

Oil Slick

Activity Overview: In this activity, students will examine how oil can affect aquatic ecosystems through a simulated oil spill disaster. Students will attempt to clean up the oil spill by using absorbent pads, which will show them how difficult it is to contain oil spills.

Objectives:

The elementary students should learn to:

- Describe how oil reacts with water
- Describe the consequences of an oil spill on aquatic organisms
- Identify ways to prevent water from becoming contaminated with oil
- Describe clean-up procedures for oil spills

Materials:

- Child sized pool filled with water
- Absorbent oil pads
- Spray Bottles
- Laminated pictures of oil spills and clean-ups
- Boom
- Scissors
- Container for pads
- Vegetable oil
- Pretend aquatic animals and seaweed

Setup:

- Fill swimming pool with water, half full.
- Set it up to look like a natural water body by using the plastic plants and animals.
- Please cut the absorbent pads up into the same size as the samples provided. Have the pads stocked up and ready in a basket near the swimming pool, so that they are easy to hand out, and use in discussion with the script.
- Make sure the boom DOES NOT go in the pool. It is for demonstration only.

Takedown:

- Make sure you properly dispose of the water from the pool by dragging it to the tent edge before dumping
- Make sure all the materials are dry before being packed away.
- Put all the materials away in the bin
- Let your steward know if any materials need to be replaced

Safety: Ensure students do not go into the pool.

Vocabulary:

Oil Spill – A form of pollution in which oil from various sources leaks into the water

Boom- a device used to stop the spread of oil

What will I be doing? (Procedure)

Before you start your presentation check with the teacher or chaperone that the entire group is present and ready to start.

*Remember that **doing** an experiment and **discovering** the answer is more powerful than watching and listening to someone, so try to involve as many children as possible.*

Part 1: Oil Spills

Say: “Welcome to Oil Slick. We will be learning about how oil can affect aquatic ecosystems and how oil spills are cleaned up.”

Ask: “What do you think would happen if oil was added to water?”

Demonstrate that water and oil don’t mix by adding some vegetable oil to the “water body” (child-sized pool filled with water and a variety of plastic aquatic animals and plants). **Note: You do not need to use very much oil and do not need to add it for every demonstration!**

Ask: “What did you see happen?” They should say that the oil sticks to the plants and animals in the water.

Use the laminated pictures provided to show what happens to wildlife when there is an oil spill. Discuss why oil spills are bad for the environment (they harm wildlife, can poison the fish we end up eating, etc).

Show students the sample boom and **say:** “This is a boom, and it is used to surround an oil spill to make sure it does not spread everywhere.”

Say: “I am going to give each of you an absorbent oil pad and I want you to take a few minutes to try to absorb all of the oil in our ‘lake’ (the pool). This is what the professionals that clean up environmental spills do too!”

Give each child a piece of an absorbent oil pad and give them the opportunity to try to absorb all of the oil in the pool. Encourage discussion around the difficulties of this experience.

Part 2: Wrap-up

Wrap up the activity by **asking:** “What are some ways that you can help prevent/stop water contamination from oil sources?”

- (i.e. never pour motor oil down a storm drain) Since oil is a household hazardous waste (HHW), it should be disposed of properly. HHW materials can be disposed of at any of the six Community Recycling Centres located in Peel Region.

Say: “Oil spills can affect entire ecosystems and it takes many years for them to recover. Be sure to keep our water sources pollution free by disposing of oil and other chemical properly.

Have the students place their used oil pad into the garbage.

Background Information:

- Oil is a product of the earth but can be harmful to the environment if it is not handled properly when brought to the earth’s surface.
- Oil spills on land and in water bodies are mostly caused by accidents involving tankers, barges, pipelines, refineries and storage facilities. These accidents are caused by human error or natural disasters such as hurricanes or earthquakes.

Purple Colour Group- Intermediate

- When oil spills into water bodies, it does not mix, but forms two separate layers with oil floating on top and spreading out rapidly across the water surface to form a thin layer called an oil slick. As the spreading process continues, the oil layer becomes thinner and starts to look like a rainbow. Sometimes after a rainstorm, you can see a similar layer of oil on roads and parking lots as a result of oil that has leaked from vehicles.
- Oil spills are often very harmful to aquatic birds, mammals and, sometimes, fish and shellfish. Birds are protected from the elements by their feathers, which overlap like tiles on a roof. The separate strands on each feather are bound together by rows of tiny hooks, creating a tight weave. The bird's skin stays warm and dry underneath. However, oil can clog the strands and hooks of feathers and allow water to penetrate into the birds' skin. As a result, birds can experience hypothermia, since they are no longer able to regulate their body temperature. Oil can also damage the insulating ability of fur-bearing mammals such as sea otters. Many animals and birds try to clean themselves, but are poisoned by ingesting the oil.
- Past oil spills have been responsible for horrific environmental damage. One litre of oil can contaminate one million litres of water. A spot of oil no bigger than a quarter may be enough to kill a sea bird.
- Our more recent BP deepwater horizon oil spill that has been one of the largest, most negative impacting oil spill to have ever occur in recent times. A huge array of mortalities have been unfolding due to this spill, and it is to this day still being managed.
- In Peel Region, the Environmental Control section of the Environment, Transportation and Planning Department is responsible for overseeing the clean-up of industrial spills (oil and other contaminants). Absorbent oil pads (made of recycled pop bottles) are used to assist in the clean-up process. These pads are hydrophobic, which means they repel water; however, they are very effective in absorbing oil. Sometimes large booms filled with these absorbent pads are used to surround and absorb the oil spill.

