

Internet Resources

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[Science Shorts: Tarred and Feathered](#)

Activities

Booming Business

On April 20th, 2010, an oilrig owned by British Petroleum (BP) exploded. The rig was called the Deepwater Horizon and was located a little more than 50 miles from a Louisiana port. Though it was known that such an accident could occur, no one was prepared for an accident this large. Millions of gallons of oil poured into the beautiful waters of the Gulf of Mexico. The rush was on to develop boom systems that would stop the oil from reaching the beautiful, white sand beaches. Business was booming in the boom industry. Many companies wanted to develop booms that would not only stop the oil, but also absorb it. Your team has been hired to design a boom that will protect the shore. Your boom should:

1. Float on the surface of the water.
2. Keep oil from passing.
3. Absorb oil.

In your lab notebook, you should make a list of the materials needed. Think very carefully as you will only be given the materials you ask for.

Materials

- Cut up hose, an assortment of fabric, glue, stapler, polyester fiberfill, lambs wool, paper towels, cotton balls, string, newspaper, scissors, sticks

- To set up the model shore, each student team will require: half-size (18" x 13") aluminum cake pan, 250 mL of sand and rock, 10 shells, 2 drops of blue food color, 500 mL tap water, 150 mL cooking oil, lab notebooks, pencils, paper towels, goggles for each student, small fan, 1-L beaker, plastic spoons.

Safety Note: Students should wear goggles and be reminded not to eat or drink anything in lab.

First, each team creates their "shore":

1. Use paper towels stacked about 3 cm high to elevate one end of the pan. The shore will be constructed on the elevated side.
2. On the elevated side pour the sand, rocks, shells, and sticks to mimic a beach.
3. Pour 500 mL of tap water into the pan's shallow side and add 2 drops of blue food color.
4. After students put their booms in place, pour 150 mL of oil into the side of the pan farthest from shore.
5. Students observe their boom system and record observations.
6. As the clean up was occurring, Hurricane Alex blew in a couple months later. The fan should be placed on the side of the pan farthest from shore and turned on high. Students observe and record what happened to their boom.

Because the ocean is large there was nothing to attach the booms to and so many were blown out of place, rendering them useless after the storm. In some instances, oil-laden water was simply washed over the booms.
7. Students carefully remove their boom and gently scrape out the rocks and sand of their beach with plastic spoons (It can be saved for future activities.)
8. Pour the remaining water/oil mixture into a 1-L beaker.
9. Students will be able to see the two layers formed by the oil and water. Students should record the volume of oil that remains and subtract that amount from the original 150 mL that was added at the start as the difference will be the approximate amount of oil their boom absorbed.

10. The class should discuss which materials were most effective and brainstorm other items that might improve the booms effectiveness.
11. Dispose of the oil/water mixture in the trash to not clog drains.