discussing.

## DAY TWO

Watch videos on oil spills

<https://youtu.be/3DbSIAg3F3A>

## ILLUSTRATE

## ILLUSTRATOR

**On the lab sheet provided, draw and color pictures of the results of your lab experiment.**

## EVALUATE

10 MINUTES

**Draw conclusions. Communicate results. (Day 2)** - On the next day, students watch videos on oil spills and other ways/materials that can be used to clean up oil spills in our oceans. Have them record their findings on their lab sheet.

Each group is then given an opportunity to share their findings with the class. This permits them to work on the science process skill, communicate.



DAY TWO OBSERVATION:

TEAM NAME: \_\_\_\_\_

ILLUSTRATION OF THE RESULTS

What materials worked the best?

**Comment [BSF2]:** Your worksheets for teams to show evidence of learning are rather limited considering how much knowledge (and awareness) was developed in this lesson. You need to consider a more robust performance or product. And, prepare a formative assessment of the content expectations stated in your objectives as well as an assessment of the group performance skills. Please complete and send along as soon as you can.