

OIL SAMPLING PROCEDURES

Helping students understand ocean science and oil spill research



This is the fourth of four specially designed lesson plans intended to help students expand their understanding of ocean science and oil spill research. This lesson teaches students the proper techniques for collecting oil samples on the beach. This lesson includes a hands-on lab of an oil patty collection simulation where students find and collect oil patty samples that have been hidden around the classroom using proper collection techniques.

Lesson #4: Oil Patty Collection Techniques

Learning Objectives:

1. Students will be able to demonstrate an understanding of proper collection techniques for oil sand patties.
2. Students will be able to distinguish between a discrete and composite sample.
3. Students will be able to record the relevant information about their oil sand patty sample using the proper collection form.

NGSS: HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

Guiding Questions:

1. What are distinguishing characteristics of an oil sand patty?
2. What is the difference between a discrete and composite sample?
3. What is the proper labeling for a collected sample?
4. How are oil sand patties analyzed?

Lesson Structure

1. Hook

Video about collecting oil sand patties in the field.

- Video shows students the steps on how to collect an oil patty from the beach.

2. Proper Oil Collection Techniques

Brief presentation on oil sampling techniques.

- Use PowerPoint to go through the sampling procedures.
- Discuss the difference between a discrete and composite sample and how they are collected.



3. Modeling an Oil Patty Collection

Walk students through a sample collection.

- The teacher or a student (guided by the teacher) goes through a simulated oil patty collection in front of the class.
- Emphasize the importance of wearing gloves and recording the correct information.



4. Hide and Seek the Oil Patty

Students get hands-on practice with proper collection techniques.

- The teacher has hidden real oil patty samples around the classroom.
- In pairs, have the students practice proper labeling of the Ziploc bag and then find the oil patty samples around the room.
- Make it a competition: give a small prize to the group who finds the most oil patties.



5. Oil Patty Analysis

Brief discussion on what scientists will do with the oil patties once they have been collected.

- Discuss some key parameters that WHOI scientists will look for when they analyze the oil samples.
- Make a connection to previous labs students have completed and how it has prepared them to collect the oil patties.



6. Discussion

Brief discussion on expectations for sampling trip to the beach.

- Go over general procedures and expectations for the field trip.

Supplies

Tweezers, gloves, Ziploc bags, oil patty samples

GOO notebooks and collection worksheet

Additional Resources:

Project GOO Blog:

<http://projectgoo.blogspot.com/>

For additional lesson plans and related activities visit

www.Deep-C.org



Gulf Oil Observers (GOO) is an education and outreach initiative of the Deep-C Consortium. Deep-C is investigating the environmental consequences of petroleum hydrocarbon (oil) on living marine resources and ecosystem health in the Gulf of Mexico. Deep-C seeks to increase understanding of the fundamental physical, chemical, and biological connections between the deep sea, continental slope, and coastal waters and their linkages to critical habitats and ecological functions. Deep-C research is made possible by a grant from BP/The Gulf of Mexico Research Initiative (GoMRI).