

The Problem Of Pollution

OBJECTIVES:

To increase awareness of air and water pollution.
To understand the effects of pollution.

GROUP SIZE:

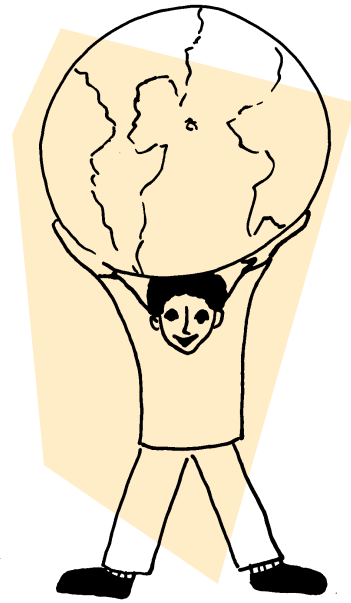
6 to 8 children per adult volunteer.

TIME FRAME:

This lesson is designed for a group meeting between 30 and 60 minutes.

BACKGROUND:

Air and water pollution are serious problems. Help children understand what pollution is, what causes it, and what they can do about it.



LIFE SKILL AREAS


The group discussions and experiments are a good way to develop social skills and decision making skills. Fine motor skills, eye-hand coordination and creativity can be developed by using crayons and markers.

HELPS TO THE VOLUNTEERS

Try these suggestions. Choose one or two of the following activities from each section. Try to create appropriate atmosphere by decorating the room with posters and props, using costumes related to the activity, pre-meeting preparation by the 4-H members, thinking about special seating arrangements, and playing background music.

LEARNING ACTIVITIES:

I. GETTING STARTED

 **ACTIVITY:** "What is Pollution" (5 - 7 minutes)

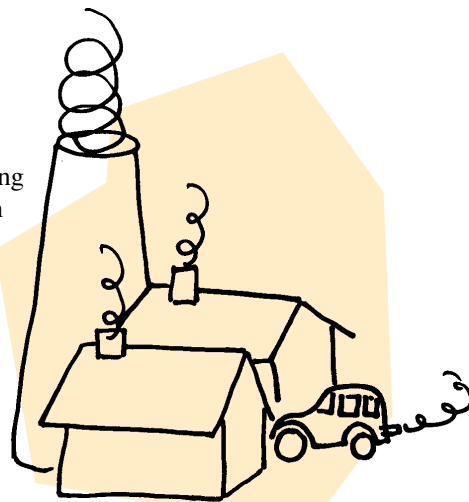
Grade Level: K - 3

Materials: a globe

Begin the activity by showing the children the globe and talking about our earth and how important it is to keep the earth clean and healthy. Ask if anyone knows what the word "pollution" means. Generate a discussion by asking these questions:

- What is pollution?
- Can you think of different kinds of pollution?
(water, air, sound)
- What are some things that might cause water pollution?
(factories dumping waste, tankers running aground)
- Can you think of things that might cause air pollution?
(exhaust from cars, burning fuel)
- What are some things that happen because of pollution?
(water is contaminated and fish die; air is dirty, etc.)
- What do you think people can do about these problems?

Application: Ask the children to listen to the daily weather report. Is a "pollution index" included in the report?



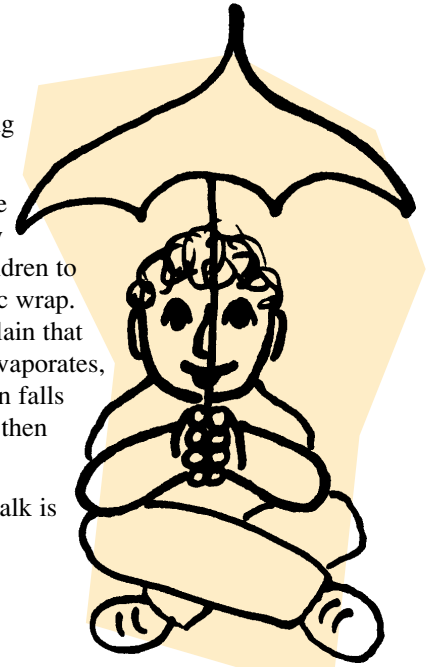
 **ACTIVITY:** "The Rain Cycle" (4 - 6 minutes)


Grade Level: K - 3

Materials: large clear glass baking dish, plastic wrap, rubber band, and boiling water.

Ask the children what they think happens to the rain after it falls. Demonstrate the rain cycle by carefully pouring boiling water into the baking dish. Quickly cover the dish with plastic wrap and secure it with a rubber band. Ask the children to observe what happens as the water evaporates and forms droplets on the plastic wrap. Eventually the droplets will fall back down into the dish when they cool. Explain that this is how the rain cycle works on our earth. When it rains, the rain falls, it evaporates, and after a while it falls again. The cycle repeats over and over. When the rain falls on pollutants (smoke, exhaust, etc.) it collects tiny pieces of them and the rain then becomes polluted.

Application: Ask the children to look at the sidewalk after it rains. The sidewalk is wet for a while but eventually "dries off;" that's how evaporation works!



 **ACTIVITY:** "How Clean Is Your Rain and Air?" (4 to 6 minutes)


Grade Level: K - 3

Materials: leaves from trees or plants close to a roadway, clear glass jars or cups, toothbrushes, water, and white coffee filters.

Show the children the leaves. Explain that you want to do an experiment to see how clean the rain and air are where the leaves came from. Give each child several leaves, a cup of water, and a toothbrush. Ask them to gently scrub their leaves in the water. After the leaves have been cleaned, pour the water through a coffee filter. Have the children examine the coffee filter. Are there tiny pieces of dirt, or a colored residue left on the filter? Ask the children how they think the dirt got there.

Application: Encourage the children to test their rainwater at home by collecting it in a bottle and pouring it through a coffee filter. Is it cleaner or dirtier than the water from the leaves?

II. DIGGING DEEPER

 **ACTIVITY:** "Clean Air Test" (5 -7 minutes)

Grade Level: K - 3

Materials: candle, matches, fireproof baking dish, potholder, and napkins.

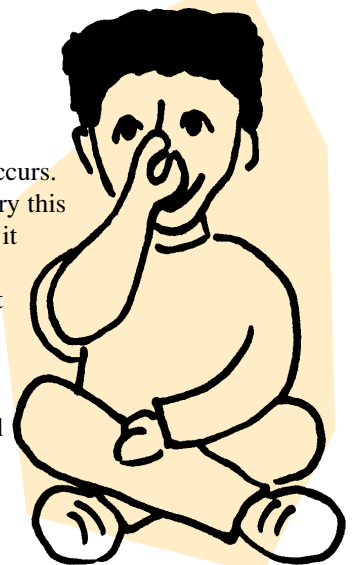
In this experiment, the children will be able to observe one of the ways air pollution occurs. Ask the children to sit in a circle. Caution them to stay away from the flame and not try this experiment at home. Light the candle. Hold the baking dish, with the potholder, over it until it starts to turn black. Blow out the candle. Show the children the bottom of the dish. After it cools, let each child wipe some "pollution" off on a napkin. Explain that air pollution happens every time something burns. Ask them to think of examples by naming things that put smoke or exhaust in the air.

Application: Encourage the children to look for smokestacks or chimneys in industrial areas that put out heavy smoke.

ACTIVITY: "Pollution Scavenger Hunt" (7 - 9 minutes)

Grade Level: K - 3

Materials: pencil, list of possible pollutants (below).



THE PROBLEM OF POLLUTION

Take a hike outside. See how many items you can find that pollute our environment:

- cars, trucks, motorcycles, school buses
- trains
- jet airplanes
- oil leaks on the ground
- oil "rainbows" floating on steam or river water
- aerosol cans
- gas grills
- charcoal grills
- litter
- cigarette butts
- diesel trucks

Ask the children if they can find additional pollutants. Emphasize that many kinds of things pollute our environment. Some of these things are necessary to use even though they pollute (cars, planes, etc.). Scientists and environmentalists are working to find ways to decrease the amount of pollution from cars and other things that burn fuel. Ask the children if they have any ideas about helping decrease the amount of pollution.

Application: Ask the children to think about what they and their families can do at home to help the pollution problem.

III. LOOKING WITHIN

☀ **ACTIVITY:** "Create a Bumper Sticker" (5 - 7 minutes)

Grade Level: K - 3

Materials: pieces of white construction paper cut in half lengthwise, markers.

Encourage the children to be an advocate for the Earth! Have them draw pictures or write short messages about keeping the earth clean.

Note to the Volunteer: Have the children make extra examples to use in the Art Exhibit and Cloverbud Display lessons in the subject area of Community Expressive Arts.

Application: Encourage the children to be aware of posters, bumper stickers, and items in the media that have an environmental message.

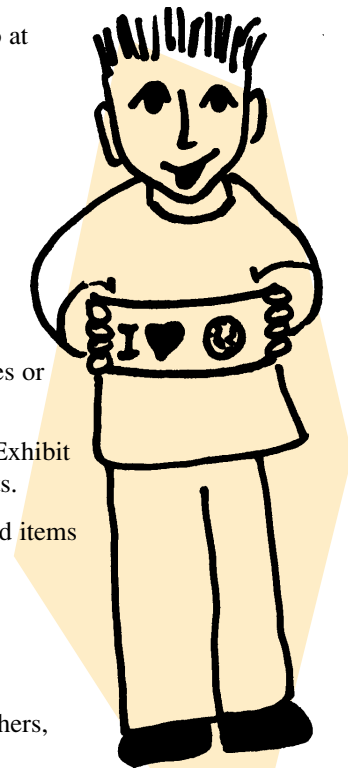
☀ **ACTIVITY:** "Oil Spill" (7- 9 minutes)

Grade Level: K - 3

Materials: baking dish, cooking oil, small milk carton, water, paper towels, feathers, pinecones.

Oil spills can be a serious problem to shorelines, plants, and the animals that live near them. Demonstrate how an oil spill happens. Fill the milk carton with cooking oil. This will be an "oil tanker." Put it in the baking pan filled with water. The water will represent the ocean. Puncture the "tanker" at the bottom so the oil drains out. What happens? Does the oil mix with the water? Put pinecones and feathers in the water. These will represent plants and animals. What happens to them? Have the children try to clean them off with paper towels. Can they be cleaned? Ask the children to imagine thousands of gallons of black oil along a shoreline. What might the consequences be?

Application: Encourage the children to look for news items in the paper or on television that focus on pollution.



THE PROBLEM OF POLLUTION

ACTIVITY "Environmental Diorama" (6 - 8 minutes)

Grade Level: K - 3

Materials: construction paper, shoe boxes, scissors, glue, crayons or markers, and outdoor or wildlife magazines.

Help the children appreciate how beautiful our earth is and how important it is to keep it clean. Give each child a shoe box and help them make the inside a beautiful scene from nature. Have them use magazine pictures or draw their own scenery on the paper. Assist them in making the diorama three dimensional. Show them how to make free-standing trees or flowers by propping them up with a triangle of folded paper. Stress the importance of keeping our environment clean and beautiful, just like in their dioramas.

Note to the Volunteer: Have the children make extra examples to use in the Art Exhibit and Cloverbud Display lessons in the subject area of Community Expressive Arts.

Application: Ask the children to take time to stop and look at the beautiful countryside - or even their own backyard!

IV. BRINGING CLOSURE

Ask the children to pretend they are a bee, flower, butterfly, or bird. The environment they live in is slowly becoming more and more polluted. Tell them to imagine that they can talk. Ask each child what they would say to the people on earth to convince them to be kinder to the earth and to those many things that live in its environment.

Reading Adventures

This listing of reading materials can be used by you as background, or for sharing before to set the stage for the lesson or for sharing afterwards to reinforce the lesson.

Michael Bird Boy, by Tomie dePaolo

My River, by Shari Halpern

The Wump World, by Bill Peet

Prince William, by Gloria Rand