



Oil Spill Cleanup Challenge



What's the big idea?

The goal of this activity is to get students thinking about oil in the ocean, and in particular about the 2010 Deepwater Horizon disaster and the challenge of oil spill response. Students will have a water-filled tray to represent the Gulf of Mexico and a set of materials to respond to the spill. This activity works for a wide range of ages and works well in a camp or classroom setting. This challenge, including intro, hands-on activity, and discussion, takes about 1 hour.

Supplies & Preparation

Oil spill trays

Disposable aluminum trays clean and stack nicely for reuse. Buy as many trays as pairs of students. Utility/stuffing pans from the grocery store work well. 13"x9" is a common size, and works well if you want to use an 8.5"x 11" map in the bottom of the tray.

Print and laminate one map of the Gulf of Mexico for each tray. A map is included in this packet, although you can use Google Earth to obtain whatever map suits your activity. Place (or ideally hot-glue) a map in the bottom of each tray.

Plastic vegetation from a craft store can be glued onto the land side of the map to simulate marsh vegetation.



Oil spill cleanup kit

- plastic grocery bag (to contain kit & for cleanup)
- long pieces of string
- aluminum foil
- one knee-high nylon stocking
- cotton balls
- paper towels
- piece of thick yarn
- coffee filter
- paper straw
- spoon
- chopsticks or popsicle sticks
- critters — small plastic animals, pom-poms, feathers, etc.

Teacher prep materials

Prepare a short PRESENTATION that includes photos & videos of the Deepwater Horizon disaster and response efforts. It is useful to show the students photos of skimmer boats, booms (both near land and offshore), burning efforts, dispersant application, cleanup workers on the beaches and marshes, etc. Many of these photos can be found using a Google image search.

Prepare a SQUEEZE BOTTLE filled with VEGETABLE OIL & COCOA POWDER. Experiment with proportions — the more cocoa, the more viscous the oil. Plan for ~2 ounces of oil into each tray for the spill.

Any OBSTACLES you might have the students contend with during the activity, such as extra pom-poms (animals), feathers (birds), paper straws (wind).

DISH SOAP — dispense a couple of drops mid-way through the exercise to simulate chemical dispersant.

The Challenge

Ahead of time

For each pair of students, prepare a tray and small disposable bag containing their oil spill cleanup materials. To prepare the trays, lay (or glue) the laminated maps into the trays and fill $\frac{1}{3}$ – $\frac{1}{2}$ with water. An alternative is to have the students lay the maps and place water in the trays as their first step.

Prepare one or two “animal rescue stations” consisting of a tray or bin with warm soapy water. Students can use these stations to ‘save’ their animals by cleaning oil off their fur or feathers.

With the students

Introduce the Gulf of Mexico and the 2010 Deepwater Horizon disaster. It is useful for students to see videos and photos. A few main points of emphasis include:

- On April 20, 2010, a blowout of the Macondo deep exploratory well about 41 miles off the southeast coast of Louisiana resulted in the explosion and sinking of the Deepwater Horizon drilling platform and the death of 11 rig workers.
- The blowout preventer, which should have cut the riser pipe at the seafloor and sealed the blown-out well, failed and the fire on the platform raged for two days.
- On April 22nd the oil rig sank, initiating an uncontrolled release of oil and gas from the seafloor that lasted for over 87 days.
- Nearly 5 million barrels (206 million gallons) of oil and between 1.55 and 3 million barrels (65–126 million gallons) of equivalent natural gas were discharged into the Gulf at a depth of 5,000+ feet.
- Several types of response methods were initiated, including burning, skimming, dispersant application, beach/marsh removal, etc.

Give the students time to examine the different items in their clean up kit and make a plan – some items are good for trapping oil, some for soaking it up, and some for moving it around. Younger students may need guidance. Refer to photos used earlier to demonstrate types of response materials. Students should place any animals in the water before the spill. When everyone is ready, the teacher can move from one tray to the next, dispensing (squirting) the oil into each tray.

Give the students approximately 15-20 minutes to work toward the following goals:

- Contain the oil and prevent it from reaching land
- Remove as much oil as you can
- Save and clean up the animals
- Respond to “challenges” the teachers will pose

While the students are working, the teacher can pose new challenges for the students by adding a few drops of dispersant (dish soap), dropping pom-poms (animals) or feathers (birds) into the water, or asking students to simulate wind with their straw.

Discussion & Cleanup

After the challenge...

Engage students in a discussion about the activity. Some useful questions might be:

- What worked?
- What didn't work?
- What was realistic or unrealistic about the activity?
- What would you do if you had no time to plan?
- What happened when you had more oil, dispersant, wind, or additional animals added to your tray?
- How effective were you at keeping the oil off the marsh, removing oil from the water, or cleaning the animals?
- How effective were the real efforts to clean up the 2010 Deepwater Horizon spill? (A good overview of the controversy and difficulty estimating the fate of the DWH oil can be found here: https://en.wikipedia.org/wiki/Deepwater_Horizon_oil_spill_response#Oil_budget)

Cleanup

Students can put their oily materials into the disposable bag. Several items, such as the trays and laminated maps, plastic animals, spoons, etc. can be cleaned and reused.



Please note: several versions of this activity can be found online. The activity described in this document was adapted from a version developed by [Cynthia Cudaback](#) and was implemented by [ECOGIG](#) outreach staff during 2016-2018 summer camps and classroom visits.

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