

Pre-Visit Activity #5: Cleaning up Mobile Bay



Background Information:

Mobile Bay is a vast but delicate ecosystem. The museum focuses on the environmental issues facing the region in its permanent exhibit, *Old Ways, New Days: The Story of Mobile*. The purpose of this lesson is to acquaint your students with the environmental issues that impact the Mobile area so that they have a better understanding of the topic when they visit the museum. Completing this activity will also give students information that they need in order to make a positive impact on the environment in their own community.

Objectives:

After reading the informational handouts, participating in a class discussion, and doing research, students will be able to identify the major sources of pollution for the Mobile area, and describe ways to take action to clean up the environment in their community. If you would like, you can then have your students take political action by writing letters to government leaders, and take physical action by doing volunteer work as a group to clean up a public area. This lesson also supports the following objectives from the Alabama Course of Studies.

High School Science

Botany

12. Describe the ecological and economic importance of plants.

Environmental Science

1. Identify the influence of human population, technology, and cultural and Industrial changes on the environment.
4. Identify the impact of pollutants on the atmosphere.
7. Identify reasons coastal waters serve as an important resource.
8. Identify major contaminants in water resulting from natural phenomena, homes, industry, and agriculture.
12. Identify positive and negative effects of human activities on biodiversity.

Zoology

8. Differentiate among organisms that are threatened, endangered, and extinct.

Materials Required:

A copy of *Cleaning up Mobile Bay* for each student, a copy of *Finding the Facts* for each student, several computers with internet access (a printer would be helpful but is not required), school library, paper, pencils or pens

The Lesson:

Handout a copy of *Cleaning up Mobile Bay* to each student. Read aloud or have students take turns reading it aloud. Discuss some of the environmental issues that have faced the Mobile area over the last several decades with your students. Talk to your students about industries and human activities which have a negative impact on the environment. Then discuss groups like Mobile BayWatch and things that people in the area are doing to clean up and help the environment. Assign one of the research topics listed on *Finding the Facts* to each student or a small group of students. To gather the information, they can work individually or in groups depending on your school's >

computer or library resources. Have them gather the information during the course of a class period (or two if time permits). If students have difficulty or are unfamiliar with the internet, give them the website addresses listed below. The numbers correspond to the numbers on the *Finding the Facts* Sheet.

1. www.scorecard.org
2. www.scorecard.org
3. www.scorecard.org
4. www.epa.gov
5. www.mobilebaywatch.org, www.coastalcleanup.org, www.oceanconservancy.org
6. www.cityofmobile.org, www.ltgov.state.al.us, www.gov.state.al.us,
www.legislature.state.al.us/house/house.html, www.legislature.state.al.us/senate/senate.html,
www.senate.gov, www.house.gov, www.whitehouse.gov,

During the next class period, they will meet with the other students that had the same topic and combine their information into a short report. They will then share their findings with the class as a group. After they turn in their written reports, copy them and make them available to the other students in the class.

Activities beyond this lesson:

Discuss environmental activism and ways that even kids can get involved in protecting the environment. Here are some simple but effective things that kids can do.

1. Start recycling and buy recycled products. Talk to them about recycling at home or consider setting up a program in the classroom.
2. Do research. Read and listen to local news to find out about where environmental problems exist. You can also find out by checking environmental watchdog groups on line. The Environmental Defense Fund has an excellent website.
3. Write letters to government officials.
4. Clean up an area of your community.

Cleaning Up Mobile

The City of Mobile is on the western side of Mobile Bay below a delta region where the Mobile and Tensaw rivers meet. Where the rivers meet, there is a maze of waterways and wetlands called an estuary. An estuary is the wide part of a river where it meets the sea. The estuary is home to 115 species of freshwater fish, 119 species of reptiles and amphibians, least 300 species of birds, 49 species of mammals, and hundreds of species of plants including giant oak and cypress trees. Several endangered species, such as the bald eagle and the red-bellied turtle, live in the delta. Threatened species, such as the alligator and the gulf sturgeon, live there as well.

At the top of the bay, saltwater and freshwater mix. This area looks like a sea of tall grasses. It is also a nursery for aquatic life. Shrimp and crab larvae are able to grow in the upper bay where there are plenty of plankton and nutrients to eat. These creatures then move to the ocean and become food for the sea life that lives in the Gulf. Around 90 percent of harvested seafood must spend some of its life in an estuary.

When the first European explorers arrived in the Mobile area, the region was a wilderness. Things began to change in the 1800s. Fuel-driven ships began steaming into the bay. People began building docks, bridges, and factories. Mobile Bay began to be affected by air and water pollution caused by its human neighbors.

Today the delta region and the bay are threatened. Over 1/3 of the marshlands were lost between 1955 and 1979, and 56% of the surface waters in Mobile County are currently threatened. You cannot fish in certain parts of the bay because the fish are unsafe to eat.

In addition to the dangers facing the delta and the bay, people are being also harmed by pollution from many of the industries in the area. Many "smokestack" industries, including paper mills, and chemical companies started moving to the Mobile area in the 1950's. By the year 2000, the region had more than 20 different companies in industries known to be bad for the environment. Some of these industries include: agriculture, forestry and paper, chemical, and metal manufacturing. According to the most recent data from Scorecard.org, which creates charts based on Environmental Protection Agency data, Mobile County in the top ten percent of the most polluted counties in the United States for the release of toxic chemicals into the air. In Mobile County, 371,484 people face a cancer risk more than 100 times the goal set by the Clean Air Act.

In addition to industry, people use and pollute the bay and its surroundings in other ways. Recreational boating, building homes on the waterfront, automobile traffic, and other activities of daily living are also harmful.

The U.S. Environmental Protection Agency has categorized the Mobile Bay watershed as an "Area of Probable Concern" because of threats from toxic chemicals in bay water and bottom sediments. Other problems are caused by fertilizer runoff, erosion, harmful bacteria, and groundwater contamination.

Fortunately, in recent years, many people have joined together to protect Mobile Bay. In 1995, Mobile Bay became one of the nation's 28 regions enrolled in the federal Environmental Protection Agency's National Estuary Program (NEP). The Mobile Bay NEP is working with the greater Mobile community to develop a Comprehensive Conservation and Management Plan to evaluate, protect, and preserve the bay environment.

The technology for preventing and cleaning up chemical spills continues to improve. Air pollution controls are also more effective than before. Greater Mobile's air quality showed a 35% improvement between 1990 and 2000. But much remains to be done.

Finding the Facts

Your teacher will assign you one of the numbers below for your research topic.

On the internet, find as much information as you can on the topic. Write complete answers to the questions that you are assigned. After you are finished gathering the information, you will help write a group report with the information that you have gathered. The more you write for your answers, the easier it will be for your group to make a report.

1. Pollution in our state.

Are most states more or less polluted than Alabama?
Which is the most polluted county in the state of Alabama?
What type of pollution is the worst in Alabama?

2. Communities at risk in our area.

List the top ten communities that are at the greatest risk in our county for health problems.
Which community in our county is at the greatest risk for health problems?
Which community in our county is at the smallest risk for health problems?

3. Air Pollution in our county.

How much air pollution is emitted (released into the air) in your county?
List the top ten air polluters in your county.

Water Pollution in our county.

How much water pollution is released into the water in your county?
List the top ten water polluters in your county.

4. How you can make a difference.

List at least 4 ways that you can help the environment at home.
List at least 4 ways that you can help the environment at school.
List at least 4 ways that you can help the environment at the store.

5. Environmental groups working in our area.

Gather information on at least 3 environmental groups working in your area.
Find out what they do, their website address, their address and phone number, how you can join their group, and any events that they are planning.

6. How to write to local, state and national government officials.

Find the names, addresses, and/or phone numbers of local, state, and national government officials who you can write to for support, or to express your concerns.