Activity 3: Oil Spill Challenge

Introduction

An oil spill can happen on the ocean when a ship carrying big containers of petroleum oil starts to leak. Or if an oil drilling rig malfunctions, as with the 2010 Deepwater Horizon accident off the coast of Louisiana.

Oil spills can also affect our rivers and other freshwater. If an oil pipeline that travels over land springs a leak, the oil can find its way into the local waterways and groundwater. Oil can also get into our rivers and waterways through stormwater.

Spilled oil sticks to the fur and feathers of birds and animals that live on or near the water, and is hard to remove. That's why animals are so affected by oil spills!

In this activity, kids will build a simple model of a river habitat (complete with "birds" and "mammals") and then create an oil spill. Then they will test different tools to clean up the river.

Supplies

Basics

- Aluminum roasting pan or plastic tub
- Water
- Vegetable oil
- Paper towels (for kids' hands)

Habitat materials

- Large rocks to create an island
- Sticks and moss or pieces of lettuce
- Fake fur or craft pompoms and feathers
- Blue food coloring (optional)

Cleanup materials

- Cotton balls
- Sponges, cut into small pieces
- Plastic spoons
- 12-inch pieces of string
- Dish soap (Dawn® works well)

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Get kids thinking ...

Get everyone thinking about what happens when oil mixes with water. **Ask the kids:** How easy do you think it is to separate the oil from the water?

What happens to the fish, birds, and other animals that come in contact with the oil?

Let's get started!

First, kids create their habitats:

- Place the rocks in the pan or tub
- Add 2-3 inches of water, to mostly cover the rocks (bigger ones can be poking out). Add blue food coloring if you have it.
- Add the sticks and lettuce or moss (the "plants") and the feathers and fake fur (the "birds" and "animals") to the water.

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Next, create the oil spill! Pour 2-3 tablespoons of oil into the water and observe what happens.

How does the oil react with the water, the plants, and the animals. What happens when you blow on the oil in the water? Record your observations on the chart on the next page.

Now try each of the cleanup materials and see which ones work the best. **Ask the kids:** What are the best materials for cleaning the birds and animals? What effect did detergent have on the oil? What is the string best for? (The string can keep the oil in a smaller space but can't clean it up.)

Oil Spill Worksheet

How did the "habitats" interact with the oil?

Material	Reaction with oil
Water	
Rock	
Feather	
Stick	
Fur or pompom	
Moss or lettuce	

Which tools worked best for cleanup?

Cleaning tool	Pros	Cons	What habitat material does it clean the best?
Cotton ball			
Sponge			
Spoon			
String			
Dish soap			

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More oil spill activities

Make an Oil Slick (San Diego Zoo)
http://kids.sandiegozoo.org/activities/slick-art

Simulating an Oil Spill Lesson Plan Video (Teaching Channel)
https://www.teachingchannel.org/videos/natural-resources-lesson-plan

Oil Spill Facts: Lesson for Kids (interactive)
https://study.com/academy/lesson/oil-spill-facts-lesson-for-kids.html

Oil Spill Activity Video (STEM etc.)
https://www.youtube.com/watch?v=RhXwJtm4Jg0

How do scientists clean up oil spills?

Cleanup teams respond to spills using one or more of these methods:

Containment: Floating barriers (called booms) as well as natural and synthetic absorbing materials help prevent the spreading of oil during spills.

Chemicals: Some chemicals make the oil more solid and keep oil from reaching shorelines and other sensitive habitats. Other chemicals break up the oil into smaller particles which mix with water more easily.

Physical methods: Boats skim the sea surface, removing oil from the water. On land, wiping with absorbent materials, pressure washing, and raking and bulldozing help absorb oil.

Cleaning up oil spills with magnets and nanotechnology (CNN)
https://www.cnn.com/2012/09/21/tech/oil-spill-magnets/

Deepwater Horizon Gulf Oil Spill Recovery Special Report (Scholastic Kids)
http://www.scholastic.com/browse/collection.jsp?id=761

58,000 gallon Oil Spill in San Francisco Bay (DOGO News)
https://www.dogonews.com/2007/11/12/58-000-gallon-oil-spill-in-san-francisco-bay