



TAKING ACTION

Lesson Concepts: Students will examine their own habits to determine what they can do to reduce air pollution and greenhouse gas emissions. Groups of students will develop a project for their community to promote the reduction of air pollution and greenhouse gas emissions.

Learning Objectives — Students will be able to:

- List strategies to reduce the production of air pollution and greenhouse gas emissions.
- Make a pledge to do five things to reduce air pollution and greenhouse gas emissions.
- Develop and enact an action project to promote the reduction of air pollution and greenhouse gas emissions.

Link to Air -The Search for One Clean Breath
from Executive Producer, Barbara L. Page

In the film, we are introduced to a grass roots environmental organization, The East Yard Communities for Environmental Justice, located in Commerce, California. The group is taking action to improve air quality in their area.



Students can also take action to help clean our air.

Materials

Handouts & presentation materials (projector, overhead, whiteboard.)

Advanced Preparation

Day 2: Make copies of the *Action Project Plan* and the *Action Project Log* for each group of students.

Day 30: Make copies of the *Self-Reflection for Action Project* for each student.

Time and Student Grouping

Short version: One 50 minute class period; three students per group.

Long version: Approximately 30 days for students to complete action project. Much of the student work will be completed outside the classroom. Allow two class periods to introduce the action project.

Grade Level: 6-12

California Science Standards

Grade 6, 7.d. Students will communicate the steps and results from an investigation in written reports and oral presentations.

Grade 7, 7.e. Students will communicate the steps and results from an investigation in written reports and oral presentations.

Grades 9-12, I&E 1.1. Students will analyze situations and solve problems that require combining and applying concepts from more than one area of science.

Grades 9-12, I&E 1.m. Students will investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings.

California History Social Science Standards

Grade 9-12, 11.11. Students analyze the major social problems and domestic policy issues in contemporary American society.

National Science Standards

Grade 5-8, 14.2.c. Science & Technology Content Standard E

Grade 9-12, 14.3.c. Science & Technology Content Standard E

National Geography Standards

Grades 5-8, 14.2.c. The role of technology in the human modification of the physical environment.

Grades 9-12, 14.3.c. How to apply appropriate models and information to understand environmental problems.

Education and the Environment Initiative

Educational Principles and Concepts

Principle IV: The exchange of matter between natural systems and human societies affects the long-term functioning of both. As a basis for understanding this principle:

Concept a. Students need to know that the effects of human activities on natural systems are directly related to the quantities of resources consumed and to the quantity and characteristics of the resulting byproducts.

Concept b. Students need to know that the byproducts of human activity are not readily prevented from entering natural systems and may be beneficial, neutral, or detrimental in their effect.

Teacher Tips

This lesson examines ways students can take action to improve air pollution and reduce greenhouse gas emissions. If class time is limited, Day One can be a lesson by itself. The action project is meant to be a large assignment and some students may want to do a simple project. Be sure to review their Action Project Plans to assure they have a project that has some depth and scope. It is important to emphasize that students provide evidence of the details of their project.

Teacher Background

The goal of this curriculum is to educate students in ways to reduce the production of air pollution and greenhouse gas emissions. An action project goes beyond the learning process and helps students actually take part in reducing air pollution and greenhouse gas emissions. When students are involved in action projects, they learn content and they are educating the public while creating a positive “school to community” relationship.

During this lesson students will be asked to develop and execute an action project. This lesson should focus on: identifying community needs; student involvement with the community; academic learning; civic learning; and student reflection. If the plan is to make a poster with a slogan, they must also get this information to the community. This could be accomplished with speeches at local community organizations or booths at community events. Some possible Action Projects are:

- Develop an interactive web page.
- Organize an environmental awareness fair to distribute information.
- Write a children’s play and visit elementary classes to act it out.
- Create a calendar with monthly tips. It could be sold for class profits.
- Write and illustrate a children’s book and visit elementary classes to read the book.
- Develop and broadcast a public radio or television announcement.
- Produce a school video.
- Create informational brochures for distribution and an exhibit for community events.
- Prepare a presentation to be delivered to local community groups.

Procedure, for short and long versions.

Day 1:

1. Divide students into groups of three.
2. Ask the students to generate a list of 20 practical ideas to reduce air pollution and greenhouse gas emissions.
3. Have the groups of students share their lists and generate a master list of strategies. As the list is being written, divide it into personal vs. community strategies. As the master list is being generated, discuss the strategies with the students.
4. Assign homework.

Day 2-3, long version:

1. Tell students they are going to do an action project to promote the reduction of air pollution and greenhouse gas emissions in their communities. Discuss possible types of action projects.
2. In their groups, students brainstorm ideas.
3. Students should then fill out the Action Project Plan. Be sure to emphasize there must be evidence of progress.
4. Students create a timeline using the Action Project Log.
5. Review each group’s Action Project Plan and Action Project Log to make sure the projects and intended schedules are reasonable. Offer suggestions to improve the plan whenever they seem appropriate. If needed, have the groups revise their Plans and Logs. Plans and Logs will be part of the final product.

Once a week for 4 weeks.

1. Ask groups to report their progress on their action project to the class. They should have some form of evidence, pictures, posters, video of their progress.
2. Students should update their Action Project Logs as they are working on their projects.
3. Check to assure the groups are following their intended timeline.

Day 30:

1. Student groups present their completed action project to the class.
2. Other students and the teacher ask questions and evaluate the results.
3. Optional: Groups submit a written report about their projects, including discussion of the process of developing their project, the role of each group member, pictures of their action project, and results of the project.

Closure: Have students complete the Self-Reflection for Action Project questions.

Assessment: Rubrics can be used to grade projects.

Below is a list of suggestions to consider in developing a grading rubric for the action projects:

- Scope of the Project
- Addresses community needs
- Increases community awareness
- Level of involvement with the community
- Accuracy of information
- Results
- Cooperative group effort
- Creativity
- Completed task
- Timeliness

Below is a list of suggestions to consider in developing a grading rubric for group presentations:

- Explained the steps of developing their project
- Explained how it addressed community needs and awareness
- Included visuals
- Explained the results of the project
- Supplied results
- Participation of all group members in the presentation

Below is a list of suggestions to consider in developing a grading rubric for group reports:

- Explanation of process or steps of developing their project
- Explanation of the role of each group member
- Pictures of their action portion of the project
- Explanation of the results of the project
- Evidence of final results

Extension:

Organize a school wide display of the students' projects. Students are encouraged to forward their projects to their local Air Pollution Control District. To find your local agency, visit:

<http://www.4cleanair.org>.

Homework:

Day 1: Students look around their homes and decide what they could do to reduce air pollution and greenhouse gases. Then they write a pledge of five things they plan to do to reduce pollution and greenhouse gases.

Day 2 through Day 30: Students work on their action projects.

Resources:

Ventura County Air Pollution Control District: <http://www.vcapcd.org>

California Air Resources Board: <http://www.arb.ca.gov>

California Department of Education Service-Learning: <http://www.cde.ca.gov/ci/cr/sl>

National Service-Learning Clearinghouse: <http://www.servicelearning.org>

U.S. EPA: <http://www.epa.gov/teachers>

Related Web Sites: Many of the web sites in the other lessons of the Guide may be useful.

Action Project Plan

Using the chart below, prepare a plan for your action project. You will be asked to report your progress once a week toward the completion of the project.

Action Project	Group Plan
1. What air pollution or green-house gas issue will be the focus of this action project?	
2. How do you plan to address this issue?	
3. Who is your audience?	
4. What are the steps necessary to complete this action project?	
5. What resources will you use to develop this action project?	
6. What materials will you need?	
7. Who or what organizations will help you to complete this action project?	
8. How will you publicize your action project?	
9. How will you measure your successes?	
10. What changes need to be made to your plan? (to be completed after the first week)	

Reflection on Your Action Project

1. Overall, what did you learn from doing this action project?
2. What new things did you learn about air pollution and greenhouse gases from this action project?
3. What did you learn about yourself while doing this action project?
4. In what ways did this action project have an impact on your community? Please supply evidence for your response.
5. How has this project changed your thinking about how you can create an impact on your community?
6. What are your plans for the future to reduce air pollution and greenhouse gases?
7. What were your contributions to this action project?
8. What would you do differently if you were to do this action project again?