High School

Pre SWA Classroom Presentation Lesson Plan

Objectives:

1. Students will gain an understanding of the affects of pollution issues of the industry in their area from an ecological and economic perspective.

2. Students will develop and present a "mock trial", (court case), which encourages teenagers to preserve the environment.

Next-Gen Sunshine State Standards:

Science:
Body of Knowledge: Life Science
Standard 17: Interdependence
Benchmark: SC.912.L.17.11
Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.

Reading / Language Arts:
Strand: Communication
Standard 2: Listening and Speaking
The student effectively applies listening and speaking strategies.

Materials:
Community Activist Roles in strips, Construction Paper for "hats" (optional), markers, scissors, tape or staples.

Length:
2 weeks

Evaluation:
Assess students' understanding of the importance of pollution issues by reviewing the mock trial they developed and presented.

Assess students' speaking skills during the group performance of a mock trial.

Assess students' knowledge of the presented material during their presentations.

SWA
SOLID WASTE AUTHORITY

Background

In order to fully understand the impact of ecology issues on a local level, it is first necessary to understand pollution issues of the industry in your own area from an ecological and economic perspective.

In Palm Beach County, the garbage from your home, apartment, or townhouse is collected by garbage trucks and taken to one of five Solid Waste Authority (SWA) transfer stations located throughout Palm Beach County. At the transfer stations, garbage is placed onto large semi-trailer trucks, which drive the garbage to the Solid Waste Authority's main facility in West Palm Beach where it is unloaded at the Waste-to-Energy Plant (WTE).

The lightweight garbage is shredded and burned so that it can be used as a fuel source to generate electricity. This electricity is sold to FPL and it provides enough power to service 37,000 homes in Palm Beach County as well as all the SWA's facilities in West Palm Beach. The plant produces two types of residue: bottom ash and fly ash. The ashes left over from the burning process are placed in a Class 1 landfill.

The acid gases (mostly sulfur and chlorine) produced from burning Refused Derived Fuel (RDF) are first treated in a dry scrubber, where they are neutralized. Particulate matter is formed through this process, which is removed as fly ash by the electrostatic precipitators. Emissions from the WTE plant's stack are well below the EPA's allowable limits for all pollutant gases and heavy metals.

One way to stop polluting the environment is to prevent businesses, homeowners, and communities from illegal and improper dumping of waste run-off, air, and water pollution. You and your students can help the environment by preventing hazardous waste and recycle as much garbage as possible.

(At the Solid Waste Authority (SWA) there is a hazardous waste facility to dispose of those items properly. If you have questions or concerns, or need recycling bins, please call the SWA at 1-866-NEW-BINS (1-866-639-2467) to learn more information on making a better future today for tomorrow.)

All "HATS" FOR ECOLOGY

Activity Summary:

Students will examine the pollution issues of the industry in their area from an ecological and economic perspective.

Materials:

Community Activist Roles in strips
Construction Paper/Felt for "hats"
Markers, scissors, tape or staples

United Harvesting Town Scenario:

United Harvesting is a small rural town in south Florida, a migrant and agricultural community. The livelihood of the town depends on the production of sugar cane, citrus, and other farming.

Recently, United Harvesting was charged with illegal and improper dumping of waste run-off, and air and water pollution. The community activist group has sued United Harvesting to pay for the damage allegedly caused and the cleanup. Many of the townspeople are scheduled to testify at the court hearing.

ALL "HATS" FOR ECOLOGY

Directions:

1. **Read the scenario to the students and give students a chance to choose a role.**
2. **Students will research their role to become familiar with.**
3. **Students will gather newspaper and magazine articles about the subject of improper dumping of waste run-off and air and water pollution.**
4. **Have students make “hats” that in some way identify the position of the role.**
5. **Students work in groups to conduct a “mock” trial/court case to decide whom should pay for the clean up.**
6. **Tape the “mock” trial/court case.**
7. **Students will keep a journal of the events throughout the trial. Students will evaluate the mock trial/activity, discuss the ecological issues involved in this issue, and write a final report/essay.**

Community Activist Roles

Sammy Smith – Owner of Smith Farms

Hillary Hall – Local newspaper photographer

Jennifer Jones – Owner of the local radio station

Ruddy Rude – Local fish and bait shop owner

Curious Corey – Engineer for United Harvesting

Happy Henry – Sports fisherman

Brian Booker – President of United Harvesting

Willie Wacky – Bailiff of Court

Sara Smiley - Court Reporter

Gloria Gladiator – Defense Attorney

Wiley Wonker – Prosecuting Attorney

Melissa Masters – Judge

Leo Liar – Jury Member

Jolly Jack – Witness

Jamie Joker – Jury Member

Sunny Shawn – Jury Member

Angel Arms – Channel 5 News Anchorwoman

Magnificent Mike – Jury Member

Hippy Harriet – Jury Member

Friendly Floyd – Jury Member

Dick Daring – Channel 5 Cameraman

Pricilla Prissy – Local high school science teacher

Pammy Powers – President of Community Activist

High School

Post SWA Classroom Presentation Lesson Plan

Objectives:

1. Students will tape the "mock" trial/court case and review before proceeding to next objective.

2. Students will write a final report on the "mock" trial/court case. In this report, students will address the viewpoints about the case and whether they agree or disagree with the final decisions, and how the issue has had an impact on the environment and its current impacts.

Next-Gen Sunshine State Standards:

Science:
Body of Knowledge: Life Science
Standard 17: Interdependence
Benchmark: SC.912.L.17.11
Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.

Reading / Language Arts:
Strand: Communication
Standard 2: Listening and Speaking
The student effectively applies listening and speaking strategies.

Materials:
DVD, journals, and Survey of Household Hazardous Waste

Evaluation:
Assess students' knowledge of the affects of illegal and improper dumping of waste run-off, air and water pollution.

Length:
2 Class Periods

SWA
SOLID WASTE AUTHORITY

Background

The best prevention method is any activity that reduces or eliminates the generation of pollution at its source. Practices include the use of new technologies, substitute raw materials, conservation practices, efficiency enhancements and recycling. Pollution prevention is **"not"** diluting pollution, waste burning, or transfer actions which create other forms of pollution.

The issue of environmental pollution was addressed because of the interest generated by the debate of how many commercial industries pollute the environment, and the fact that the vast majority of people who are unaware of the affects of illegal and improper dumping of waste run-off, air and water pollution.

Interesting pollution facts

- Two-thirds of the nation's waters are safe for fishing and swimming.
- The amount of soil lost due to agricultural runoff has been cut by one billion tons annually, and phosphorus and nitrogen levels in water sources are down.
- Modern wastewater treatment facilities serve 173 million people.
- Do-it-yourselfers spill or dump more oil in a month than is lost in major tanker disasters.
- Forty-five percent of the water used every day is flushed down the toilet.
- One very effective way to reduce water pollution is to simply reduce water consumption.
- Individuals can create more pollution on small plots of land than many farms create over hundreds of acres.

Procedure:

1. Discuss the environmental benefits of recycling.
2. Elicit responses from students as to the items that are recyclable at home in the blue recycling bin and the yellow recycling bin.
3. Complete "Survey of Household Hazardous Waste"
4. Identify how your family presently disposes of each product.
5. Identify alternative ways of how each product should be a properly disposed of and alternative product that may be used.
6. Collect DVD, Journals, reports/essays, and surveys.
7. Review the importance of recycling. Encourage students to recycle at home, school, work, and at play.

Household Hazardous Waste Survey

PART ONE

Answer the following questions about potentially harmful practices at home.

1. Do you have a pet? If yes, how is pet waste handled in your home?

2. Taking care of your lawn
   a. Are fertilizers used on your lawn or garden? If yes, how often are they applied?

   b. How do you dispose of grass clippings, leaves, and sticks/branches that you pick up?

3. Where do you wash your car? Where does the water go?

4. Does your home have a septic system? When was the last time that it was cleaned?

5. If your family changes the oil in your car(s) at home, what do you do with the old motor oil?

6. How far is the closest storm drain to your home? Has the storm drain been stenciled? Does someone make sure that nothing goes in the storm drain?

PART TWO

Name five products found in your home that you feel may be hazardous? Describe how you dispose of each of them.

1.

2.

3.

4.

5.

PART THREE

Which of the following materials does your family recycle?

- _____**newspaper**
- _____**cardboard**
- _____**brown bag**
- _____**plastic bags**
- _____**aluminum cans**
- _____**steel cans**
- _____**cereal boxes**
- _____**tissue boxes**

_____**motor oil**
_____**antifreeze**
_____**transmission fluid**
_____**car batteries**
_____**glass containers**
_____**plastic containers**
_____**school paper**
_____**steel cans**