ABSTRACT

This guide, one of a series in the Quinmester Program, is intended to aid teachers in grades 10 through 12 as they prepare instructional programs dealing with current environmental crisis issues. The aim of this course of study is to help students understand political and economic ramifications of environmental problems and to motivate and provide them with the tools and the desire to become effective consumers and citizens. The guide is divided into: 1) a broad goals section; 2) a course content section which outlines units on ecological principles, environmental problems, economics of pollution, government and pollution, industry and pollution, pollution control, individual action, and future implications of environmental policy; 3) a learning activities section providing a picture of the main idea and specific behavioral objectives for a given set of learning activities; and, 4) a materials section. Appendix I consists of President Nixon's 1970 message on the environment; Appendix II enumerates environmental organizations. Related documents are SO 002 709 through SO 002 718. (Author/SJM)
AUTHORIZED COURSE OF INSTRUCTION FOR THE QUINMESTER PROGRAM

Social Studies: ECO - POLITICS 6448.09

DIVISION OF INSTRUCTION • 1971
ECO - POLITICS

6448.09

Written by
Margaret E. LaRoe
&
Edward T. LaRoe

for the

Division of Instruction
Dade County Public Schools
Miami, Florida
1971
This course of study was written as part of a total effort to revise curriculum to fit the quinquemester administrative organization of schools. The materials and information in this guide are meant to be neither all-inclusive nor prescriptive; but rather, an aide to teachers as they plan instructional programs, taking into account student needs and characteristics, available resources, and other factors.

The major intent of this publication is to provide a broad framework of goals and objectives, content, teaching strategies, class activities, and materials all related to a described course of study. Teachers may then accept the model framework in total or draw ideas from it to incorporate into their lessons.

The guide is divided into 1) a broad goals section, 2) a content outline, 3) objectives and learning activities, and 4) materials. The first section provides descriptive and goal-oriented information for the teacher; "indicators of success" refers to suggested prerequisite or corequisite experiences. The content outline illustrates, in general terms, the scope and major subdivisions of the course. The objectives and learning activities section, hopefully, provides a total picture of the concept or main idea and specific behavioral objectives for a set of given learning activities. The materials section of the guide lists resources in four categories: essential textural or other material; alternate classroom materials to use in place of or in addition to the aforementioned; supplementary teacher resources; and supplementary student resources. The appendix may include other material appropriate for a specific course: e.g., pretests, readings, vocabulary, etc.

Anyone having recommendations relating to this publication is urged to write them down and send to: Social Studies Office, Room 306, Lindsey Hopkins, A-1.

James A. Fleming
Social Studies Consultant
COURSE DESCRIPTION:
A STUDY OF CURRENT ISSUES CONCERNING THE ENVIRONMENTAL CRISIS, FOCUSING ON THE POLITICAL AND ECONOMIC FACTORS THAT INFLUENCE POLICY AND PRACTICE.

COURSE CLUSTER: Political and Economic Studies
GRADE LEVEL: 10-12
COURSE STATUS: Elective
INDICATORS OF SUCCESS:
It is recommended that students entering this class have experience in at least one course in American Government and one in Ecology. This may have been done satisfactorily in junior high.

COURSE RATIONALE:
The improvement of life on this planet depends upon the concerned citizens who must take action based on rational thinking. It is important for pupils to understand the political and economic ramifications of environmental problems. The principal aim of this course is to provide students with the tools and the desire to become more effective consumers and citizens.

It is recommended that students entering this class have experience in at least one course in American Government and one in Ecology. This may have been done satisfactorily in junior high.
COURSE GOALS: THE STUDENT WILL:

1. DESCRIBE AN EXAMPLE OF AN ECO-POLITICAL ISSUE.
2. EXPLAIN MAN'S RELATIONSHIP TO THE ECOSYSTEM.
3. SUGGEST IMPLICATIONS OF POPULATION GROWTH FOR THE FUTURE OF MAN.
4. APPLY KNOWLEDGE OF SUSTAINED YIELD AND RECYCLING TO THE PROBLEMS OF THE ENVIRONMENT.
5. LIST AND DESCRIBE SEVERAL KINDS OF POLLUTION.
6. RELATE ECONOMICS AND POLLUTION.
7. LIST AND DIFFERENTIATE AMONG THE VARIOUS METHODS OF CONTROLLING POLLUTION.
8. EXPLAIN THE ROLE OF THE FEDERAL GOVERNMENT IN ENVIRONMENTAL CONTROL.
9. ANALYZE AN ECO-POLITICAL ISSUE, TAKING INTO ACCOUNT THE SOCIAL, ECONOMIC, BIOLOGICAL, AND POLITICAL FACTORS.
10. DEMONSTRATE A WILLINGNESS TO ACTIVELY PARTICIPATE IN AN ECO-POLITICAL ISSUE.
11. EVALUATE THE FUTURE IMPLICATIONS OF ENVIRONMENTAL POLICY AND PRACTICES.
12. SUGGEST CHANGES THAT ARE NEEDED IN OUR PRIORITIES IN ORDER TO DEAL WITH ENVIRONMENTAL PROBLEMS.
COURSE CONTENT OUTLINE:

I. Review of ecological principles
   A. Requirements for life
   B. Interrelationships
   C. Role of man

II. Environmental problems
   A. Pollution
      1. Air
         a. Gaseous
         b. Particulate
      2. Water
         a. Chemical
         b. Thermal
      3. Solid wastes
      4. Noise
   B. Population
   C. Depletion of resources

III. Economics of pollution
   A. Modified market economy
   B. Costs of pollution
   C. Concept of growth

IV. Government and pollution
   A. Review of American government
   B. Role of the federal government
      1. Evolution of ecological policy
      2. Philosophy of government toward environment
      3. Existing programs
   C. State and local governments' roles

V. Industry and pollution
   A. The role of technology
   B. Sources of pollution
   C. Industry and society

VI. Methods of pollution control
   A. Economic means
   B. Legal means
   C. Persuasion

VII. Individual action
   A. Organizations
   B. Writing letters, contacting appropriate decision-makers
   C. Individual action

VIII. Individual action
   A. Writing letters, contacting appropriate decision-makers

IX. Education and pollution
   A. State and local governments' roles
   B. Philosophical approaches to government toward pollution
   C. Evolution of ecological policy

X. Review of ecological principles
   A. Concept of growth
   B. Interrelationships for life
   C. Role of man
VIII. The Future

A. Implications for society
B. What should be done
C. Predicting the future
<table>
<thead>
<tr>
<th>FOCUS</th>
<th>OBJECTIVE</th>
<th>LEARNING ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO-POLITICS</td>
<td>A. The student will describe an example of an eco-political issue.</td>
<td>1. On the first day have the students recall definitions for &quot;ecology&quot; and &quot;politics&quot;. From this information develop a definition of &quot;eco-politics&quot;.</td>
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<td>2. In order to evaluate (subjectively) the substantive knowledge of the class, ask students to suggest current political issues having to do with ecology. List these on the board and have students (in writing or discussion) describe the issues in scientific and political terms.</td>
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<td>Example: A student suggests the Florida-State Barge Canal. Questions for discussion:</td>
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<td>What is (was) its purpose?</td>
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<td></td>
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<td>Why is this an ecological problem?</td>
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<td></td>
<td></td>
<td>a. Destroys natural resources</td>
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<td></td>
<td></td>
<td>b. Destroys beauty</td>
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<td></td>
<td></td>
<td>c. Affects fishing, recreation</td>
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<td></td>
<td></td>
<td>d. Might inhibit flow of water from North to South Florida, lowering water table, leading to water pollution, salt intrusion, lack of water for human needs.</td>
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<td>e. Might hurt tourist attractions: Silver Springs</td>
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<td></td>
<td></td>
<td>Why is this political?</td>
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<td></td>
<td></td>
<td>a. Pork Barrel Florida legislators push it</td>
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<td></td>
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<td>b. Required political action to halt it</td>
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<td>c. Tax money supports it</td>
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<td>Other possible issues: SST, Jetport, oil slicks, DDT, Alaska oil pipeline, whales, alligators, &quot;Old Smoky&quot; (incinerators), sewage disposal problems, garbage collection, SAGA development corporation, Biscayne National Monument... actually, any issue affecting consumers, health, etc. becomes ecological depending on one's definition. This may cause you to re-define eco-politics.</td>
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</tbody>
</table>
ECOLOGY

Note: The length of time allotted for the basic concepts of ecology, pollution, economics and government depends on the prior experiences of the students. If they demonstrate knowledge in these areas to the satisfaction of the teacher, the time spent on those objectives should be kept to a minimum and more time allotted for investigation of the political issues in the latter part of the course.

LEARNING ACTIVITIES

1. Define terms:
   - man's relationship to the ecosystem
   - ecosystem
   - community
   - food web
   - primary producer
   - trophic level
   - biomass
   - carbon cycle
   - water cycle
   - arithmetic growth
   - geometric growth
   - environmental
   - productivity

2. Discuss the factors necessary for sustaining life. Discuss the carbon cycle, water cycle, productivity, community, ecosystem.

3. On the chalkboard diagram a community of organisms in a fresh water pond and illustrate the food web, using arrows.

4. Divide the class into four groups and have each group illustrate a different ecosystem (plains, freshwater pond, forest, ocean, estuary, etc.). Have each group identify the organisms as (a) primary producer (b) herbivore (c) carnivore (d) secondary.

5. Make a bulletin board display of an ecosystem using pictures or drawings of the organisms.

6. Discussion:
   - Make a poster of the organisms.
   - What would happen if (x) were eliminated?
   - Discuss the concept of equilibrium.

7. Suggest additional or corrections. Allow others to contribute.

8. Show filmstrip, "The Politics of Pollution" (Presently in production at the Department of Educational Media, County Schools).

9. The student will explain:
   - Need for and role of air, water, sunlight, forest, ocean, etc.
   - How each group demonstrated the concepts and how each group illustrated.
**Focus**

The student will suggest implications of population growth for the future of man.

**Objective**

**Learning Activities**

| b. | How can this be explained? (Energy is lost during transfer, some consumed at each level, some unused.) |
| c. | Some scientists say man should be a vegetarian? Why? (Teacher might write on board: It takes 10 lbs. of grass to = 1 lb. of cow, and 10 lbs. of cow to make 1 lb. of man. Have the class infer that for the sake of efficiency, if man were vegetarian, it would only take 10 lbs. of grass to = 1 lb. of man instead of the 100 lbs. it took via the carnivorous route.) |
| d. | Introduce the term "pyramid of biomass." Question: What organism is at the top of this pyramid? |

7. See who can list the most ways that man uses other animals (in 3 or 5 minutes). Have students who made the longest lists write them on the board; classify their list according to use, e.g., categories of food, shelter, recreation, tools, protection, aesthetics, etc. From this the class should make a generalization about man's dependence.

1. Refer to a graph of population growth (Best put on an overhead transparency). (Reference: *Environment Crisis*, p. 6)

Discussion:

a. Differentiate between arithmetic and geometric growth.

b. Ask students to interpret the graph.

c. What are the implications of continued population growth for the world (food supply, space, resources, aesthetic factors, etc.)

2. Assign readings on population ecology for discussion or reports.

The student will apply knowledge of sustained yield and recycling to problems of the environment.

**LEARNING ACTIVITIES**

b. The Population Bomb: "Too many People" edition


d. The Ecology Controversy, McCuen p. 1-19. (Selected readings from different viewpoints)

**Suggested discussion questions:**

a. What are the authors saying?

b. Why is population part of a study of ecology?

c. How might population growth affect the environment?

d. How might population growth affect the chances for war?

e. What, if anything, should be done about population growth?

f. What are the authors saying?

Discuss the statement: "As populations increase and/or resource supplies decrease, the freedom of the individual to use the resources as he wishes decreases irrespective of the form of government."

Use the list below or have students suggest a list of natural resources. Have students classify them according to renewable and non-renewable resources.

- Redwood tree
- Toteer
- Aluminium
- Oil
- Poster
- Water
- Silver
- Iron ore
- Antler
- Pearl
- Turkey
- Whales
- Eagles
- Gold
- Eagles

Problems of the environment yield and recycling to knowledge of sustained yield and recycling.

\[ \text{The student will apply knowledge of sustained yield and recycling to problems of the environment.} \]

Focus on learning objectives:

- LEARNING ACTIVITIES
- OBJECTIVE
<table>
<thead>
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<th>FOCUS</th>
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</tr>
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<tbody>
<tr>
<td>POLLUTION</td>
<td>A. The student will list and describe several kinds of pollution.</td>
<td>b. How can we maintain a supply of renewable resources? Introduce the term &quot;sustained yield.&quot;</td>
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<td>c. How can we be sure the eagles, etc. won't disappear? (One way is the setting aside of parks and wilderness areas, though mercury levels in their prey, etc, (cannot be controlled by such methods.) Introduce the term &quot;endangered species list.&quot; Have an interested student find out what species are on it.</td>
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<td>d. What are the advantages (aesthetic, recreational, etc.) and disadvantages (land, minerals, timber, etc.) of setting aside parks?</td>
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<td>3. Have students identify National parks and forests in Florida, important wildlife refuges, bird sanctuaries. Have them determine the differences among these, and the resources they aim to protect.</td>
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<td>4. Write the Forest Service motto on the board and have students interpret and evaluate it: &quot;The Greatest Good for the Greatest Number in the Long Run.&quot;</td>
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<td>5. Have students write an essay on the theme, &quot;Spaceship Earth.&quot;</td>
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<td>1. Listen to the record of &quot;Pollution&quot; by Tom Lehrer. A 3 minute film with the record on it is available for free use (see materials section). Question: Who does Lehrer think is responsible for the problem?</td>
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<td>2. Discuss the statement: &quot;Everything Pollutes.&quot; Set up criteria establishing a definition for pollution. For example, a pollutant is anything that affects other organisms adversely or is destructive of the ecosystem.</td>
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</tbody>
</table>
Students should recognize the difference between nature and man-made pollutants.

Natural pollutants: the waste products of all organisms, evolved slowly, so that other organisms can react to them. Human pollutants have arisen on a scale thousands of times faster than nature's, so that other organisms have not evolved adequate defenses, except that other organisms can not evoke faster than nature's, so that other organisms can not evolve efficiently.

In contrast, the waste products of photosynthesis are evolved slowly, so that other organisms can react to them. In contrast, human pollutants have arisen on a scale thousands of times faster than nature's, so that other organisms have not evolved adequate defenses, except that other organisms can not react to them.

1. Readings: Environmental Crisis, p. 38-40
2. Students should make a chart of types of pollution: air, water, solid. For each type, designate major pollutants, sources, effect on the environment, and possible means of correction.
3. Assign readings on pollution: Environmental Crisis, 16-31 or any appropriate textual materials.
4. Have students make a chart of types of pollution: air, water, solid. For each type, designate major pollutants, sources, effect on the environment, and possible means of correction.

Example:

<table>
<thead>
<tr>
<th>Major Pollutants</th>
<th>Sources</th>
<th>Effect on the Environment</th>
<th>Possible Means of Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide</td>
<td>Combustion</td>
<td>Sickness</td>
<td>Replace internal combustion engines, etc.</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>Combustion</td>
<td>Climate change</td>
<td>Reduce carbon emissions, etc.</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>Combustion</td>
<td>Acid rain</td>
<td>Reduce sulfur emissions, etc.</td>
</tr>
<tr>
<td>Nitrogen dioxide</td>
<td>Combustion</td>
<td>Respiratory problems</td>
<td>Reduce nitrogen emissions, etc.</td>
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</table>

The student will relate economics and pollution.

- Review the concepts of supply and demand, market economy, etc.

1. An Economics Textbook
2. Environmental Crisis, p. 38-40
2. Present students with hypothetical situations, such as the following:

Suppose you are on the board of directors of a small chemical plant. You have to keep prices down to compete with other companies. A group of citizens has complained that your wastes are polluting the river. They want you to buy and install equipment to cool the water and purify the wastes. What will you vote to do in response? Why?

Possible responses:

a. By complying, I (the company) may have to raise prices causing my company to go out of business, having to fire my employees, who are townspeople.

b. By my refusing to comply, the river may die; or taxpayers may have to shoulder the costs of solving the problems.

c. By installing purifying equipment the company may recover valuable wastes, which it can market at a profit.

3. Ask Question:

Why have polluters, generally, been allowed to pollute? (The costs of social, health, and environmental damage have not been included in the economy, traditionally. Resources were thought to be infinite; e.g., pioneers attitude toward the land during the past century.) Have students suggest examples.

4. Debate:

Resolved, Industries That Pollute Should Be Closed Down until they Make the Necessary Corrections, to comply with the laws.

5. Have a group of students investigate pollution in the Soviet Union. Periodicals will provide (e.g., Science, October 2, 1970). Others may wish to investigate other countries, e.g., Japan and Western Europe.
LEARNING ACTIVITIES

1. Evaluate the effect of our market economy on pollution.

2. From the above report, students should recognize that the market economy, as it is known in the United States, is not to blame entirely. They might locate other instances all over the world.

3. Students might make hypotheses about the causes of pollution: e.g., technology; our system of values which defines progress as "more;" corrupt political system, etc.

4. All responses should be accepted and recorded to be evaluated when more evidence has been collected (near the end of the course).

5. Debate: Resolved, technological and economic growth should be decreased through government controls in order to restore the environment.

6. Have volunteers peruse advertisements in current periodicals (Science, Natural History, Scientific American, Time, Newsweek, etc.) to evaluate industrial attitudes and practices toward pollution, compile a list of specific companies and practices (Science, Natural History, Scientific American, Time, Newsweek, etc.) to evaluate industrial attitudes and practices toward pollution. Compile a list of specific companies and actions they have (seemingly) taken to combat pollution.

7. a. Suggested resources (suitable for student reports).
   - Mishan, Technology and Growth: The Price We Pay
   - Dales, Population, Property and Price
   - League of Women Voters, Production = Pollution
   - Dales, Population, Property and Price
   - The Price We Pay

8. Questions for discussion:
   a. Is it good business to fight pollution?
   b. Do industries have a conscience?
   c. Do industries have a conscience?
   d. Can most industries do this type of thing and keep up?
   e. Was this film objective?
   f. Could most industries do this type of thing and keep up?


10. Questions for discussion:
    a. What protected wildlife?
    b. Who produced the film?
    c. Was this film objective?

FOCUS

OBJECTIVE

Questions for discussion:

actions they have (seemingly) taken to combat pollution. Compile a list of specific companies and practices toward pollution.
<table>
<thead>
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</thead>
<tbody>
<tr>
<td>POLLUTION CONTROL</td>
<td>To list and differentiate among the various methods of controlling pollution</td>
<td>11. Have interested students prepare a panel discussion or reports comparing legitimate efforts by industries to combat pollution with resistance by other industries as charged by the Nader team in the book <em>Vanishing Air</em>. One aim of the discussion might be to detect trends in industrial policy toward pollution. Have students try to discover how much money was spent by selected large companies on pollution control and compare it with the amount spent on advertising about their pollution control efforts.</td>
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<td>1. Have students read in <em>Environment Crisis</em>, pp. 52-63, and list as many ways to control pollution as they can find in the reading.</td>
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<td>2. Divide the class into four groups, and assign each one of the following types of control: fiscal methods, legislative methods, judicial methods, and persuasion.</td>
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<td>Have each group determine what types of action would be included under its methods; have them further be prepared to describe an example for each one. The following types of action should be expressed in reports:</td>
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<td>a. Fiscal methods: economic incentives, effluent charges, fines, taxes, grants.</td>
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<td>b. Legislative methods: setting minimum or maximum standards.</td>
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<td>c. Judicial methods: civil suits, criminal suits</td>
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<td>d. Persuasion: appeal to ethics, publicity, boycotts</td>
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</tbody>
</table>
FOCUS

OBJECTIVE

LEARNING ACTIVITIES

1. Discuss the merits and problems of President Nixon's plan to reorganize the cabinet and have a separate environmental department.

2. Hand out excerpts from President Nixon's Message on the Environment, 1970. (See Appendix I)


4. Invite a speaker from a local pollution control agency of the government or send a committee of students to interview someone in pollution control activities to find out what methods are used locally to control pollution.

To explain the role of the federal government in environmental control, the three branches, checks and balances, legislative process, powers of the federal government in ecology, and the merit and problems of President Nixon's plan to reorganize the cabinet and have a separate environmental department.

Suggested resources: Current History, "Government's Historical Role in Conservation Policy," June, 1970; Stewart Udall's, Quiet Crisis.

Environmental control in federal government in American Government.
5. Have students read in Environment Crisis, p. 113-116.  
(Outline of environmental responsibilities of major federal agencies)

Review the responsibilities of the agencies, their powers, how they relate to the executive and where they overlap.

Hand out a list of committees of the Senate and House for student reference if student's do not have this information in a book (Environment Crisis, p. 116.)

6. Investigate existing programs concerned with pollution on the national level.  (Reference: Environment Crisis p. 64-78)

7. Have one student report on the "Council on Environmental Quality." (origin, purpose, duties, membership, achievements, and significance)

8. Activities 5, 6, and 7 above might be combined into a class activity using small groups. Each group could be assigned to report back on one of the parts of the environment "power structure." Groups might be divided up into (a) Major federal agencies (b) Legislative committees, (c) Council on Environmental Quality, (d) Current national programs, and (e) Role of the president.

9. Assign individuals or groups of students a current law or bill to research. Reports might include the following:
   a. Who introduced the bill
LEARNING ACTIVITIES

FOCUS

OBJECTIVE

1. Have a student panel discussion on the pros and cons of federal
   government's expenses.
   a. When was the FEDERAL GOVERNMENT'S EXPENSES
   c. What ecological problem it seeks to alleviate
   d. What methods of control it calls for
   e. What has happened to it (committee actions,
      floor action, amendments, etc.)
   f. Lobbying action taken, by whom, and by what
      methods.
   g. Effectiveness (actual, if passed, predicted if still
      under consideration)
   h. Seasons for success
      or failure (hypothesized)

10. Reasons for success or failure (hypothesized)
   a. Efficiency of the local, state and federal
      governments, in theory and in practice.
   b. The need for intergovernmental or regional or
      national control of issues.
   c. Influence of lobbyists at each level.
   d. In theory and in practice,
      the responsiveness of each level of government to local
      and larger scale issues.
   e. The effectiveness of the local, state and federal
      governments.

11. Suggested References:
   a. League of Women Voters, Who Pays for a Clean Stream?
   b. U.S. Senate committee on Public Work, subcommittee on
      water and waste pollution, Hearings on
      government's role in industry, local and state governments.
### FOCUS

**THE POLITICS OF ECOLOGY**

Note: Issues selected will be based on current relevance and materials will be mainly periodicals. Teacher should review library skills with class and rely greatly on student work outside the normal class routine.

### OBJECTIVE

The student will analyze an eco-political issue, taking into account the social, economic, biological, and political factors.

### LEARNING ACTIVITIES

1. **Divide the class into 4 or 5 groups to research issues related to the environment.** Each group might be asked to construct a flow-chart tracing its ecological issue from discovery to resolution or present status. The chart should include:
   - a. Groups and agencies involved
   - b. Nation of involvement (detection, enforcement, adjudication, lobbying, legislation, etc.)
   - c. Time-line of progress
   - d. Negative and Positive influences
   - e. Public reaction

2. **Role-playing:** Have students assume the roles of lobbyist, legislator, conservationist, citizens' group representative, local official, etc. to present a mock congressional committee meeting. Consider problems such as inadequate budget; public indifference, vested interests.

3. **Use simulation games,** such as **Smog** and **Dirty Water,** which place students in decision-making roles.

4. **Have students read** "The Economics of Pollution," part III: "Can Pollution Be Controlled?" In Economic Topic Series. Useful discussion questions follow the article.

5. **Make an ecological current events bulletin board.**

6. **Have students find out who heads important congressional committees that deal with environmental issues.** (Almanac, Congressional Register, or by writing to "Friends of the Earth"). Have students assess the positions of those men on environmental issues. The teacher can select 4 or 5 recent bills (or some not-so-recent for comparison) on which roll call votes were taken. Have students fill in a chart as they locate information:
FOCUS

Once complete, class discussion can lead to an evaluation of

PRIOR NAME - PARTY - POSITION - AGE - STATE - EMPLOYMENT - EDUCATION

LEARNING ACTIVITIES

1. Have students identify prominent federal, state and local officials who are associated with environmental issues. Discuss their voting records, possible motivations, political sacrifices, etc. How would you rate these men in their position? Would you vote for them? (Compare student assessments with environmental groups like the "Friends of the Earth." [DeBell, ed. The Voter's Guide to Environmental Politics.])

2. As an alternative, present a chart similar to the one above to the class on an overhead transparency and pursue the discussion.

3. Suggested discussion items:
   a. How might this information be useful to a voter?
   b. What might account for the inconsistencies in voting patterns (if any occur)?
   c. How would you rate these men in their position?
   d. Have students use periodicals to bring the issue of the barge canal up to date. In class discussion determine (a) if the barge canal should be built and a canal between the Gulf and the Atlantic, (b) if the issue is a dead issue, and (c) what methods have been used to resolve the issue to this point.

4. Film: Progress, Pork-Barrel and Pheasant Feathers. (Should Florida build a canal between the Gulf and the Atlantic?)

5. Have students identify prominent federal, state and local officials who are associated with environmental issues. Discuss their voting records, possible motivations, political sacrifices, etc. How would you rate these men in their position? Would you vote for them? (Compare student assessments with environmental groups like the "Friends of the Earth." [DeBell, ed. The Voter's Guide to Environmental Politics.])

6. As an alternative, present a chart similar to the one above to the class on an overhead transparency and pursue the discussion.
9. Have a speaker from the Dade Pollution Control Office talk about politics and our local environmental problems.

10. Select a local ecological issue for in-depth analysis.

The paperback book *The Environmental Destruction of South Florida* presents an introduction to many of the problems peculiar to this area and would serve as an over-all view of local problems from which to choose an issue to study.

Suggested activities:

a. Gather data from periodicals, invited speakers, interviews, site visits, community or school polls, visits to a local government meeting or appropriate court visits.

b. Use data to determine the causes of the problem; the source and extent of the pollution; the costs of halting or avoiding the pollution and the possible costs of not halting it (preferably from different points of view); possible means to control; the role of government; role of industry; role of citizens; etc.

c. Ask students to make judgements about the situation—What should be done and why, who should pay, and who, if anyone, should bear blame.

d. The class may make recommendations to appropriate agencies suggesting realistic proposals taking the political, economic and ecological worlds into account.

e. Have students research possible avenues of citizen action.

(Resources: Garrett De Bell's *The Voter's Guide to Environmental Politics*; League of Women Voters of the U.S. *The Big Water Fight: Trials and Triumphs in Citizen Action on Problems of Supply, Pollution, Floods and Planning Across the USA.* (Contains chapter on "How to be an Effective Citizen;" Mitchell and Stallings, eds. *Ecotactics*)
The student will demonstrate a willingness to actively participate in an eco-political issue.

LEARNING ACTIVITIES


12. Distribute copies of Synopsis, Sept. 29, 1969. Several of the articles may be used as discussion springboards. Questions are found in the Teacher's Resource for Synopsis, leading to an analysis of diverse opinions and focusing on the social conflict around environmental issues.

13. Have artistic students make transparencies of current cartoons and analyze them in class discussion.

14. Make a large map of Dade County or of your local community for a hall display. Pinpoint pollution with colored tacks or paper flags (one color for smoke, one for water pollution, etc.). Identify local land use issues, e.g., SAGA, Coco-Plum, etc., and make reports on each of the pollution problems identified. "In My Community, Nov. 24, 1969," are found in the Teacher's Resource for Synopsis. Several of the articles may be used as discussion springboards.


16. Argue on behalf of an anti-environmental issue in the school newspaper. Report a local pollution problem to the school board. Have artistic students write an article on a local pollution problem for the school newspaper.
5. Have students read and discuss appropriate chapters in *The Environmental Destruction of South Florida*: "Environmental Decision-making," "Political Ecotactics in South Florida," "Individual Action."

6. Distribute handout: Environmental Organizations (see Appendix II).
   
a. Write to several of the organizations and request information.
b. Join one of the organizations as a class.
c. As students obtain data about the organizations, compile a chart or notebook. Have students suggest questions that should be asked about such organizations by prospective members, and record the answers to those questions in the chart or notebook for each one. For Example:
   
   (1) How many members does it have?
   (2) Who controls it?
   (3) Who can join?
   (4) What is its major purpose?
   (5) How long has it been in operation?
   (6) How is it organized?
   (7) What has it done in the past?
   (8) How much does it cost to join? Are memberships tax-deductible?
   
d. Discuss the advantages and disadvantages of working through organizations. Compare the groups for which there is data as to effectiveness, size, purpose, and leadership.

7. Have a speaker from a local civic group visit to tell of problems of effective citizen action, and what his group has done to preserve or improve their community's environment (fighting zoning changes, sewage problems, etc.)
LEARNING ACTIVITIES

8. Start an ecology club in school.

9. Find out current candidates' or officials' voting records. Assess their environmental positions. Interested students could contact qualified candidates and volunteer their assistance.

10. Make a bulletin board display contrasting advertisements for convenience goods with pictures of the environmental pollution caused by their production. For example, include an ad for an automobile and put a picture of an "auto-graveyard" or a crowded expressway next to it. Also include ads for other products and discuss their environmental implications.

11. Write letters to Congressmen expressing individual views on ecological issues. See Voter's Guide to Environmental Politics, pp. 186-192, for assistance on how to write letters to Congressmen. The American (or world) environment can influence the future of our planet.

12. Make a list of ways an individual can influence the future of the American (or world) environment. Reproduce the composite list from the class and distribute. Poll the class on each item as to whether the individual intends to (a) get actively involved soon (or now), (b) get involved if the occasion arises and it does not interfere with his other activities, (c) talk about it, or (d) forget about it. Probably, discussion about the results, especially the tendency to set high hopes now and then, will be informative. The American (or world) environment has the power to influence the future of the planet.

13. Possible individual activities: instigate legal suits, read current books, write legislators, join organizations, give gifts of membership in environmental organizations, start an aluminum can, glass or paper drive, hold a school anti-litter campaign.

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<td>14. As a class or in small groups, construct an &quot;Environmental Survival Kit.&quot; It could be put on display. WTVJ, (316 N. Miami Ave., Miami), offered such a kit in February, 1971, which included such items as do's and don'ts for consumers, pollution complaint cards which could be sent to the county government, lists of products harmful to the environment and those that are least harmful, addresses to which complaints could be sent.</td>
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LEARNING ACTIVITIES

Objective: The student will evaluate the future implications of environmental policy and practices.

Focus: The future.

1. Have students write essays predicting the future of the environment, defending their positions with evidence from the past and present.

2. Establish a classroom paperback "library." (check with the principal of your school library for assistance in obtaining this resource.) Have students read one of the many books or current articles dealing with the future of the environment ("The Future" in "Ecology Controversy" by McCuen; pp. 251-259, or a similar section in any appropriate book.)

3. Class discussion on these questions:
   a. Are political stances sincere in their promises against pollution?
   b. Are politicians sincere in their promises (how can we find out, test it?)
   c. What would be the "best" environmental policy?
   d. What cost is society willing to pay to change their life styles?
   e. Is ecology just a fad? Are people going to react against fewer plastics, throwaways, etc. (e.g., walk instead of ride, use their bikes to commute)?
   f. What do people really want? Are they really willing to change their life styles (e.g., walk instead of ride, use fewer plastics, less waste)?
   g. Can technology cure the problems of pollution it has helped to create?

4. Have students read Reading 13 in the "Ecology Controversy".

5. Retention to the environment crises.
   a. What are the generalizations about the nature of western society and its crisis? There are discussion themes in the book that deal with the nature of western culture and the environment. By McCuen: "Western culture and the environment," pp. 1-10.
   b. Have students read one of the many books or current articles dealing with the future of the environment. (Check with the principal of your school library for assistance in obtaining this resource.)
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<th>B. The student will suggest changes that are necessary in our priorities in order to deal with environmental problems.</th>
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<td><strong>OBJECTIVE</strong></td>
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<td>6. Have the class identify a list of problems related to the environment, e.g., population, economic growth, air pollution, etc. Have them arrange them in order of priority; or have them determine which should be dealt with immediately, which requires gradual change, and which are really not problems at all, if any.</td>
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<td>1. Divide the class into small groups. Have each group try to come up with a $300 billion &quot;national budget&quot; including government programs for defense, education, health, urban development, agriculture space and undersea research, transportation, and pollution control. Compare the simulated budgets; compare these to actual figures for the last fiscal year.</td>
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<td>3. Discuss: What reforms are needed, if any, in our institutions to facilitate a better ecological policy? (Possible suggestions, each of which require discussion of advantages as well as disadvantages: do away with seniority system and secret balloting in Congress and committees; raise the environment to cabinet status; stop giving tax deductions for children; 3rd party; liberalize abortion laws; improve citizen education, etc)</td>
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<td>4. Devise an ideal national policy for the environment, including objectives, enforcement, etc. Evaluate the possibilities for such a program to be put into effect in the near future.</td>
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<td>5. Show and discuss filmstrip, Ecology and Values, presently in production by the Department of Media, Dade County Schools.</td>
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RESOURCES

I. BASIC TEXTUAL MATERIAL:


II. OTHER SUGGESTED CLASSROOM TEXTUAL MATERIALS

(Note: In a current issue-area such as this it is expedient on the part of the teacher that he keep himself aware of the constantly changing and new materials being published.)


A. FILMS

Progress, Pork-Barrel and Pheasant Feathers. McGraw-Hill Contemporary Film Rental Offices
(330 W. 42 Street, N.Y. 10036). 27 min. Rental $17.50.

Spirit of '76. American Documentary Films (336 W. 84 Street, N.Y.), Rental. (Deals with Santa
Barbara oil slick, not viewed by writer).

Tom Lehrer Sings "Pollution." Public Health Service (Audio Visual Facility, Atlanta, 30333).
3 min. Free loan. (Other films about pollution available here on request.)

B. Filmstrips

Environment: Changing Man's Values. Guidance Associates. 2 filmstrips, 2 records or cassettes,
discussion guide.

Man's Natural Environment Crisis Through Abuse. Guidance Associates. 2 filmstrips, 2 records or
cassettes, discussion guide.

The Politics of Pollution. Environmental Ecology Series SS100. Dade County Media Department, 1971
(presently in production).

(Other media productions concerning Ecology/Social Studies (1971) are in production. Check with the
Dade County Schools Department of Media)

C. Other

(Simulation game).


Environmental Survival Kit. WTVJ. Miami, 1970.

IV. STUDENT RESOURCES (SUPPLEMENTAL)


Inc. (Updated and published twice yearly, subscription presently $6.00.)

Dales, J. H. Pollution: Property and Prices. Toronto: Univ. of Toronto, 1968 (paper).


Dales, J. H. Pollution: Property and Prices. Toronto: Univ. of Toronto, 1968 (paper).


League of Women Voters. *Who Pays for a Clean Stream?* Battleboro: Greene Co., 1966. (Write or call the League of Women Voters for information on other publications.)


I. TEACHER REFERENCES:


Note: The bibliography of The Environmental Crises contains a useful listing of Government Reports, Articles, etc. Many current books contain annotated lists of materials.
APPENDIX I

PRESIDENT NIXON'S MESSAGE ON THE ENVIRONMENT, 1970

On February 10, 1970, President Richard Nixon sent a message to Congress setting forth the administration's proposals for legislation on the environment. Excerpts from the message follow:

Like those in the last century who tilled a plot of land to exhaustion and then moved on to another, we in this century have too casually and too long abused our natural environment. The time has come when we can wait no longer to repair the damage already done, and to establish new criteria to guide us in the future.

The tasks that need doing require money, resolve and ingenuity—and they are too big to be done by government alone. They call for fundamentally new philosophies of land, air and water use, for stricter regulation, for expanded government action, for greater citizen involvement, and for new programs to insure that government, industry and individuals all are called on to do their share of the job and to pay their share of the cost.

Because the many aspects of environmental quality are closely interwoven, to consider each in isolation would be unwise. Therefore I am today outlining a comprehensive, 37-point program, embracing 23 major legislative proposals and 14 new measures being taken by administrative action or executive order in five major categories:

- Water pollution control.
- Air pollution control.
- Solid waste management.
- Parklands and public recreation.
- Organizing for action.

We have taken action to phase out the use of DDT and other hard pesticides. We have begun to place controls on wastes from concentrated animal feed-lots. We need programs of intensified research, both public and private, to develop new methods of reducing agricultural pollution while maintaining productivity.

I have asked the Council on Environmental Quality to press forward in this area. Meanwhile, however, we have the technology and the resources to proceed now on a program of swift cleanup of pollution from the most acutely damaging sources: municipal and industrial waste.
In the four years since the Clean Waters Restoration Act of 1966 was passed, we have failed to keep our promises to ourselves: Federal appropriations for constructing municipal treatment plants have totaled only about one-third of authorizations. Municipalities themselves have faced increasing difficulty in selling bonds to finance their share of the construction costs.

I propose a clean waters act with $4 billion to be authorized immediately, for fiscal 1971, to cover the full federal share of the total $10-billion cost on a matching fund basis. This would be allocated at a rate of $1 billion a year for the next four years, with a reassessment in 1973 of needs for 1975 and subsequent years.

To assure that the funds are well invested, I propose that the present, rigid allocation formula be revised, so that special emphasis can be given to areas where facilities are most needed and where the greatest improvements in water quality can be achieved.

Wherever feasible, communities will be strongly encouraged to cooperate in the construction of large regional treatment facilities, which provide economies of scale and give more efficient and more thorough treatment. Whatever feasible, communities will be strongly encouraged to cooperate in the construction of large regional treatment facilities, which provide economies of scale and give more efficient and more thorough treatment.

Approaches to pollution control:
- Collection of existing data on pollution sources and development of effluent inventories will permit systems to be planned.
- Assisted treatment plans will in fact contribute to effective cleanup of water and sewer systems.
- Development of comprehensive river basin plans will be required at an early date, to insure that federal assistance to pollution control in constructing plants will be required to impose reasonable standards, and to be operated only by state-certified operators.
- Federally assisted treatment plans will be required to meet prescribed design, operation and maintenance requirements.

Under existing authority, the Secretary of the Interior will institute these major reforms:

- I propose that the present, rigid allocation formula be revised, so that special emphasis can be given to areas where facilities are most needed and where the greatest improvements in water quality can be achieved.

- Wherever feasible, communities will be strongly encouraged to cooperate in the construction of large regional treatment facilities, which provide economies of scale and give more efficient and more thorough treatment.

In the four years since the Clean Waters Restoration Act of 1966 was passed, we have failed to keep our promises to ourselves.
I propose that state-federal water quality standards be amended to impose precise effluent requirements on all industrial and municipal sources. These should be imposed on an expeditious timetable, with the limit for each based on a fair allocation of the total capacity of the waterways to absorb the user's particular kind of waste without becoming polluted.

I propose that violation of established effluent requirements be considered sufficient cause for court action.

I propose that the Secretary of the Interior be allowed to proceed more swiftly in his enforcement actions, and that he be given new legal weapons including subpoena and discovery power.

I propose that failure to meet established water quality standards or implementation schedules be made subject to court-imposed fines of up to $10,000 per day.

I am inaugurating a program to marshal both government and private research with the goal of producing an unconventionally powered, virtually pollution-free automobile within five years.

I propose that the federal government establish nationwide air quality standards, with the states to prepare within one year abatement plans for meeting those standards.

I propose that designation of interstate air quality control regions continue at an accelerated rate, to provide a framework for establishing compatible abatement plans in interstate areas.

I propose that federal authority to seek court action be extended to include both inter- and intrastate air pollution situations in which, because of local nonenforcement, air quality is below national standards, or in which emission standards or implementation timetables are being violated.

I propose that failure to meet established air quality standards or implementation schedules be made subject to court-imposed fines of up to $10,000 per day.

I have ordered a redirection of research under the Solid Waste Disposal Act to place greater emphasis on techniques for recycling materials, and on development and use of packaging and other materials which will degrade after use—that is, which will become temporary rather than permanent wastes.
I have asked the Council on Environmental Quality to take the lead in producing a recommendation for a bounty payment or other system to promote the prompt scrapping of all junk automobiles.

I propose full funding in fiscal 1971 of the $327 million available through the Land and Water Conservation Fund for additional park and recreational facilities, with increased emphasis on locations that can be easily reached by the people in crowded urban areas.

By executive order, I am directing the heads of all federal agencies and the Administrator of General Services to institute a review of all federal properties that should be considered for other uses. The test will be whether a particular property's continued present use or another would better serve the public interest, considering both the agency's needs and the property's location.

The task of cleaning up our environment calls for a total mobilization by all of us. It involves governments at every level; it requires the help of every citizen. It cannot be a matter of simply pointing fingers back and blaming someone else. Rather, it is up to each of us to take part. It is everyone's responsibility.

I propose that we adopt a new philosophy for the use of federally owned lands, treating them as a precious resource--like money itself--which should be made to serve the highest possible public good.

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APPENDIX II

Environmental Organizations

(For a complete up-to-date list, write for The Conservation Directory, ($1.50) from the National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036)

The Conservation Foundation, 1250 Connecticut Avenue, N.W., Washington, D.C. 20036

The Izaak Walton League of America, 1326 Waukegan Road, Glenview, Illinois 60025

Keep America Beautiful, Inc., 99 Park Avenue, New York, New York 10016

League of Women Voters of the United States, 1730 M Street, N.W., Washington, D.C. 20036

National Audubon Society, 1130 Fifth Avenue, New York, New York 10028

National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036
(Published annually "The Conservation Directory," listing organizations, at $1.50 a copy.)

Natural Science for Youth Foundation, 763 Silvermine Road, New Canaan, Connecticut 06840

The Nature Conservancy, 1522 K Street, N.W., Washington, D.C. 20005

Sears, Roebuck Foundation, Chicago, Illinois 60607

Sierra Club, 1050 Mills Tower, San Francisco, California 94104

The Urban Coalition, 2100 M Street N.W., Washington, D.C. 20037

The Citizens League Against the Sonic Boom, 19 Appleton Street, Cambridge, Mass. 02138

Planned Parenthood-World Population, 515 Madison Ave., New York, New York 10022

Zero Population Growth, 367 State Street, Los Altos, California 94022

Environmental Defense Fund, 162 Old Town Road, East Setauket, New York 11733