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ABSTRACT This book is the first part of a series of six books designed to provide valuable resources to teachers and curriculum specialists as they construct viable environmental education programs for their students. The material in this manual was produced in response to student and teacher demand for material to support the environmental education model described in Section II of this book. The activities in the manual were developed largely in writing workshops by teachers familiar with the environmental education model. Most of the activities were used in the classroom and modified according to student teacher response. Book 1 provides the environmental education philosophy and model. Also included are guidelines for implementing the environmental education model and lists of environmental education resource materials. The resource materials include: sources of prepared environmental education curriculum materials for teachers, information agencies and organizations, film sources, periodicals, publishing, bibliography of instructional materials, environmental monitoring kits, games and simulations, series of prepared catalogues and bibliographies, and sources of audiovisual materials. (BT)

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This environmental education activities manual will suggest a way to use existing subject areas by providing:

The concepts and supportive understandings,

the processes by which those understandings can be internalized,

and the teaching methods best employed to provide

a program emphasis aimed at improving

the environmental quality

of SPACESHIP EARTH.
ENVIRONMENTAL EDUCATION ACTIVITIES MANUAL

Book 1: CONCERNING SPACESHIP EARTH
Book 2: LOWER ELEMENTARY ACTIVITIES
Book 3: MIDDLE ELEMENTARY ACTIVITIES
Book 4: UPPER ELEMENTARY ACTIVITIES
Book 5: JUNIOR HIGH ACTIVITIES
Book 6: SENIOR HIGH ACTIVITIES

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FOREWORD

In these times, it is important to continue to protect and improve the environment in which we live. Our present society has become very aware of and concerned about the environment. Steps are being taken to improve it. Eternal vigilance is needed, and a well educated population is the best insurance for its preservation.

A comprehensive environmental education program is essential to our future, and schools accept the responsibility for the education of our children and youth. It is through active participation, year by year, kindergarten through the twelfth grade, that the quality of living will improve in our villages, towns, and cities. The young are making a great impact with their ideas and their concerns for the future of our world.

This publication will provide valuable resources to teachers and curriculum specialists as they construct a viable environmental education program for their students. Contained here is not an array of "hothouse" ideas but actual activities which have taken place in the classrooms. They include many important contributions coming from students, teachers, and community members.

For the past four years, students at all grade levels and in many diverse community settings throughout the City of Toledo have been involved in the program. Significant resources have been contributed by the University of Michigan, but the activities described here have had the test of actual field experience.

Lee R. McMurrin
Deputy Superintendent
Toledo Public Schools

August, 1974
The environmental education philosophy and model presented in this manual have been developed over a period of seven years. During this time, different aspects of the environmental education model were developed, introduced into one or more school systems, and shaped into its present form.

The material in this manual was produced in response to student and teacher demand for material to support the environmental education model described in Section II of Book I. The activities in the manual were developed largely in writing workshops by teachers familiar with the environmental education model. Most of the activities were used in the classroom and modified according to student-teacher responses. Most of the activities are original creations designed to assist the learner in acquiring specific knowledge, skills, or learning processes.

Special recognition should be given to the following individuals for the vast amount of time and effort spent in helping to produce this material: Diane Boyd, Jo Ann Burgess, Judy DuShane, Glen Erickson, Mary Graham, Margery Harris, Tim Lozen, George Moore, Ann Sibole, Talbert Spence, Michael Teeley, Ellen Vande Viss, and Richard Willhite. Recognition should also be given to the following public school systems for sponsoring teacher-student workshops to help produce the following materials: Dearborn Public Schools, Oak Park Public Schools, Toledo Public Schools, Utica Public Schools, and the Ralph MacMullen School of Conservation.

We are very appreciative of the effort of Mrs. Carol Cakes and the School of Natural Resources Service Center for typing this manual. We would also like to recognize the full support and assistance of Gloria Stapp and Jim Cox in helping to edit the manual and for providing invaluable services throughout the task of producing this manual.

We hope that you will find this manual helpful and that it will assist you to successfully integrate environmental education into your class, school system, or organization.

William B. Stapp
Dorothy A. Cox

August, 1974
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Section I

The Philosophy of Environmental Education
SECTION I  

The Philosophy of Environmental Education  

The Basic Concept  

We share space in a narrow band of land, air, and water on the surface of the third planet from the sun. Included in that space are all the resources we will ever have. We are a closed system run by the radiant energy from the sun.  

We are members of one of the many populations of living species on spaceship earth which, like all populations, live, and consume resources, and die. But, unlike any other species, we have developed an economic system using a technology which has consumed vast amounts of resources, brought about rapid environmental changes, and overloaded the environment with waste. We have developed the potential to destroy ourselves.  

By our decisions and actions we determine the quality of our environment. We have an obligation to our generation and future generations to preserve a quality of life that we perceive to be necessary for a healthful, productive existence for all people.  

The Definition and Goals  

<table>
<thead>
<tr>
<th>ENVIRONMENTAL EDUCATION IS...</th>
<th>The goals of planned change for environmental education are to make all citizens knowledgeable about their surroundings and to help them use this environmental knowledge effectively to make their community, state, and world a better place to live.</th>
</tr>
</thead>
<tbody>
<tr>
<td>the basic process leading toward the development of a citizenry that is aware of and concerned about the environment and its associated problems, and that has the knowledge, skill, motivation, and commitment to work toward solutions to current and projected problems.</td>
<td>from Michigan's Environmental Future: a master plan for environmental education for the State of Michigan, 1973</td>
</tr>
</tbody>
</table>
The Situation

For the past hundred years there has been a growing concern that uncontrolled resource exploitation would eventually destroy the quality of present and future life as we know it on our Spaceship Earth. At the same time as we began to preserve wilderness areas (1860s), and learn the necessity for wise management of our natural resources (early 1900s), more and more of our population were moving away from rural America into urban centers. The contact of city dwellers with natural systems on a day-to-day basis has become remote or non-existent.

The 70% of our people, who now live in urban and suburban areas, are more conversant with cement, steel, traffic jams, and crime than frogs, trees, ecosystems, and interrelationships of all kinds. In urban ghetto areas, day-to-day survival takes precedence over any thought of wilderness preservation. The worst air and water pollution problems affect that part of the population least able to escape or deal with such severe health hazards.

Sheer masses of people have made political processes seem so complex as to be unreachable and untouchable by the average citizen. Apathetic citizens retreat within their homes finding it simpler not to get involved, particularly those who feel that they cannot be effective in bringing about change. The quality of life depends on a concerned, motivated citizenry willing to involve itself in the decision making process and make its collective voice heard.

The foundation for strong citizen action rests to a large degree on what happens in our homes and schools. Today's youth will soon be the voters whose decisions will affect not only the immediate environment in
which they live, but also that of the nation. They will make decisions and cast votes about housing, recreation, transportation, beautification, and air and water pollution. It is imperative that schools provide youth with the knowledge and problem solving skills they need to cope effectively with these life involving decisions.

While it is important to make informed decisions about existing issues, it is imperative that citizens understand that much past and current action only deals with symptoms of problems. Effective and lasting change will not occur unless we have the perception to investigate, determine, and attack the root causes of the environmental problems facing society.

Underlying, or root, causes of our environmental crisis lie in the behavior patterns and value systems of individuals that consume, and those individuals who direct the businesses that supply them. Each citizen at all levels of responsibility needs to develop an environmental ethic and a priority to accept and internalize the social costs of his actions. Only then would symptoms be effectively reduced and a desirable quality of life be preserved.

How will the educational system prepare these future citizens?

One way is to develop the awareness, attitudes, values, and skills of students in an interdisciplinary environmental education process where students and teachers work together to learn how to live harmoniously with their environment. Since schools are in the business of producing useful, literate citizens, they need to extend and expand their thinking and emphasize to include environmental relationships. The present educational process has the bits and pieces of information needed to make informed judgements, but usually do not tie together those isolated facts to show how they are related to, or can be used in our daily lives.
This environmental education activities manual will suggest a way to use existing subject areas by providing:

The concepts and supportive understandings,

the processes by which these understandings can be internalized,

and the teaching methods best employed to provide

a program emphasis aimed at improving

the environmental quality

of SPACESHIP EARTH.
Section II

The Environmental Education Model
SECTION II
THE ENVIRONMENTAL EDUCATION MODEL

What is E.E.?

1. E.E. is N't conservation education.
2. E.E. is NOT a subject - it is a process.
3. E.E. is multidisciplinary.
4. E.E. is community oriented.
5. E.E. is problem focused.
7. E.E. builds on the past - good work.
8. E.E. is teacher-student oriented.
9. E.E. is both formal and non-formal.
10. E.E. could be educational reform.

- Dr. George Lowe
U.S. Office of Environmental Education, HEW, Jan. 4, 1972

The development of students into effective decision makers who have an environmental ethic can be implemented by means of an effective envi-
ronmental education program. Successful programs can be based on differ-
ent models. The model described in this manual is action-oriented and includes many processes and techniques advocated by leading environmental educators. The model consists of four integral parts: philosophy and concepts, processes, teaching-learning models, and emphasis.

THE PHILOSOPHY AND CONCEPTS

"We share space . . .
in a closed system . . .
Our actions . . .
determine its quality."

An environmental education program should assist the learner in understanding this basic spaceship earth philosophy which would serve as an "umbrella" of thought and ethic for the entire program.
The spaceship earth philosophy has been divided into five basic concepts: ecosystem, population, economics and technology, environmental decisions, and environmental ethic. These concepts encompass the awareness, knowledge, and understanding of the living and non-living world and their complex interactions; the social, economic, political and aesthetic influences of the populations of people; the need for, and processes of decision making; and development of an environmental ethic which would motivate the learner to adopt a life style compatible with environmental quality. These concepts are basic and essential and can be presented in a manner to be understood by students of all ages.

Each of the five concepts have been divided into grade level statements called understandings. These understandings outline the focus for the various grade levels within the broad concept, and serve as the base for the concept building activities, skill building activities, community problem solving activities (environmental encounters), and valuing activities found in this manual.

These understandings are cumulative. Each level builds on the understandings of the previous level. Therefore, any higher level teacher may find it desirable to adapt some of the activities from a lower level in order to develop the awareness and knowledge needed as a background for the sub-concept under consideration. An understanding of these concepts is essential in the development of environmentally literate citizens and should be considered and integrated into all areas of the curriculum.
Section I in Books 2-6 describes activities which are designed to develop these basic concepts and understandings at every grade level.

THE PROCESSES

Two basic processes that are an integral part of environmental education are problem solving and valuing. These two processes relate to each other and assist the learner in developing the process skills necessary to carry out an effective action plan. These processes also help the learner to develop skills of critical thinking, planned social change and interpersonal communication.

The Skills of Problem Solving

In many educational systems, it is assumed that students who have been through science and social studies investigations somehow know and can utilize skills in problem solving. When such skills are taught in academic isolation, the student is left to synthesize the skills into a personally useful process, if he can. Since the environmental education model is based on student involvement, problem solving skills are essential to developing and carrying out action plans.

Section II in Books 2-6 is devoted to grade level activities which are aimed at developing the eight problem solving skills of:

1. Recognizing environmental problems.
2. Defining environmental problems.
3. Listening with comprehension.
5. Organizing information.
6. Analyzing information.
7. Generating alternative solutions.
8. Developing a plan of action.
Clarifying Values

These problem solving skills become invaluable when applied to an issue which has meaning to the student. Student-oriented action involves choice, and choices are derived from individual beliefs, attitudes, and values. Environmental education cannot avoid value issues because an individual's values determine his decisions and consequent behavior.

To understand the role of valuing in this model, it is important to realize that the philosophy, concepts and understandings go beyond the common surface, or symptomatic, activities found in many isolated, infrequent "environmental education" efforts. In order to solve environmental problems, it is essential that we get at the "root" causes — the lifestyle of each individual. A student picking up litter would be treating the symptom. Developing the concern to change his behavior patterns that caused him to drop the litter would get at the root causes.

In everyday life, the learner sees visible pollution (symptoms) produced by technology in its effort to satisfy consumer demands. Because it is easy to get caught up in consumer cycles created by corporations, the learner needs to examine his way of living. As a consumer he should explore the influence of mass media, the subtle dissemination of values in advertisements, and his own tendency to fall into a pattern of compliance — to "keep up with the Joneses". Each learner needs to be guided through a valuing process where he explores the consequences of each individual action, and where he learns to generate ideas for alternative behaviors that would bring him into a more compatible way of living with his environment.

The valuing process begins with bits of information which are called beliefs. These beliefs tend to cluster together to form attitudes.
Many attitudes together develop a value system that guides and directs behavior. A student begins to develop his own set of values when he starts to consider alternatives, the consequences of alternatives, and his personal feelings toward each alternative before he acts.

The values clarification process advocated by Raths, Harmin and Simon include the three action aspects of choosing, prizes and acting.

The steps advocated in the values clarification process are:

1. Students are presented with an issue.
2. Students suggest alternative solutions.
3. Students consider the consequences of each alternative.
4. Students express their feelings about each alternative.
5. Students make a free choice.

The values clarification approach helps students become aware of personal beliefs, attitudes, values and behavior which they prize and are committed to both in and out of the classroom. This process assists students in considering alternative solutions and the implications of each alternative. An important role of the teacher is to help each student to consider whether his stated beliefs, attitudes and values are congruent with his actions.

Values clarification is of major importance in making rational environmental decisions every day of a person's life, and must be a basic part of every environmental education program.

Section III in Books 2-6 outlines valuing activities appropriate to each grade level which build upon and extend the concepts and understandings basic to the spaceship earth philosophy.
Community Problem Solving: The Environmental Encounter

The values clarification process and the eight problem solving skills are applied in this action-oriented model to community problem solving. Students need to be able to apply learned skills in both valuing and problem solving to an issue that is meaningful to them—a problem that directly affects them either at home, or at school, or in the local community. One format for community problem solving is the environmental encounter.

The environmental encounter is an instructional technique for studying the environment with an emphasis not only on the development of interest, awareness, understanding, and respect for the environment, but also on the development of problem solving and valuing skills. The student should have the opportunity to become personally involved in positive action through the following recommended steps:

1. Define the problem or issue.
2. Become informed.
3. Identify alternative solutions.
4. Evaluate alternative solutions.
5. Develop a plan of action.
6. Implement the plan of action.
7. Evaluate the implementation.

Each encounter should contain a list of desired outcomes (behavioral objectives) which provides direction for the learning process. The second section of the encounter lists activities to be developed with students including leading questions which will help develop the information and critical thinking desired. A third section might include a human and non-human resource list of community people and sites, and audio-visual material available.

Some environmental encounters need not be strongly problem-oriented. For example, in the lower grades there should be an attempt to bring out
basic awareness and appreciation for the environment. An investigation of the school site by a first grade class might expose the children to ecological principles. Although recognition and solution of relevant problems are appropriate for early grades, the honing of problem solving skills is more appropriate for upper grades.

One of the most important parts of the environmental encounter is the action phase. A common student complaint is, "People always do a lot of talking but no one ever does anything." To feel effective, students need to do something. An elementary school child who picks up litter, makes a bird feeder out of a discarded plastic bottle, makes posters to inform or remind, or writes letters to decision-makers about their concerns is doing something. A middle school or secondary school student who gathers pertinent data and communicates it convincingly to the most effective decision-maker can affect changes and can see he can be effective. An older student, by developing an encounter and participating in community action projects, will develop and refine his problem solving and valuing skills.

Section IV in Books 2-6 contains sample encounters at each grade level identifying suggested school-community environmental problem-solving activities. Teachers are encouraged to adapt these encounters to fit their student and community needs. Whenever possible students should play a major role in selecting and designing environmental encounters. The teacher's role should be one of resource and facilitator. Problems or issues would then be relevant to the local community and make possible the personal involvement of students.
In Summary

The problem solving skills and the two processes of problem solving and valuing complement each other in the following way:

THE ENVIRONMENTAL ENCOUNTER

PROBLEM SOLVING SKILLS
- Recognize Environ. Prob.
- Define Environ. Problems
- Listen with Comprehension
- Collect Information
- Organize Information
- Generate Alternative Solutions
- Develop Plan of Action

COMMUNITY
- Defino the Issue
- Become Informed
- Identify Alternatives
- Consequences of Alt's
- Evaluate Alternatives
- Feelings about Alt's
- Free Choice

VALUES
- Clarification

PROBLEM SOLVING
- Plan the Action
- Action Phase

Environmental education is founded on the premise that we will be able to solve environmental problems only when we have developed in citizens an awareness, understanding and concern for the environment with its associated problems, and the knowledge, skill, motivation and commitment to work toward solutions to these current and projected problems. Only by actively involving students in learning processes can we achieve this goal.

THE TEACHING-LEARNING MODELS

There is no single teaching model that all students will respond favorably toward under all circumstances. Some students learn best when there is an atmosphere of strong teacher-student interaction. It is important for a teacher to assess his/her personal skills and the situation and then blend teaching models in an effort to achieve the best learning environment.
The teaching model traditionally employed in most American class-
rooms is characterized by a teacher who digests a predetermined body of
information and then conveys this material to the student. Such a role
is illustrated by Figure 1. When the teacher functions in this role, the
content and the subject matter have already been determined by publishers,
committees, administrators, or a school board. The teacher becomes famil-
iar with the content and then assumes the role of expert in conveying this
information to the student. The student is presumed to have few attitudes
or thoughts about the content until after the unit has been completed.
The virtue of this model — or teaching based on it — is that it is neat,
tight, controlled and orderly. Its weakness is that it is not very effec-
tive in achieving the outcomes sought by this action-oriented environmental
education model.

![Diagram](image)

**FIGURE 1. TEACHER AS CONVEYER OF INFORMATION**

The amount of information available on the environment and the
recent demand of students for relevancy in educational programs calls for
a teaching model where the instructor does not serve as the principle source
of information — he/she is no longer the expert. The role of the teacher
would be to create a learning environment, assist students in acquiring
information, provide guidance to the student, and to participate with the
student in the learning process. This concept of the role of the teacher
is illustrated by Figure 2.
Research studies have shown that teachers are highly effective when they participate in learning projects as "team members", guides, and counselors, rather as star performers. This means that students would be taking over many of the functions traditionally assumed by the teacher. Decisions on which activities will be pursued, and by whom, should be determined by the students with advice and guidance from the teacher.

The environmentally literate citizen must accept personal responsibility toward himself and others to live in harmony with the environment. The most effective way the five concepts and supportive understandings can be internalized is by both teacher and students being actively involved in the planning and action phases of the learning process.

EMPHASIS OF PROGRAM AT DIFFERENT AGE LEVELS

Environmental education activities at each grade level should focus on the feeling (affective), knowing (cognitive) and skill-behavior domains. Emphasis in the early years, however, should be on awareness and feelings and in later years on knowledge and skill-behavior. The learner should also be provided with opportunities to explore his immediate environment with all of his senses — sight, hearing, smell, touch and taste. The learner should be exposed to a variety of physical and social environments in order to have experiences to judge the quality of his immediate environment. For example, an inner-city child who has never
experienced clean air, uncrowded housing, safe streets, unpolluted water, healthy trees, and rich soil, may not have a quality "measuring stick" by which to judge his home environment. Likewise, a rural child may accept an untouched natural environment, not knowing that it can be easily and quickly degraded unless people are actively involved in maintaining its quality. Similarly, each child may not see the strengths, weaknesses, and meaning of his own social environment unless he experiences, as far as is possible, the strengths, weaknesses, and meaning of contrasting social situations.

If a child learns to appreciate and respect environmental resources, he may want to learn more and be willing to protect what he appreciates. Many programs emphasize knowledge rather than feelings in the early years. This emphasis is less likely to produce a citizen who has a motivating concern and a commitment that will result in a tendency to act if the environment becomes threatened.

The recommended emphases for an environmental education program are outlined below:

**AREAS OF EMPHASIS**

![Diagram of areas of emphasis](image)
ENVIRONMENTAL EDUCATION MODEL

The various aspects of the model discussed in this section are illustrated below:

PHILOSOPHY

CONCEPTS
- ECOLOGICAL
- POPULATION
- ECONOMIC & ENVIRONMENTAL
- TECHNOLOGY
- DECISIONS
- ETHIC

PROCESSES
- PROBLEM SOLVING SKILLS
- COMMUNITY
- VALUES
- CLARIFICATION

TEACHING METHODS

PROGRAM EMPHASIS

GRADE LEVEL

PHASES
- Recognize Environ. Prob.
- Define Environ. Problems
- Listen with Comprehension
- Collect Information
- Organize Information
- Analyze Information
- Generate Alternative Solutions
- Become Informed
- Identify Alt's
- Evaluate Alt's
- Present Issue
- Identify Alt's
- Consequences of Alt's
- Feeling about Alt's
- Free Choice
- Develop Plan of Action
- Plan the Action
- Action Phase

SPACESHIP
EARTH
IMPLEMENTING THE MODEL

A model environmental education program can only be useful and effective if all intended participants are thoroughly acquainted with and understand its philosophy, structure and operation. For this reason, teacher education must be an integral part of an environmental education program.

Just as students need to be actively involved to develop awareness, concern and commitment, so do their teachers and administrators need active involvement and preparation in skill building activities, concept building activities, clarifying their own values and handling community sensitivity, controversial issues and values issues. Section III of this booklet provides guidelines for the teacher in implementing the environmental education model in these areas.

Teachers and administrators need to be provided with first hand experiences regarding their local environment and its associated problems if they expect to effectively guide their students in a meaningful program. Discussion and planning are needed for ways to integrate community environmental studies into the school program. Information needs to be gathered regarding community citizens available to serve the school system as resource persons. A valuable aid will be found in Section IV of this booklet which contains a listing of audio-visual resource material for classroom use.

In order to provide the first hand experiences, active involvement and adequate preparation, most school systems will need to develop a comprehensive inservice teacher education program to orient teachers and administrators to the philosophy and model of environmental education and the enclosed supporting materials.
In the past, attempts have been made to implement action activities into classroom situations where a knowledge of valuing and skills in the problem solving process have been taken for granted. It is very difficult and can be self-defeating if too many new aspects are attempted at one time in one activity. This environmental education activities manual has attempted to provide a step-by-step developmental series of activities which "zero in" on the necessary components of concept building, skill building and valuing. These components fit together into the culminating learning experience of community problem solving.

An important school-wide program objective would be to have each student at every grade level exposed to the concept building activities, skill building activities, values clarification activities and the total process of community problem solving sometime during the school year. The timing of this exposure would depend on the judgement of the class.

If an environmental education program revolved around the community problem solving process and its supporting activities, a twelfth grader might not be exposed to all aspects of the environment, but he should be more sensitive to his environment, better able to recognize problems, more sophisticated in the use of problem solving skills and more inclined to participate in action activities to deal with environmental problems.
Section III

Guidelines for Implementing the Environmental Education Model
SECTION III
INTRODUCTION TO GUIDELINES FOR IMPLEMENTING
THE ENVIRONMENTAL EDUCATION MODEL

Environmental Education is often concerned with many issues and situations which can be difficult for teachers and students unless careful thought and preparation is put into how such issues and situations should be handled.

Guidelines should be established before teachers and students become involved in Environmental Education processes, such as community problem solving.

The following four sets of guidelines should prove to be helpful in your implementation of Environmental Education.

Guidelines are included for:
1. Selecting a community issue
2. Handling controversial issues
3. Handling values
4. Students entering a community to contribute to the solution of local Environmental problems.

The following are guidelines to be considered by the teacher in assisting students to handle the environmental education model effectively.
Guidelines for Implementing the Environmental Education Model

Guidelines for the teacher

Part 1: Selecting a Community Issue

The following are guidelines to be considered by the teacher in assisting students in the selection of a community issue to be studied:

a. An issue should be selected as a result of a student-teacher interaction—a cooperative venture.

b. An issue should be current and important to the class.

c. A suitable issue should consider students' background, ability, and maturity.

d. An issue should not be too complex for the class to comprehend.

e. An issue in which there is resource material appropriate to the abilities of the class and covering the various issue perspectives.

f. An issue for which there is adequate time to study and to work toward the solution.

g. An issue that the teacher is prepared to handle.

h. An issue that the school principal, local P.T.O., and central administration would support as being appropriate for class study and action (an environmental education program should establish effective communication lines between the environmental education staff and school administrators, teachers, parents, and the community at large.)
i. The issue should be selected only after considering items such as student interest in the project, student and community priorities, available resources, funding, risks involved (personal, class, school, etc.), school board policies, and the social implications of the work you are planning in that community.

Part 2: Handling Controversial Issues

The following are guidelines to be considered by the teacher in handling controversial issues in the classroom:

a. The classroom teacher must be aware of and take into account the policies of the local Board of Education regarding the handling of controversial issues.

b. The teacher should know the ‘times’, the student body, and its cultural or sub-cultural make-up as they pertain to the issue at hand.

c. The teacher should assist pupils in identifying problems, collecting information, identifying alternative solutions, evaluating solutions, developing a plan of action, and working toward a selected solution or solutions.

d. Emphasis should be placed on considering the issue from an ecological, economic, political, social, and technological point of view.

e. The teacher should strive to bring in divergent views, references, and resource persons.

f. Emphasis should be placed on considering all aspects of a problem before making decisions.
g. Emphasis should be placed upon the fact that a student may or may not agree with another's point of view but should respect that person's right to it.

h. Before progressing into the action phase, the class should consider the social implications of any action.

Part 3: Handling Values

The following are guidelines to be considered by the teacher in handling values in the classroom:

a. When using activities and strategies for values clarification, encourage a classroom atmosphere of openness and honesty where diversity of opinion is encouraged and the opinions of others are respected.

b. The teacher should strive to help the class learn to listen to one another. One of the best ways to do this is for the teacher to be a model of a good listener.

c. When dealing with values the focus should be on the 'process of valuing', not on the transmission of the "right set of values".

d. Valuing approaches should be used which will help students become aware of values they hold and prize.

e. Assist each student to build his own set of values.

f. Assist each student in considering alternatives, the consequences of each alternative, and his personal feelings toward each alternative before he acts.
g. Assist each student in considering whether his actions match his stated beliefs, attitudes and values and if not, how to bring the two into closer harmony.

h. Whenever a student does not want to respond to a valuing activity, he should be given the right to pass.

i. The teacher should participate in the valuing exercises and discussions whenever possible. The best time for the teacher to give his view is usually toward the end, after the students have had a chance to think things through for themselves and to express their own point of view. The teacher should express himself as a person with values of his own. Thus the teacher shares his or her values, but does not impose them.

Part 4. Sensitivity Guidelines for Students Entering a Community to Contribute to the Solution of Local Environmental Problems.

The following are guidelines to be considered by the teacher in helping to prepare students for entering a community for the purpose of working toward the solution of local environmental problems:

a. Students involved in community action projects:

1. Students should be aware of their personal values (e.g., elitism, classism, racism, sexism, ageism, etc.) and values of the community with which they will be working. Training sessions to help students to identify their values and to work on value conflicts should be provided.
2. Students should be aware of personal values they hold that might be different from the values of the community sector with which they will be working. In the event that value conflicts exist, training sessions should be provided to foster values sensitivity and to work on value conflicts.

3. Students should be aware of personal relationships with other people and if conflicts exist, training sessions to work on problem areas (personality barriers, working relationships, etc.) should be provided.

4. Students should be aware of resources (i.e., knowledge, skills, materials, equipment, etc.) that they personally have or have access to, and resources that other members of their class bring to the group.

b. Student sensitivity toward the community:

1. Students should not enter the community like gangbusters.

2. Students should be good community listeners.

3. Students should interact with existing community leadership.

4. Students should be informed about the community (i.e., people, the government, politics, functioning of community, living conditions, environmental status, concerns of the residents, etc.).

5. Students should be aware of and work with community people and organizations that have the resources and past experience to be of assistance in working on the community problem solving project.
6. Students should be aware of the social implications of their actions.

7. Students should develop strong ties with community individuals and organizations in order to build a community base and to provide ongoing support for the project.

c. Ways to identify community projects:

1. Obtaining ideas from students, faculty, school administration, citizens, government officials, etc.

2. Attending public hearings and meetings.

3. Reading community newspapers and newsletters.

4. Listening to local radio and T.V. public-affairs programs.

d. Implementing community action projects:

1. Students should be deeply involved in the learning process. The process should not be leader centered.

2. Credit should always be given where credit is due.
Section IV

Environmental Education Resource Materials
Section IV

Environmental Education Resource Materials

Following are lists of Environmental Education Resource Materials that may be helpful to teachers in integrating Environmental Education activities into the total curriculum.

The material that follows is not meant to be exhaustive, but rather some of the better material related to environmental education.

Some of the major categories that follow are:

A. Sources of prepared environmental education curriculum materials for teachers.

B. Information agencies and organizations.

C. Sources of environmental, natural history and ecological films.

D. Periodicals

E. Publishing companies.

F. Bibliography of environmental and instructional materials.

G. Environmental monitoring kits.

H. Environmental games and simulations.

I. Series of prepared catalogues and bibliographies.

J. Sources of A.V. Materials - overlays, transparencies, posters, charts, diagrams & maps.

-35-
A. SOURCES OF PREPARED ENVIRONMENTAL EDUCATION CURRICULUM MATERIALS FOR TEACHERS


AMERICAN EDUCATION PUBLICATIONS - Education Center, Columbus, Ohio 43216: "Focus on Pollution" ecology series with teacher guidelines. Designed for upper elementary-junior high. Includes experiments.

AMERICAN FOREST INSTITUTE - 1619 Massachusetts Ave., N.W., Washington, D.C. 20036: "Learn to Love Trees", a sample of teaching units prepared by the Institute for Elementary Teachers. Single copies free. Quantity copies .05 each.

AMERICAN LUNG ASSOCIATION - Contact your local branch as listed in your telephone directory for information and curriculum suggestions on air pollution and health. Guide available free of charge. K-12.

THE CENTER FOR CURRICULUM DESIGN - P.O. Box 350, Evanston, Ill., 60204: "You are an Environment" teaching-learning activities designed to develop environmental attitudes. Send for catalog which includes price information for curriculum, films and books.

CONCERN, INC. - 2100 M. St., N.W., Washington, D.C. 20037: Copies of "Eco-Tips" available on a number of environmental/ecological topics. Examples include "Solid Waste," "Over-Packaging," "Automobile Pollution" and "Consumer Guidelines." Published in pamphlet form $3.00/100.

CONSERVATION AND ENVIRONMENTAL STUDIES CENTER - Box 2230 R.D. 2, Brown Mills, New Jersey, 08015: A multidisciplinary approach in curriculum design. Includes background information, activities and resources. Sample units include: "Land Use", "Water, the Waste of Plenty," "Angling for an Unknown Direction." Good for use in mathematics classes, Junior High and up. $1.50 each.


ENVIRONMENTAL ACTION COALITION - ECO-MEP - 325 E. 49th St., N.Y., N.Y., 10017: Children's newsletter accompanied by corresponding teacher's guide. Individual issues devoted to single topic areas such as: recycling, trees, population and solid waste. Very reasonably priced.


ERIC - Center for Science, Mathematics and Environmental Education, 1800 Cannon Dr., 400 Lincoln Tower, Ohio State University, Columbus, Ohio 43210: A resource service organized by topic areas and grade levels. Sample environmental education materials include: "A Review of Environmental Education for Teachers of Urban/Disadvantaged" and "100 Activities for Environmental Education." Both $3.50.


GIRL SCOUTS - ECO-ACTION PROJECT BOOKS - Girl Scouts of Metropolitan Detroit, 153 E. Elizabeth St., Detroit, Michigan 48202: Especially designed curriculum materials for Girl Scouts but suitable applications for elementary classes. Three successive guidesbooks and corresponding Leader's Guides introduce ecology and progress to problem-solving and action projects. Write for price information.

J.C. FERGUSON PUBLISHING CO., - 6 N. Michigan Ave., Chicago, Ill., 60602: "People and their Environment" conservation education curriculum guides for teachers, grades 1-12. Include sources of materials and bibliography of books and films. Volumes $3.25 each or 3 or more volumes, $3.50 each.

KEEP AMERICA BEAUTIFUL - 99 Park Ave., N.Y., N.Y. 10016: Litter prevention and other pollution control projects for high school students. Sample titles include: "Litter Laws" and "71 Things You Can Do to Stop Pollution." Free.


NATIONAL EDUCATION ASSOCIATION - Sales Section, 1201 Sixteenth St., N.W., Washington, D.C. 20036: "Man and His Environment - An Introduction to Using Environmental Study Areas." Designed to acquaint teachers with new ideas and practices that focus on an interdisciplinary approach to environmental education. Book and filmstrip combination. $1.75. (Publications catalog available.
NATIONAL WILDLIFE FEDERATION - Educational Services Division, 1412 16th St., N.W., Washington, D.C. 20036: Many educational publications, including written curriculum guidelines and Action Leaflets on endangered species, Wildlife of farm and field, Wildlife of forests and rangelands, Wildlife of lakes, marshes, and streams. $0.10/copy. NWF is also the publisher for Minnesota Environmental Science Federation, Inc. - Environmental Discovery Units available on "Plants in the Classroom," "Oaks, Acorns, Climate and Habitat," "Man's Habitat: The City," and "Vacant Lot Studies," as examples. Elementary level. $1.00 - 1.50.

NORTH JERSEY CONSERVATION FOUNDATION - 300 Mendham Rd., Morristown, New Jersey 07960: "Education for Survival: Ecology in Science and Social Studies." An interdisciplinary approach designed with concept pages, facts and classroom activities. Also included are charts and diagrams. Teacher's guides accompany the 4 volume set, arranged sequentially grade, 1-6. Volumes vary in price from $4.00 - $6.00.


PENNSYLVANIA TUBERCULOSIS AND RESPIRATORY DISEASE ASSOCIATION - 311 S. Juniper St., Philadelphia, Pa., 19107: "Our Polluted Air - A Teacher's Guide for a Mobile Workshop." Six lesson plans, complete with flannel board kit. Designed to help elementary school students comprehend the nature of the air pollution problem and the possibilities for a solution. $45.00 East of the Mississippi; $50.00 West of the Mississippi.

PROJECT SEE - Wyandotte Public Schools, 891 Goddard Rd., Wyandotte, Michigan 48192: "GREENS" on insects, making compost, energy and air pollution. Lower elementary through adult.

SCIENCE CURRICULUM IMPROVEMENT STUDY - Published by Rand McNally, 405 Park Ave., N.Y., N.Y. 10022: Teacher guidelines and curriculum activities arranged in a series on the following topics: Populations, Environmental Cycles, Ecosystems, Community and Life cycles, Excellent experiments and classroom activities. $1.50 each.


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - most publication available through United States Government Printing Office, Washington, D.C. 20402: "The Processing and Recovery of Jon Thomas Cool Cat" and "There Lived a Hicked Dragon" coloring and activities books for children on Solid Waste. $.55 each. Legislative summaries and pollution control laws also available.


XERO POPULATION GROWTH - Population Reference Bureau, Inc. 1755 Massachusetts Ave., N.W., Washington, D.C. 20036: "The World Population Dilemma," a textbook on population designed for elementary and secondary students. Part of a series entitled "This Crowded World" (grades 4-6) and "People" (grades 7-9). World and U.S. population data in chart form also available. Free.
B. INFORMATION AGENCIES AND ORGANIZATIONS

Listed below are agencies and organizations that are good sources for information. Many of the groups listed below also produce newsletters and provide free or inexpensive materials.

Air Pollution Control Assoc. Publications
4000 Fifth Avenue
Pittsburgh, PA 15213

American Assoc. of University Women
2401 Virginia Ave., N.W.
Washington, D.C. 20007

American Assoc. for Conservation Information
1416 Ninth Street
Sacramento, CA 95814

American Cancer Society
219 East 42nd St.
New York, N.Y.

American Conservation Association
30 Rockefeller Plaza
New York, N.Y. 10020

American Forestry Assoc.
919 17th St., N.W.
Washington, D.C. 20006

American Forest Institute, Ed. Div.
1835 K St., N.W.
Washington, D.C. 20006

American Petroleum Institute
School Program
1271 Avenue of the Americas
New York, N.Y. 10020

Association of Interpretive Naturalists
1251 East Broad St.
Columbus, Ohio 43205

Boy Scouts of America
National Council
New Brunswick, New Jersey 08903

Bureau of Outdoor Recreation
U.S. Dept. of the Interior, Division of Information
19th and C Sts. N.W.,
Washington, D.C. 20240

Bureau of Solid Waste Management
Environmental Control Admin.
Consumer Protection and Environmental Health Services
Arlington, Virginia 22203

Bureau of Sport Fisheries and Wildlife
Fish and Wildlife Services
Washington, D.C. 20240

Citizens for Clean Air
40 W. 57th St.
New York, N.Y. 10019

Citizens League Against the Sonic Boom
19 Appleton Street
Cambridge, Massachusetts 02138

Committee for Environmental Information
435 N. Skinker Blvd.
St. Louis, MO 63130

Conservation and Environmental Science Center
Box 2230, R.D. #2
Brooms Mills, New Jersey 08825

Conservation Education Association
Wilson F. Clark, President
Eastern Montana College
Jillings, Montana 59101

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

Ecological Society of America
Radiation Ecology Section
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831

Environmental Action Coalition, Educational Services
235 E. 49th Street
New York, N.Y. 10017
Environmental Science Services Admin.
U.S. Department of Commerce
Rockville, Maryland 20852

Federal Water Pollution Control Administration
Crystal Mall, Bldg. 2
1921 Jefferson Davis Hwy.
Arlington, Virginia 22203

Forest Service, U.S. Dept. of Agri.
Information and Education Room 3223 S. Agriculture Bldg.
Washington, D.C. 20250

Friends of the Earth
30 E. 42nd Street
New York, N.Y. 10017

The Garden Club of America
598 Madison Avenue
New York, N.Y. 10022

International Union for Conservation of Nature and Natural Resources
2000 P St., N.W.
Washington, D.C. 20006

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

John Muir Inst. for Env. Studies
451 Pacific Ave.
San Francisco, CA 94133

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

League of Women Voters of the U.S.
1200 17th St., N.W.
Washington, D.C. 20036

National Air Pollution Control Admin.
Consumer Protection & Eng. Health Adm.
Arlington, Virginia 22203

National Audubon Society
1130 Fifth Avenue
New York, N.Y. 10028

National Conference on State Parks
1700 Pennsylvania Ave., N.W.
Washington, D.C. 20006

National Council of State Garden Clubs
4401 Magnolia Street
St. Louis, MO 63110

National Parks Association
1701 18th St., N.W.
Washington, D.C. 20009

National Science Teachers Assoc.
1301 16th St., N.W.
Washington, D.C. 20036

National Tuberculosis & Respiratory Disease Assoc., Materials Devel.
1740 Broadway
New York, N.Y. 10019

National Wildlife Federation
1412 16th St., N.W.
Washington, D.C. 20036

National Youth Conference on Natural Beauty and Conservation
830 Third Avenue
New York, N.Y. 10022

The Nature Conservancy
1522 K St., N.W.
Washington, D.C. 20006

Oceanographic Education Center
Box 585
Falmouth, MA 02541

Planned Parenthood World Population
515 Madison Avenue
New York, N.Y. 10022

Population Council, Inc.
230 Park Avenue
New York, N.Y. 10017

Resources for the Future
1755 Mass. Ave., N.W.
Washington, D.C. 20036

Scientists' Institute for Public Information
30 E. 68th Street
New York, N.Y. 10021

Sierra Club
1050 Mills Tower
San Francisco, CA 94104
Soil Conservation Service
Washington, D.C. 20250

Sport Fishing Institute
Suite 503
719 13th St., N.W.
Washington, D.C. 20036

Student Conservation Assoc.
Sagamore Hill Nat. Historical Site
Hld. Rt. Box 304
Oyster Bay, N.Y. 11771

United States Forest Service
Washington, D.C. 20250

Urban American
1717 Massachusetts Ave., N.W.
Washington, D.C. 20036

The Wilderness Society
729 15th St., N.W.
Washington, D.C. 20005

Zero Population Growth
367 State Street
Los Altoos, CA

Box 259 Village Station
New York, N.Y. 10014
C. SOURCES OF ENVIRONMENTAL, NATURAL SCIENCE AND ECOLOGICAL FILMS

ABC MEDIA CONCEPTS - 1330 Avenue of the Americas, New York, N.Y. 10019
AIMS INSTRUCTIONAL MEDIA SERVICES, INC. - P.O. Box 1010, Hollywood, California 90028
AMERICAN DOCUMENTARY FILMS - 379 Bay St., San Francisco, CA 94133
AMERICAN EDUCATIONAL FILMS - 331 N. Maple Dr., Beverly Hills, CA 90210
CHURCHILL FILMS - 662 N. Robertson Blvd., Los Angeles, CA 90069
CINEMA ASSOCIATE PRODUCTIONS, INC. - Box 621, E. Lansing, MI 48823
THE CONSERVATION FOUNDATION - 1717 Massachusetts Ave., N.W., Washington, D.C. 20036
CONTEMPORARY McGRAW-HILL FILMS - 828 Custer Ave., Evanston, Ill. 60202
CREATIVE FILM SOCIETY - 7237 Canby Avenue, Reseda, CA 90069
ENCYCLOPEDIA BRITANNICA EDUCATIONAL CORPORATION - 425 N. Michigan Ave., Chicago, Illinois 60611
ENVIRONMENTAL EDUCATORS INC. - 732 7th St., N.W., Washington, D.C. 20006
ENVIRONMENTAL INFORMATION CENTER - 126 39th St., N.Y., N.Y. 10016
FILMS FOR SOCIAL CHANGE - 6244 Delmar Blvd., St. Louis, MO 63130
FILMS INCORPORATED - 1144 Wilmette Ave., Wilmette, Ill. 60091
STUART FINLEY, INC. - 3425 Mansfield Rd., Falls Church, VA 22041
MULTI, RINEHART AND WINSTON, INC. - Media Department, 383 Madison Ave., New York, New York 10017
LEARNING CORPORATION OF AMERICA - 711 Fifth Ave., N.Y., N.Y. 10022
MASS MEDIA ASSOCIATES - 2116 N. Charles St., Baltimore, Md. 21218
MEDIA FOR THE URBAN ENVIRONMENT - 75 Frost St., Brooklyn, N.Y. 11211
MICHIGAN DEPARTMENT OF EDUCATION - 735 E. Michigan Avenue, Lansing, Michigan 48913
MICHIGAN DEPARTMENT OF NATURAL RESOURCES - Film Service, Lansing, Michigan 48926
NBC EDUCATIONAL ENTERPRISES - 30 Rockefeller Plaza, N.Y., N.Y. 10020
NATIONAL ASSOCIATION OF CONSERVATION DISTRICTS - Environmental Film Service, P.O. Box 355, League City, Texas 77573
NATIONAL AUDUBON SOCIETY - Photo and Film Department, 930 Third Ave., New York, New York 10022

NATIONAL BANK OF DETROIT - Public Relations Department, 611 Woodward Avenue, Detroit, Michigan 48232

NATIONAL FILM BOARD OF CANADA - 680 5th Avenue, N.Y., N.Y. 10019

NATIONAL TUBERCULOSIS AND RESPIRATORY DISEASE ASSOCIATION - 170 Broadway, New York, New York 10019

PLANNED PARENTHOOD - WORLD POPULATION - Film Library, 267 W. 25th St., New York, New York 10001

PYRAMID FILMS - Box 1048, Santa Monica, California 90406

RODALE PRESS FILMS - c/o Bullfrog Films, Box 114, Milford Square, PA 18935

SIERRA CLUB FILM LIBRARY - c/o Association-Sterling Films, La Grange, Illinois 60525

TIME - LIFE FILMS - 43 W. 16th Street, N.Y., N.Y. 10010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - Region V, One North Wacker Drive, Chicago, Illinois 60606

UNIVERSITY OF CALIFORNIA, EXTENSION MEDIA CENTER - Berkeley, CA 94720

THE UNIVERSITY OF MICHIGAN, AUDIO-VISUAL CENTER - 416 Fourth St., Ann Arbor, Michigan 48103

WASHTENAW COUNTY LIBRARY - 4133 Washtenaw Ave., Ann Arbor, MI 48104

JOHN WILEY AND SONS, INC. - 605 3rd Avenue, N.Y., N.Y. 10016

XEROX FILMS - Stamford, Connecticut 06904

(Total number of distributors listed: 37)
The following periodicals are highly relevant to environmental education. Some of these should be in your school library. Others you may want to subscribe to personally.

**American Forests Magazine**
American Forestry Association  
919 17th Street, \lq\lq L\rq\lq  
Washington, D.C. 20006

**Audubon**
National Audubon Society  
1130 Fifth Avenue  
New York, New York 10023

**Childhood Education**
Association for Childhood Education International  
3615 Wisconsin Avenue, N.W.  
Washington, D.C. 20016  
Issue of October, 1970

**Current History (A World Affairs Monthly)**
1822 Ludlow Street  
Philadelphia, PA 19103  
U.S. Resources: A Tally Sheet/June, '70  
America's Polluted Environment/July, '70  
Options for a Cleaner America/August, '70

**Current Science**
55 High Street  
Middletown, Conn. 06457

**Ecology**
The Journal of Cultural Transformation  
Ecology Action Educational Institute  
Box 3025  
Yostado, CA 95352

**Eco-News**
Children's Environmental Newsletter  
(monthly, Grades: 2-3)  
Environmental Action Coalition  
235 East 49th St.  
New York, N.Y. 10017

**Environmental Quality Magazine**
Environmental Awareness Assoc., Inc.  
6355 Topanga Canyon Blvd.  
Woodland Hills, California 91364

**Environment**
438 North Skinker Blvd.  
St. Louis, Missouri 63130

**Environmental Education**
Deubur Education Research Services, Inc.  
Box 1605  
Madison, Wisconsin 53701

**Environmental Science & Technology**
American Chemical Society  
1155 16th St., N.W.  
Washington, D.C. 20036

**Eco-News**
Children's Environmental Newsletter  
(monthly, Grades: 2-3)  
Environmental Action Coalition  
235 East 49th St.  
New York, N.Y. 10017

**Editorial Research Report on Urban Env.**
Editorial Research Reports  
1735 K St.  
Washington, D.C. 20006

**Grade Teacher**
Mr. Harold Littledale, Editor  
22 U. Putnam Avenue  
Greenwich, Conn. 06830  
Articles of Jan. '68 and '69

**Journal of Outdoor Education**
Northern Illinois University  
DeKalb, Illinois  
Box 299, Oregon, Ill. 61061

**Land Pollution Reporter**
Freed Publishing Co.  
P.O. Box 1144  
FMK Station  
New York, N.Y. 10022

**The Living Wilderness Quarterly**
The Wilderness Society  
729 15th St., N.W.  
Washington, D.C. 20005

**Man's Control of the Environment**
Congressional Quarterly  
1735 K Street  
Washington, D.C. 20006
National Parks Magazine
National Parks Association
1701 13th St., N.W.
Washington, D.C. 20009

National Wildlife Magazine
National Wildlife Federation
1412 Sixteenth St., N.W.
Washington, D.C. 20036

Naturalist
Natural History Society
Medical Arts Building
Minneapolis, MN 55402

Natural Study Magazine
A Journal for the Advancement of Environmental Education
The American Nature Study Soc.
R.D. 01
Homer, New York 13077

Pacific Search
Journal of Natural Science in the Pacific Northwest
203 Second Avenue, N.
Seattle, Washington 98109

Public Affairs Pamphlet
4403 Air; 4421 Environment fit for People; 4450 Noise
Public Affairs Committee
311 Park Ave. S.
New York, New York 10016

Scholastic Teacher
Scholastic Magazines, Inc.
50 W. 44 St.
New York, New York 10036

Science
American Association for Advancement of Science
1515 Massachusetts Ave., N.W.
Washington, D.C. 20005

Science Activities Magazine
5150 Central Park Avenue
Skokie, Illinois 60076

Scientific American
415 Madison Avenue
New York, N.Y. 10017

Science and Children
National Science Teachers Assoc.
1201 16th St., N.W.
Washington, D.C. 20036

The Science Teacher
National Science Teachers Assoc.
1201 16th St., N.W.
Washington, D.C. 20036

Sierra Club Bulletin
Sierra Club
1050 Mills Tower
San Francisco, CA 94104

Today's Education
The Journal of the National Education Association
1201 16th., N.W.
Washington, D.C. 20036
The following publishing houses produce excellent environmental materials. A letter to any of the publishing companies requesting a catalogue should provide information pertaining to the variety of instructional aids produced.

Allyn & Bacon, Inc.
470 Atlantic Avenue
Boston, Massachusetts 02210

Athenaeum Publishers
122 E. 42nd Street
New York, N.Y. 10017

T.J. Chandler Publishing Co.
124 Spear Street
San Francisco, CA 94105

Crowell Collier & Macmillan
666 Third Avenue
New York, N.Y. 10022

Crown Publishers, Inc.
419 Park Avenue, S.
New York, N.Y. 10016

Columbia Books, Inc.
917 15th St., N.W.
Washington, D.C. 20005

Coward-McCann, Inc.
200 Madison Avenue
New York, N.Y. 10016

The John Day Co., Inc.
62 W. 45 Street
New York, New York 10036

Doubleday & Co., Inc.
277 Park Avenue
New York, N.Y. 10017

E.P. Dutton & Co., Inc.
201 Park Avenue, S.
New York, N.Y. 10003

Franklin Watts, Inc.
575 Lexington Avenue
New York, N.Y.

Golden Gate Junior Books
543 Old Country Road
San Carlos, CA 94070

Grosset & Dunlap, Inc.
51 Madison Avenue
New York, N.Y. 10010

E.M. Hale & Co.
1201 S. Hastings Way
Eau Claire, Wisconsin 54701

Harcourt Brace Jovanovich
757 Third Avenue
New York, N.Y. 10017

Holiday House
18 E. 57th St.
New York, N.Y. 10022

Holt, Rinehart & Winston, Inc.
333 Madison Avenue
New York, N.Y. 10017

Houghton Mifflin Co.
110 Tremont Street
Boston, MA 02120

J.B. Lippincott Co.
E. Washington Square
Philadelphia, PA 19105

Lothrop, Lee & Shepard
381 Park Avenue, S.
New York, N.Y. 10016

McGraw-Hill Book Co.
330 W. 42nd St.
New York, N.Y.

Natural History Press
Central Park West at 79th St.
New York, N.Y. 10024

Parents' Magazine Press
52 Vanderbilt Avenue
New York, N.Y. 10017

Prentice-Hall, Inc.
Englewood Cliffs, N.J. 07632
G.P. Putnam's Sons  
200 Madison Avenue  
New York, N.Y. 10016

Rand McNally & Co.  
405 Park Avenue  
New York, N.Y. 10022

Educational Division  
Reader's Digest Services, Inc.  
Pleasantville, N.Y. 10570

Charles Scribner's Sons  
597 Fifth Avenue  
New York, N.Y. 10017

Simon & Schuster  
1 West 39th St.  
New York, N.Y. 10013

Time-Life Books  
Time & Life Bldg.  
Rockefeller Center  
New York, New York 10020

The Viking Press, Inc.  
625 Madison Avenue  
New York, N.Y. 10022

Frederick Warne & Co., Inc.  
101 Fifth Avenue  
New York, N.Y.

Washington Square Press  
630 Fifth Avenue  
New York, N.Y. 10010

The World Publishing Co.  
110 E. 59th Street  
New York, N.Y. 10022
F. BIBLIOGRAPHY OF ENVIRONMENTAL AND INSTRUCTIONAL MATERIALS

Philosophical Basis


Environmental Overview


Environmental Pollution Panel (President's Science Advisory Committee) *Restoring the Quality of Our Environment*. The White House, 1965.


General Ecology and Natural History


Urban Environment, Problems and Planning


Environmental Policy


**Economics and Environmental Conservation**


**Environmental Psychology and Communications**


**Values and Teaching**


Curriculum Material, Learning Theory, and Instruction


Kephart, Newell. The Slow Learner in the Classroom. Columbus, Ohio: Charles E. Merrill, 1960.


Social Change


Research


Bibliographies Related to Environmental Education


**Environmental Occupations**


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**Children's Section**

*Books for Pre-Schoolers Through 4th Grade on the Environment*


Solsen, Milliecent E. *Is This a Baby Dinosaur?*. Harper and Row, 1971.


**CRAFTS**


**NATURE STUDY**


G. ENVIRONMENTAL MONITORING KITS

1. INSTRUCTOR CURRICULUM MATERIALS - Gimmy and Company, 1313 West McNichols Rd., Detroit, Michigan 48225: "Outdoor Activities for Environmental Studies." Detailed instructions for activities and projects that include measuring horizontal and vertical distances, the Secchi disk (for water clarity), measuring ground cover, wind speed and direction, slope measurement, moving water, soil compaction and absorption rate, and others. Activities incorporate a multidisciplinary approach. 48 pages. $1.50/book.


3. J.B. LIPPINCOTT CO. -- E. Washington Square, Philadelphia, Pa., 19105, "Life Science: A Search for Understanding" and "Physical Science: A Search for Understanding." A program of human ecology and physical science, respectively. Lab experiments included with each.

4. SELECTIVE EDUCATIONAL EQUIPMENT, INC. - 3 Bridge St., Newton, Mass., 02195, "City Ecology." Involves the student in observing, measuring, predicting, etc., of subject matter; includes student activity cards, rain gauges, soil samples and other materials - Grades 4-8. "Illuminated Student Microscope." Low-cost, unbreakable 120x microscope; may also be used as a micro-projector or water-drop microscope. Other microscopes available from 5x to 40x; also magnifying lenses.

5. URBAN SYSTEMS, INC. - 1033 Mass. Ave., Cambridge, Mass. 62135. "Ecology Kits I - VIII (5 and up); kits to teach basic ecological principles; includes vials, seeds, filter and chromatography paper, shrimp, algae, earth substances, chemical reagents and other equipment." Eco Kits I - VIII (4-up) - similar to above kits.

6. HACH CHEMICAL CO. - Box 907 Ames, Iowa 50010. Soil and water testing kits available for acidity, alkalinity, dissolved oxygen and phosphate, as examples. From the very simple to the more complex. Moderate pricing.

7. LA MYRIE CHEMICAL EDUCATIONAL PRODUCTS DIVISION - Chestertown, Maryland 21620. Sampling and measurement equipment for limnology, oceanography, water pollution and soil science studies. Both inexpensive and more elaborate kits available.

8. WARD'S NATURAL SCIENCE ESTABLISHMENT, INC. - P.O. Box 1712, Rochester, New York 14603. "Water Pollution Learning System," "Heredity and Environment Kit," "pH measurement /Indicator kit," Plankton tow nets and seine sets and soil sampling sets available. Total section of catalog devoted to environmental kits for water, soil, air and weather.
9. OCEANOGRAPHY UNLIMITED, INC. - 91 Delaware Avenue, Patterson, N.J. 07503:
Catalog arranged by: 1) Classroom materials including aquaria, live and preserved marine specimens, globes, models, charts, boards, etc., 2) Laboratory materials, including environmental research kits, seismographs, experiments and fish, 3) Field portion includes water analysis kits, oceanoetric field kits, seines, nets, dredges, and other equipment for water sampling. Send for the Educational Catalog.

10. TURTOK PRODUCTS - c/o Crowell, Collier and Macmillan, Inc., 8200 S. Hoyne Avenue, Chicago, Ill. 60620: Biological and botanical supplies including preserved plant and animal specimens, zoological specimens, fossil and mineral charts and specimens, demonstration apparatus for plant parts, and an exclusive selection of microscope slides. Charts, transparencies and Kodachrome slides also available. A wide selection of collecting equipment, moderately priced, is also included.

11. CAROLINA BIOLOGICAL SUPPLY CO. - Burlington, North Carolina 27215:
Ecology Kits designed to construct a well-balanced 1-gallon aquarium and four terraria: bog, carnivorous, woodland and sandhill, $16.00/kit. Live and preserved specimens, chemical sets, dissection mounts, and experimental equipment also available.

12. SCHOOLMasters SCIENCE - 745 State Circle, Ann Arbor, Michigan 48104:
"Ecology Aids" section includes film and cassette combination with corresponding teacher's manual for air, soil and water pollution. Individual kits: $11.95. Complete set of three kits: $34.95. Biological and chemical water pollution test kits available for $29.95 each. A total of eight water investigations filmstrip/cassette combination and 92 packaged teacher's guide available for $49.95. Air pollution posters available for $2.95/set. Assorted other material pertaining to biological, geological and zoological study also available.

13. WILLIPORF CORP. - Bedford, Massachusetts 01730: "Biological Analysis of Water and Wastewater" catalog. A complete selection of sampling equipment, laboratory preparation and testing apparatus, field testing equipment and analysis kits. Well organized, instructional catalog, complete with glossary - bibliography.

14. EDUQUIP, INC. - The Sippicon Corp., 1229 Adams St., Boston, Mass. 02124:
Complete line of air, water and soil pollution test kits, elaborate ecological equipment such as an "ecological chamber," useful in studying effects of various pollutants on plant life, animal life and surface materials such as fabric, paint and rubber. Large sampling kit, carbon monoxide experiment kit, ozone generator and atmospheric particle detector also available. Prices vary from inexpensive lines up to the high quality and expensive testing equipment.
15. **SCIENCE** - American Association for the Advancement of Science, J.T. Baker Chemical Co., Phillipsburg, N.J. 08865: "Guide to Scientific Instruments." A complete selection of instruments, equipment and manufacturers essential to scientific testing and experimentation. Highly specialized air sampling and analysis equipment, combustion analysis equipment, nuclear instruments, oceanographic equipment, science teaching equipment and water equipment.

16. **NASCO-STEINHILBER** - Fort Atkinson, Wisconsin 53538: "Biological Science Catalog 118" Live specimens including algae; aquarium and terrarium plants; prepared microscopic slides; museum mounts of plants and insects; botanical (herbarium) sheets; nature study aids and replicas such as "trees of your state;" field guides and lesson books; instructional botanical models; laboratory equipment; seed germination kits; environmental/ecological lab-packs for determining radiation effects and nitrogen-fixation relationships to plant growth; and an extensive collection of other laboratory materials.

# Environmental Games and Simulations

**BALANCE**
- **Type:** Simulation/Role Play
- **Age:** Grade five through college
- **Time:** Three weeks, one hour per day
- **Cost:** $10.00 per kit
- **Number of Players:** Applicable for entire class
- **Developer:** David Yount and Paul Oacock
- **Source of Purchase:** Interact, Box 282, Lakeside, California 92040

**BLIGHT (Urban Ecology)**
- **Type:** Kit/Simulation
- **Age:** Middle School through adult
- **Time:** 3-8 hrs.
- **Cost:** $42.50
- **Number of Players:** 20-40
- **Source of Purchase:** Instructional Simulations, Inc., 2147 University Ave., St. Paul, MN 55114

**BUSHMAN EXPLORING AND GATHERING**
- **Type:** Board game
- **Age:** Fifth Grade
- **Time:** One hour each for two phases
- **Cost:** ?
- **Number of Players:** 4-5
- **Developer:** Abt Associates
- **Source of Purchase:** Educational Development Center, 15 Mifflin Place, Cambridge, Massachusetts 02138

**CITIES GAME**
- **Type:** Kit/Simulation
- **Age:** High School through adult
- **Time:** 1-2 hours
- **Cost:** Approximately $10.00
- **Number of Players:** 4-16
- **Source of Purchase:** Psychology Today Games, Del Mar, CA 92014 or in your local bookstore or department store.

**CLEAN UP**
- **Type:** Board Game
- **Age:** 4-10
- **Time:** 1 hour
- **Cost:** $5.00
- **Number of Players:** 2-6
- **Source of Purchase:** Damon Educational Division, 80 Wilson Way, Westwood, MA 02090
<table>
<thead>
<tr>
<th>Game Name</th>
<th>Type</th>
<th>Age</th>
<th>Time</th>
<th>Cost</th>
<th>Number of Players</th>
<th>Developer</th>
<th>Source of Purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLUC - Community Land Use Game</td>
<td>Simulation</td>
<td>College through adult</td>
<td>6 hours, minimum</td>
<td>$75.00 for complete kit</td>
<td>About 15</td>
<td>Allan G. Feldt</td>
<td>Urbex Affiliates, Inc., 474 Thurston Road, Rochester, New York 14619</td>
</tr>
<tr>
<td>COMPACTS - Community Planning and Action Simulation</td>
<td>Simulation</td>
<td>College through adult</td>
<td>3 hrs. for 3 days</td>
<td>$75.00 for complete kit</td>
<td>20-60</td>
<td>Armand Lauffer</td>
<td>Gamed Simulations, Inc., FDR Station, Box 1747, New York, New York 10022</td>
</tr>
<tr>
<td>DIRTY WATER</td>
<td>Board game</td>
<td>Junior high through senior high</td>
<td>1-2 hours</td>
<td>$10.00</td>
<td>2-4, or teams</td>
<td>Urban Systems, Inc.</td>
<td>Urban Systems, Inc., 1033 Massachusetts Ave., Cambridge, Massachusetts 02138 (or any toy or department store.)</td>
</tr>
<tr>
<td>ECOLOGY</td>
<td>Board game</td>
<td>Junior high through senior high</td>
<td>One to two hours</td>
<td>$10.00</td>
<td>204, or teams</td>
<td>Urban Systems, Inc.</td>
<td>Urban Systems, Inc., 1033 Massachusetts Ave., Cambridge, Massachusetts 02138 (or any toy or department store.)</td>
</tr>
<tr>
<td>ENERGY/ENVIRONMENT GAME</td>
<td>Role Play/Simulation</td>
<td>Middle school through adult</td>
<td>Minimum of 6 hours</td>
<td></td>
<td>35-50</td>
<td>Creative Studies, Inc., Boston, Mass.</td>
<td>Michigan State University, Science and Mathematics, McDonell Hall, E. Lansing, MI 48823</td>
</tr>
</tbody>
</table>
THE ENVIRONMENT GAME
Type: Simulation/Role Play
Age: Grade 5 through adult
Time: 3-4 hours
Cost: $22.50
Number of Players: Minimum 4; applicable for entire class.
Developer: Paul Twelker

EXTINCTION
Type: Board game
Age: Junior high through senior high
Time: 3 hours minimum
Cost: $11.00
Number of Players: 2-4
Developer: Stephen P. Hubbell (Zoology Dept., Univ. of Michigan, Ann Arbor, Michigan 48104

INDIAN VALLEY
Type: Role Play/Simulation
Age: Grades 7-12
Time: 2-4
Cost: Single copy free; quantity copies $.20 each.
Number of Players: Suitable for average size class
Developer: American Forest Institute
Source of Purchase: American Forest Institute, 1619 Massachusetts Ave., N.W., Washington, D.C. 20036

LAND USE GAME
Type: Role Play/Simulation
Age: Grades 5-8
Time: Minimum of 2 hours
Cost: ?
Number of Players: Applicable for average size class
Developer: Education Ventures, Inc.
Source of Purchase: Education Ventures, Inc., 209 Court St., Middletown, Conn. 06457

LITTERBUG
Type: Board Game
Age: Grades 1-4
Time: Approximately 30-45 minutes
Cost: ?
Number of Players: Class size or smaller
Developer: Urban Systems, Inc.
Source of Purchase: Urban Systems, Inc., 1033 Massachusetts Ave., Cambridge, Massachusetts 02138
| **LOBBYING GAME** | **Type:** Role Play/Simulation  
**Age:** High School through adult  
**Time:** 2-1/2 - 5 hours  
**Cost:** $50.00 for complete kit  
**Number of Players:** 20-60  
**Developer:** David Williams, Stanley Jostein  
**Source of Purchase:** Games Group II, P.O. Box 2043, Brandeis University, Walthan, MA 02154 or from: Gamed Simulations, Inc., FDR Station Box 1747, New York, New York 10022 |
| **HAN AND HIS ENVIRONMENT** | **Type:** Simulation/Role Play  
**Age:** Grade 4 and up  
**Time:** Adjustable from 20 minutes to several days  
**Cost:** Free, to educators  
**Number of Players:** Especially suited for average class size of 30  
**Developer:** Dr. Frank B. Golly, Director of Institute of Ecology, University of Georgia  
**Source of Information:** Any local Coca-Cola Bottling Company |
| **NEW TOWN** | **Type:** Role Play/Simulation  
**Age:** College through adult  
**Time:** 1-1/2 hours or more, depending on version played.  
**Cost:** 3-20  
**Number of Players:** 3-20  
**Developer:** Barry Ross Lawson  
**Source of Purchase:** Harwell Associates, Inc., P.O. Box 34, Berkeley Heights, New Jersey 07922 |
| **POLICY NEGOTIATIONS** | **Type:** Role Play/Simulation  
**Age:** College through adult  
**Time:** Priming Game - 2-3 hrs.  
Re-design Game - 1-many hrs.  
Re-play Game - 2-3 hrs.  
**Cost:** $75.00 for complete kit  
**Number of Players:** Minimum of 6; 20-35 optimum  
**Developer:** Frederick L. Goodman  
**Source of Purchase:** Urbox Affiliates, Inc., 474 Thurston Road, Rochester, New York 14619 |
<table>
<thead>
<tr>
<th><strong>POLLUTION</strong></th>
<th>Simulation/Role Play</th>
<th>Elementary School level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time:</strong></td>
<td></td>
<td>5-15 periods of 45 minutes each</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number of Players:</strong></td>
<td>5-15, divided into 3-5 teams</td>
<td></td>
</tr>
<tr>
<td><strong>Developer:</strong></td>
<td>Abt Associates</td>
<td></td>
</tr>
<tr>
<td><strong>Source of Purchase:</strong></td>
<td>'Yellesley Schools Curriculum Center, Seawood Road, Yellesley, MA 06011</td>
<td></td>
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<table>
<thead>
<tr>
<th><strong>POPULATION</strong></th>
<th>Board game</th>
<th>8-12 grade</th>
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<tbody>
<tr>
<td><strong>Type:</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Age:</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Time:</strong></td>
<td></td>
<td>1-2 hours</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td></td>
<td>$10.00</td>
</tr>
<tr>
<td><strong>Number of Players:</strong></td>
<td>2-6</td>
<td></td>
</tr>
<tr>
<td><strong>Developer:</strong></td>
<td>Damon/Education Division</td>
<td></td>
</tr>
<tr>
<td><strong>Source of Purchase:</strong></td>
<td>Damon/Education Division, 72 Wilson Way, Westwood, Massachusetts 02090</td>
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<table>
<thead>
<tr>
<th><strong>PREDATOR-PREY</strong></th>
<th>Board game</th>
<th>3-8 grade</th>
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<tr>
<td><strong>Type:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time:</strong></td>
<td></td>
<td>1-2 hours</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td></td>
<td>$6.00</td>
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<tr>
<td><strong>Number of Players:</strong></td>
<td>Small groups of teams</td>
<td></td>
</tr>
<tr>
<td><strong>Developer:</strong></td>
<td>Bernice Collins and Steve Katona</td>
<td></td>
</tr>
<tr>
<td><strong>Source of Purchase:</strong></td>
<td>Damon/Education Division, 72 Wilson Way, Westwood, Massachusetts 02090</td>
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<table>
<thead>
<tr>
<th><strong>SNDG</strong></th>
<th>Board game</th>
<th>Junior High through Senior High</th>
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</thead>
<tbody>
<tr>
<td><strong>Type:</strong></td>
<td></td>
<td>1-2-1/2 hrs.</td>
</tr>
<tr>
<td><strong>Age:</strong></td>
<td></td>
<td>$10.03</td>
</tr>
<tr>
<td><strong>Time:</strong></td>
<td></td>
<td>Minimum, 2-4 or teams</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td>Urban Systems, Inc.</td>
<td></td>
</tr>
<tr>
<td><strong>Number of Players:</strong></td>
<td>Urban Systems, Inc., 1033 Massachusetts Ave. Cambridge, Massachusetts 02138, or any toy or department store</td>
<td></td>
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<tr>
<td><strong>Developer:</strong></td>
<td>Milton Bradley Co.</td>
<td></td>
</tr>
<tr>
<td><strong>Source of Purchase:</strong></td>
<td>Milton Bradley Co., Springfield, MA</td>
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</table>

<table>
<thead>
<tr>
<th><strong>SQUARE MILE</strong></th>
<th>Role Play/Simulation</th>
<th>High School through adult</th>
</tr>
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<tbody>
<tr>
<td><strong>Type:</strong></td>
<td></td>
<td>1-2 hours over 2-3 days</td>
</tr>
<tr>
<td><strong>Age:</strong></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td><strong>Time:</strong></td>
<td></td>
<td>2-4, or teams</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td>Milton Bradley Co.</td>
<td></td>
</tr>
<tr>
<td><strong>Number of Players:</strong></td>
<td>Milton Bradley Co., Springfield, MA</td>
<td></td>
</tr>
<tr>
<td><strong>Developer:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Source of Purchase:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TRACTS (Core city land use)
Type: Simulation/Role Play
Age: High School through adult
Time: 2-8 hours
Cost: $39.30 for complete kit
Number of Players: 20-40
Developer: Instructional Simulations, Inc.
Source of Purchase: Instructional Simulations, Inc., 2147 University Ave., St. Paul, MN 55114

TRANSIT (Urban Transportation)
Type: Simulation/Role Play
Age: High School through adult
Time: 4-10 hours
Cost: $42.50 for complete kit
Number of Players: 20-40
Developer: Instructional Simulations, Inc.
Source of Purchase: Instructional Simulations, Inc., 2147 University Ave., St. Paul, MN 55114

U-DIG (Urban Development Investment Game)
Type: Simulation/Role Play
Age: High School through adult
Time: 3-5 hours
Cost: 7
Number of Players: 4-16 optimum
Developer: Ervin J. Bell
Source of Purchase: Ervin J. Bell, Associate Professor of Design, College of Environmental Design, University of Colorado, Boulder, Colorado.

VALUES IN ACTION
Type: Media kit; deals with values clarification
Age: 4-6 grade
Time: Nine sessions, minimum of 1 hour each.
Cost: $29.00
Number of Players: 3-36
Developer: Fannie and George Shaftel

WALRUS (Water and Land Resource Utilization Simulation)
Type: Simulation/Role Play
Age: High School through adult
Time: 5 hours
Cost: $60.00 for complete kit
Number of Players: 15-30 optimum
Developer: Allan G. Feldt and David Mowen
Source of Purchase: Urbex Affiliates, Inc., 474 Thurston Road, Rochester, New York 14619
<table>
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<tr>
<th><strong>WILDLIFE</strong></th>
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<tbody>
<tr>
<td><strong>Type:</strong></td>
<td>Simulation/Role Play</td>
</tr>
<tr>
<td><strong>Age:</strong></td>
<td>Grade 5 through adult</td>
</tr>
<tr>
<td><strong>Time:</strong></td>
<td>3 hours minimum</td>
</tr>
<tr>
<td><strong>Cost:</strong></td>
<td>$15.00</td>
</tr>
<tr>
<td><strong>Number of Players</strong></td>
<td>2-6</td>
</tr>
<tr>
<td><strong>Developer:</strong></td>
<td>Richard Meier</td>
</tr>
<tr>
<td><strong>Source of Purchase:</strong></td>
<td>Berkeley Gaming Project, Institute of Urban and Regional Development, 316 Wurster Hall, University of Calif., Berkeley, Berkeley, CA 94720</td>
</tr>
</tbody>
</table>
I. SERIES OF PREPARED CATALOGUES AND BIBLIOGRAPHIES

1. COOPERATIVE EXTENSION SERVICE, MICHIGAN STATE UNIVERSITY - L. Lansing, Michigan 48824. Publications available on insects, nutrition, trees, ecology, parks and recreation, wildlife, agriculture, forestry, soil and weather. Send for free catalog or call local extension service office. Inexpensively priced.

2. EDUCATORS PROGRESS SERVICE, INC. - Randolph, Wisconsin 53956: "Educators Guide to free service materials." 1,738 free items for teachers.


4. ENVIRONMENTAL ACTION - 1346 Connecticut Ave., N.W., Rm. 731, Washington, D.C. 20036. Publications available. Fine background information. The Case for a Nuclear Moratorium, 1-9, $1.00 ea.; 10-99, $.65 ea., 100 or more, $.40 ea. Nuclear Information Packet: an overview of nuclear energy controversy in the U.S. Packet contains The Case for a Nuclear Moratorium as well as other pamphlets. 1-10, $1.50 ea. packet; 11 or more, $.30 ea. How to Challenge Your Local Utility, an organizing manual for citizens who want to challenge utilities on environmental, consumer and social grounds. 1-9, $1.50 ea.; 10-99, $1.00 ea.; 100 or more, $.75 ea. Do It Yourself Ecology: What the individual can do for ecology in his/her own life. 1-49, $.25 ea.; 50-199, $.20 ea.; 200 or more, $.15 ea. Ecotage! Suggestions as to how corporations can be made to pay for their pollution. $1.25 each.


3. **EPIC REPORT** - Educational Products Information Exchange Institute, 796 Park Avenue, S., N.Y., N.Y. 10016. An annotated bibliography of environmental education books, films and resources for teachers. Evaluated by the Epic staff. Revised each year.

9. **ERIC/SHEAC** - The Center for Science and Mathematics Education, Ohio State University, Columbus, Ohio 43210: abstracts and reports on science, mathematics and environmental education available on microfiche. Includes publication description, subject index and author index. Per title cost, $.40. Send for catalog.

10. **FRIENDS COUNCIL ON EDUCATION** - 1515 Cherry St., Philadelphia, PA, 19102. Environmental Awareness Bibliography: Divided into three parts 1) "Definition of the Problem" - printed material on environmental problems, 2) "Environmental Education" - annotated bibliography of materials pertinent to outdoor, conservation, nature and environmental education, and 3) "Environmental Recreation" - annotated bibliography of outdoor recreation literature.


13. **MICHIGAN STATE UNIVERSITY COOPERATIVE EXTENSION SERVICE** - E. Lansing, Michigan 48824: Publications catalog listing handouts on these and other topic areas: Insects, nutrition, community planning, ecology, parks and recreation, wildlife, agriculture, soils. Send for catalog.


17. UNITED STATES OFFICE OF ENVIRONMENTAL EDUCATION - Reporter's building, 300 7th Street, S.W., Room 424, Washington, D.C. 20252. Distributors for many environmental education materials prepared through OEE grants. For example, "Aids for Environmental Education - Pre-school, grade 3; grades 4-5; and grades 7-10" are complete bibliographies of books, curriculum materials, films, filmstrips, graphics, magazines and newsletters and addresses. Fully annotated and produced by the "Ass. Audubon Society. Available free.

### J. SOURCES OF A.V. MATERIALS -
(Overlays, transparencies, posters, charts, diagrams and maps)

<table>
<thead>
<tr>
<th>Source</th>
<th>Location</th>
<th>Description</th>
<th>Grades</th>
<th>Price Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. AMERICAN MAP CO., INC.</td>
<td>1926 Broadway, N.Y., N.Y. 10023</td>
<td>&quot;Catalog of Cleartype and Colorprint Maps.&quot; Maps of the U.S., highlighting principal cities, railroads and highways; useful for urban and transportation studies. Average size: 64&quot; x 44&quot;. Average price: $5.95.</td>
<td></td>
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</tr>
<tr>
<td>3. DENNISON TEACHERS'AIDS</td>
<td>Dennison Manufacturing Co., Framingham, Mass. 01701</td>
<td>Colorful educational pictures and captions. Sets of 9 full-color sturdy panels, 15&quot; wide and 20&quot; high. For example, series on sea life depicts food chains, man using the sea, lots of water, man abuses the sea, plants, shellfish, shells, fish that we eat and fish that eat us. $5.00/set.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. ENVIRONMENTAL EDUCATION BOOKS AND MATERIALS</td>
<td>GULL LAKE ENVIRONMENTAL EDUCATION PROJECT - Kellogg Bird Sanctuary, Michigan State University, Augusta, Mich. 49024</td>
<td>Overhead Transparencies on bird groups, soil and water, water fowl, mammals, plant life and ecology. $1.50 each. Full color pictures of birds and animals for use as visual aids. 10-12 in a package. $1.75/pkg. &quot;Maps and charts of birds and animals from $ .50 - $ 3.50. &quot;Flask cards of &quot;Mammals around us,&quot; ($1.50) &quot;Pond Life&quot; ($3.00) and &quot;Leaves and Trees&quot; ($2.50).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. CAMCO INDUSTRIES, INC.</td>
<td>P.O. Box 1911, Big Springs, Texas 79720</td>
<td>&quot;Matter-Atomic&quot; Introduction to the atom, characteristics of matter, energy, radiation, etc. 53 overhead transparencies. Grades 4-8. &quot;Ecology&quot; set of 22 overhead transparencies showing harmony and balance in nature. Grades 4-8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. GIMMY AND COMPANY</td>
<td>Office Supplies and Equipment, School and Teachers' Supplies, 13131 W. McNichols Rd., Detroit, Mich. 48235</td>
<td>Flannel board kits, posters, overlays and transparencies, crafting and building materials for elementary schools. Subject areas include seasons, weather, animals and introductory science. Reasonably priced. Send for catalog.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. **INSTRUCTOR PUBLICATIONS, INC.** - P.O. Box 6108, Duluth, Minn. 55806: "Instructor Curriculum Materials" catalog. Includes resource handbooks, teacher materials, duplicating masters and a Science and Ecology section. Set of 12 large and colorful ecology posters of basic ecological concepts and processes. $3.75/set. 12 Eco-problems posters including solid waste, oil and noise pollution, with resource guide material; $3.75/set. A 10-set series of display charts of different science experiments and concepts accompanied by teacher's manual. Topic areas include "electricity and magnetism," "plants," "matter and energy"; and "earth." Each set; $3.75.


13. **PORTAL PUBLICATIONS** - 777 Broadway, P.O. Box 816 Sausalito, Ca. 94965. Endangered species posters.


15. **UNITED TRANSPARENCIES, INC.** P.O. Box 688, Binghamton, N.Y. 13902. "Environment and Pollution Education." Series of 93 transparencies dealing with ecology, pollution, overpopulation, etc.

17. **EDUCATIONAL IMAGES** - P.O. Box 367, Lyon Falls, N.Y. 13368: "Color Slides Sets for Creative Teaching"; Catalog of slide sets containing 20, 35mm. color slides in a plastic protective page, accompanied by text. Available on ecology, zoology, botany and geology. Sample titles include "Ecology of the Northeastern Forest"; "Rare and Endangered Animals"; and "Erosion." Price/set $15/50.

18. **ENCYCLOPEDIA BRITANNICA EDUCATIONAL CORPORATION** - 425 N. Michigan Ave., Chicago, Ill. 60611: Filmstrip and film loop catalog organized by grade levels; Primary K-3; intermediate 4-6; and Junior and Senior High 7-12. Arranged by topic areas including environmental, earth and physical science. High quality. Average cost per filmstrip $6.00.

19. **NATIONAL EDUCATION ASSOCIATION** - 1201 Sixteenth St., N.W., Wash., D.C. 20036: "Environment" series. A collection of action-oriented filmstrips, books and leaflets. "Man and His Environment" filmstrip. Designed to orient teachers to innovative approach to environmental education for all school levels and subjects. Printed guide and script and recorded narration. 14 minutes; 91 frames; $17.00 "Environmental Crisis Filmstrip"; what the individual can do. Designed to inspire public action. Outlines specific changes that can be made in personal lives and in local communities. Middle through high school. Includes printed guide and script and recorded narration. 17 minutes; 117 frames; $15.00.