OIL SPILL CLEANUP

Helping students understand ocean science and oil spill research

This is the first of four specially designed lesson plans designed to help students expand their understanding of ocean science and oil spill research. This lesson provides an opportunity to discuss the history of the Deepwater Horizon oil spill that occurred in the Gulf of Mexico in 2010, some of the environmental impacts, and methods that were used to clean up the released oil. This lesson also introduces the idea of citizen science and how students can be involved in active science research.

Lesson #1: Investigating Oil Spills

Learning Objectives:

1. Students will be able to discuss the Deepwater Horizon oil spill and make conclusions on how it affected the Gulf Coast beaches.
2. Students will be able to design and test 3 different methods for cleaning up the oil spill.

NGSS: HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

Guiding Questions:

1. What was the Deepwater Horizon Oil Spill?
2. What affect did the oil spill have on Florida ecosystems and people?
3. What is citizen science?
4. What are some methods for cleaning up an oil spill?
5. Which is the most feasible, cost effective method for oil spill cleanup?

Lesson Structure

1. **Hook**

   Oil Absorbing Polymer.
   • Take a beaker full of water and motor oil.
   • Ask students how can the oil be separated or removed from the water?
   • Use the polymer beads from Steve Spangler to absorb the oil.
   • Ask one of the students to take out the oil with their hands.

2. **Survey and Brief Discussion**

   Students fill out a survey on what they already know about the oil spill and its effects.
   • Discuss students' answers with them.
   • What were some negative impacts the oil spill had on them and their families?

3. Deepwater Horizon Presentation

Explain what Deepwater Horizon event was and how it affected the Gulf Coast.
  - Brief introduction on what current research scientists are working on.

4. Introduction to Project GOO and Citizen Science

Explain what Project GOO is and what students will be doing at the end of the lessons.
  - What is a citizen science project?
  - Do the students know of any other citizen science projects?

5. Oil Spill Cleanup Lab

Students will design three different methods for cleaning up a mock oil spill.
  - In groups of three, give students a bag of materials.
  - Give students time to plan, draw, and design their three methods prior to building.
  - Have students build their designs and then test them.
  - Give each group a few drops of dispersant (Dawn dish detergent) and have them retest their methods.

6. Discussion

Analyze the results from the lab.
  - Ask the students "Which cleanup method would be the most efficient on a larger scale? What were some challenges you faced when testing your designs?"

Supplies

Aluminum roasting pan, paper plates

Oil: 3 parts vegetable oil to 1 part cocoa powder

Clean up materials: paper towels, string, nylon, hay, cotton balls, aluminum foil, popsicle sticks, wooden skewers, pipe cleaner, Dawn dish detergent

Additional Resources:

Project GOO Blog:
http://projectgoo.blogspot.com/

For additional lesson plans and related activities visit
www.Deep-C.org