



STEM Challenge: Cleaning Up an Oil Spill Story Book Science at Home Activity

What you need

- One large container
- Water
- Vegetable oil
- One bag containing pieces of sponge
- One pipette
- One sieve

Preparation

Build models to represent different methods for cleaning up oil spills in aquatic environments: sorbents, vacuums, and skimmers.

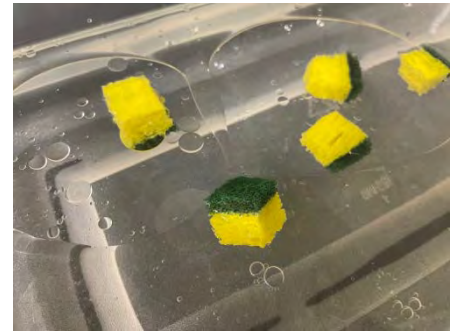
Sorbents



Illustration of sorbents. Image Credit: National Ocean Service, National Oceanic and Atmospheric Administration (NOAA).



Step 1. Pour water into container. Then, add a layer of vegetable oil to container.



Step 2. Add several small pieces of sponge, which represent sorbents, to areas of the container where a layer of oil covers the water. Do the sponges absorb the vegetable oil?

Vacuums



Illustration of a vacuum. Image Credit: National Ocean Service, National Oceanic and Atmospheric Administration (NOAA).



Step 1. Use the container filled with water and vegetable oil. You might need to add more vegetable oil.



Step 2. Use the pipette, which represents a vacuum, on the vegetable oil. Hold the pipette in your hand with the bulb between your fingers. Squeeze the bulb. Next, place the open end of the pipette in the oil. Then, stop squeezing the bulb! Does the pipette suction the vegetable oil?

Skimmers

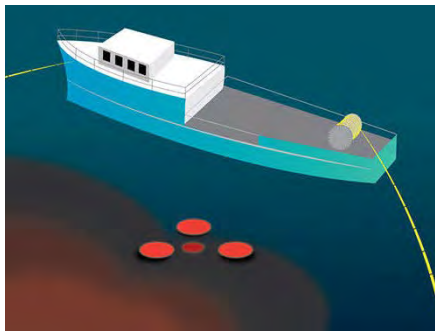


Illustration of a skimmer. Image Credit: National Ocean Service, National Oceanic and Atmospheric Administration (NOAA).



Step 1. Use the container filled with water and vegetable oil. You might need to add more vegetable oil.



Step 2. Use the sieve, which represents a skimmer, on the vegetable oil. Dip the sieve into the container and move it below the layer of oil. Now, lift up the sieve. Does the sieve remove the vegetable oil?

What to do

Think about the three different methods for cleaning up oil spills: sorbents, vacuums, and skimmers. What are the benefits of using those methods to clean up an oil spill in aquatic environments, especially coastal areas along a shoreline and in the open ocean? What are the drawbacks of using those methods to clean up an oil spill in aquatic environments, especially coastal areas along a shoreline and in the open ocean?

Activity modified from *Oil Spill! Connecting STEM activities to real world problems* from The Coalition for Science After School.

What is happening?

HAZMAT stands for hazardous materials. HAZMAT can be used to describe the release of many different substances, including oil and other chemicals, into the environment. The release of these substances into the environment can cause a lot of harm.

Many different methods can be used to clean up HAZMAT spills, including spills in different locations. Some methods for cleaning up oil spills in an aquatic environment, specifically a coastal area along a shoreline, include vacuums and sorbents. Vacuums suction the oil. Sorbents absorb the oil. A method for cleaning up oil spills in an aquatic environment, specifically in the open ocean, includes skimming. Skimming is performed by skimmers, which are devices that remove oil from the surface.



One example of a HAZMAT spill is the 1989 *Exxon Valdez* oil spill in Prince William Sound, Alaska. This image shows the *Exxon Valdez* tanker spilling oil into the environment. Photo courtesy of the *Exxon Valdez* Oil Spill Trustee Council.

Information from *What is HAZMAT?* and *How does NOAA help clean up oil and chemical spills?* from the National Ocean Service, National Oceanic and Atmospheric Administration (NOAA).