DOCUMENT RESUME

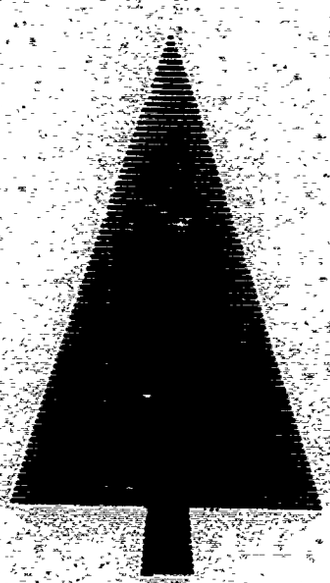
ED 079 068 SE 015 933

TITLE	Environmental Activities, K-12 Environmental Education Program, Summer Workshop 1972.
INSTITUTION	Menomonie Public Schools, Wis.
SPONS AGENCY	Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE	72
NOTE	42p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Curriculum Guides; Elementary Grades; *Environmental Education; Instructional Materials; *Interdisciplinary Approach; *Learning Accivities; Natural Resources; Secondary Grades; Teaching Guides
IDENTIFIERS	ESEA Title III

ABSTRACT

Representing an initial effort in activity construction, this booklet of environmental education activities was developed by teachers attending a 1972 summer workshop of the Menomonie, Wisconsin, School District titled K-12 Environmental Education Program. The activities cover a range of subject areas--biology, science, social studies, language arts, mathematics, economics, art, and music--and grade levels, K-12, although the booklet is not inclusive of all grade levels and subject areas. Preceding the activities is a list of 12 environmental education concepts compiled by the teachers and each of the 38 activities centers around one of the concepts. Organized in outline form, each activity defines the specific concept, discipline area, grade level, objectives, activities to conduct, resources to utilize (reference materials, community resources, materials required, etc.), and evaluation procedures. It is suggested the activities be used to supplement a teacher's present curriculum, modifying them for specific situations. Blank activity forms are provided for this purpose. This work was prepared under an ESEA Title III contract. (BL)

environmental activities



Summer Workshop -1972

K-12 Environmental Education Program

Title III E.S.E.A.

Menomonie Public Schools

ENVIRONMENTAL ACTIVITIES

One phase of our Environmental Education Workshop, held during the summer of 1972, was the development of activities which teachers could use to supplement their present curriculum.

This booklet is not inclusive of all grade levels and subject areas, financial circumstances prohibited including a teacher from each grade level and discipline.

We hope you will use these activities as a guide, incorporating your imagination and teaching experience to modify them for your specific situation.

For many in the workshop, this booklet represents an initial effort in activity development.

We sincerely hope that you will try, evaluate and suggest methods for improvement of these activities.

A NOTE OF EXPLANATION:

Preceding the activities is a list of twelve Environmental Education concepts. Developed by a teacher team during the 1971-72 school year, they were revised into final form during the summer workshop. Each activity centers around one of the twelve concepts.

The activities are arranged by concept and grade level.

AN INVITATION TO YOU!

At the end of this booklet are five blank activity formats. We invite you to develop some of your own activities based upon these concepts and submit them for inclusion into our "expandable booklet."

WORKSHOP PARTICIPANTS:

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K-12 ENVIRONMENTAL EDUCATION CONCEPTS
Developed by Team & Workshop Staff
1971 - 1972

1. The earth's carrying capacity is limited for all species, including man.

2. The survival of life depends on the survival of the environment, which is the combination of abiotic and biotic factors.

3. All organisms interact among themselves and their environment to form an ecosystem.

4. Man is responsible to present and future generations for the condition of the environment.

5. Man is a member of the ecological community, not its master.

6. Resources must be utilized to the best advantage, not only for a small number of individuals, or even for mankind as a whole but for the entire ecological complex.

7. As populations increase, competition for available natural resources increases.

8. Population control is essential in solving environmental problems because natural limits on human population have been altered by industrialization and modern technology.

9. Increasing human population and rising levels of consumption, will inevitably result in increasing environmental contaminatio

10. The impact of man upon his environment is correlated directly with his cultural values and priorities.

11. Man has a moral responsibility to modify his behavioral pattern to reconstruct a harmonious and esthetically pleasing environment.

12. Environmental decisions influence man's life style in positive and negative ways.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: The earth's carrying capacity is limited for all species, including man.

DISCIPLINE AREA: Science K-1
Animal Adaptation

OBJECTIVES: Child will identify the four basic seasons and the specific characteristics of each, and animals must adapt to this climate if they are to survive.
The child will accept the fact that animals must adapt to the climate in order to survive.

ACTIVITIES: I. Student-centered in class activity
1. Mural: Fall--make in the fall season, Winter in winter, etc. Put in general characteristics.
2. Play or fashion show of clothing worn each season
3. Pictures of activities performed during each season
4. Link up seasons with animal life--how seasons affect animal life (bird migration, hibernation, shedding of hair, building homes, storing of food)
5. Give a talk; My Favorite Season
6. Keep temperature record for one week during each season Compare them.
7. Compare weather in different areas of the U.S. (newspaper, radio, TV)
8. Booklet; Animals. Group animals in Jungle, Cold Land, Desert, Temperate, Label each.
9. Pet Day--Child brings pet or a picture of it. Gives oral report on it.

RESOURCES:
II. Outside Resource and Community Activities
1. Locate one particular scene on the school grounds. Watch this area during each season. Make a chart story about your observation. Take a picture with your camera and mount on the chart story.
2. Watch the sky and observe how it changes as the seasons change.

Audio-Visual -- Films: Children in Autumn, color, 11 min.
Children in Winter, color, 11 min.
(EBF) B&VI

EVALUATION:
Community Conservation Warden

Have pictures of children dressed for the different seasons and have children identify season and why they are wearing the clothing.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: The Earth's carrying capacity is limited for all species, including man.

DISCIPLINE AREA: Biology 10

OBJECTIVES: The students will, through laboratory experiences and research, learn that all species, including many have a definite population limitation determined by the carrying capacity of their environment.

ACTIVITIES:
1. Students will read chapters 2 and 3 in BSCS Green
2. Students will discuss populations; open and closed.
3. Students will set up two closed populations with limited space and/or food
   a. Fruit flies in a gallon jar with a known amount of banana agar
   b. Daphnia in a gallon jar with a good amount of algae growth
4. Students will sample count the populations twice a week
   a. etherize the flies, count, and replace in the jar
   b. sample a known and constant amount of water (1 ml. or so
   c. do the above counting twice a week
5. Students will record and interpret the results of both experiments, hopefully aquiring a normal bell-shaped curve
6. Students will discuss results in terms of a closed population
7. Students will discuss the possibility of whether or not the human population is open or closed
8. Students will graph world human population
9. Students will graph U.S.A. human population

RESOURCES:

2-two gallon glass jars
banana agar
pond water
fruit flies
Daphnia
ether and etherizing equipment
Daphnia net
room temperature or better environment
2 compound microscopes
a few petri dishes
graph paper
pencil and pens
BSCS green version textx

EVALUATION: Collect and evaluate each group's graph
A short exam concerning the exercise

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: The earth's carrying capacity is limited for all species, including man.

DISCIPLINE AREA: Biology

OBJECTIVES: To have students capable of setting up an experiment to show that a given population in a given defined area will its carrying capacity.

ACTIVITIES:
1. Build up background definitions
2. Use a population of laboratory animals - i.e., mice, guppies, hamsters - give them two setups: 1 with unlimited food supply, 1 with limited food supply
3. Record results and hope that concept works out correct.

RESOURCES: Available filmstrips and films
Green Version Biology
Blue Version Biology
Malthus Theory
Laboratory equipment - pens, aquariums, etc.

EVALUATION: If experiment setup shows proper results; the concept will be understood by the majority of the students.

Have students try to correlate the experiment to Man rather than the animals being used.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: The survival of life depends on the survival of the environment which is a combination of abiotic and biotic factors.

DISCIPLINE AREA: Science -- Grade K-1

OBJECTIVES: The teacher will read the names of 8 odors. Children will stand and hold their noses shut for unpleasant odors. Teacher have child tell where he would most of all like to smell air and if he thought it was safe or not.

ACTIVITIES: Student-centered in class activity

1. Mural: "We need air," include animals, people and plants
2. Draw pictures of houses with chimneys, factories with smokestacks
3. Dust the top of a table or piano in morning. Put a book on its top. Check to see difference at end of day, second day, etc.
4. Experiment: Child pinches nose and closes mouth while teacher counts to 10. Child tells how he feels without supply of air. Or else, tell child to hold his breath for as long as he can.
5. Child feels his own body for his ribs and notices how chest expands when inhaling; contracts when exhaling
6. Find ;ictures from magazines of things that produce odors; matches, bathroom spray, car and truck exhaust, flowers, barnyard manure, cooking foods like sauerdraut, gasoline, charcoal with a grill, perking coffee, bubble baths. Make a two-section chart: a. pleasant odors
   b. unpleasant odors
7. Physical exercises; walking, hopping, skipping, running, galloping, tiptoeing, sliding, etc. Faster exercises use more anergy and child breathes oftener.

RESOURCES:

Audio-Visual: 6 290 Air Around Us, Color, 12 min. John Colburn BAVI

Filmstrips: Air Around Us
Ocean of Air We Live In
True Book of Your Body andYou

Community: Tour factory - smokestacks showing pollution
Nurse or doctor - Phy. Ed. teacher

EVALUATION: List reasons of why we need air

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: The survival of life depends on the survival of the environment which is a combination of abiotic and biotic factors.

DISCIPLINE AREA: Social Studies, Language Arts, Science
Junior High

OBJECTAVES: The student will demonstrate his understanding of the problems prehistoric man encountered in the basics of survival in the wilderness

ACTIVITIES:
1. The student will visit a deserted forest area over the week end. Following a research study of the area, draw up a list of steps required for man in his problem of survival should he be stranded for a week in this area
2. The student will compare, in writing, (minimum of 100 words), how prehistoric man and modern man differ in their problems of survival. Use resources listed below

RESOURCES: Social Studies Texts on Prehistoric Man
Film: How Will We Know It's Us? 27½ min. - a plea to preserve our historical perspective, obtainable through Modern Talking Pictures Services Inc.
1212 Avenue of the American
New York, New York 10036
Filmstrip: Nutritional Relationships in Nature
Department of Public Instruction, Menomonie

EVALUATION:
1. Of what use is food to living organisms?
2. Distinguish between herbivores, carnivores and omnivores Give examples of each
3. How does each example of number 2 help each other survive?
4. What phase has man in the order of relationships?

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All organisms interact among themselves and their environment to form an ecosystem.

DISCIPLINE AREA: Language Arts -- Grade 1

OBJECTIVES: The child will show the effects of the wind and the sun by participating in a dramatization of the fable, acting the parts of the wind and sun. The child will recall two ways the sun helps or harms us.

ACTIVITIES: I. Student centered in class activity
1. What are fables?
2. Reading the fable "The Sun and the Wind"
3. Discuss difference between hot sunny days and cold windy days.
4. Dramatize the fable
5. Set up questions as: a. Who was the strongest?
b. What can the sun and wind do for plants?
6. Summarize the concept that sometimes the sun and the wind help us and sometimes they harm us; each child do an experiment as blow balloon till it bursts, melt butter in the sun, dish of water in sun to show evaporation.

RESOURCES: Publications:
Fable "Sun and the Wind"
"Who Has Seen the Wind" by Rosetti
"The Wind" by R.L. Stevenson
Audio-Visual:
Calendar
Thermometer
Crepe Paper streamer
Electric fan
Pictures
Catalogs, to cut pictures from that show how we dress for different weather.
Film (strip) on seasons

EVALUATION: What is the source of energy for photosynthesis?
What are two raw materials used in the process?
What is the function of chlorophyll in the food getting process of producers?

(adapted from Project I.C.E.)

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All living organisms interact among themselves and their environment, forming an ecosystem.

DISCIPLINE AREA: Language Arts -- Grade 2

OBJECTIVES: Children will listen for ways to identify the presence of woodpeckers. Children will learn to identify kinds of woodpeckers and observe where they build nests.

ACTIVITIES: I. Student centered in class activity
1. Poem "The Woodpecker"
2. Collect pictures--mural with environment added
3. Draw pictures and write story about woodpecker observed.
4. Discussion: Are woodpeckers necessary?
What happens when all rotten and decayed positions of trees are removed
Nesting places gone
Food supply limited
Are artificial methods possible to attract woodpeckers?

RESOURCES: Publications: Time for Poetry-A Teacher's Anthology, "The Woodpecker," page 84 by Elizabeth Madox Roberts

THE WOODPECKER

The Woodpecker peeked out a little round hole
And made him a house in the telephone pole.

One day when I watched he poked out his head,
And he had on a hood and a collar of red.

When the streams of rain pour out of the sky,
And the sparkes of lightning go flashing by,

And the big, big wheels of thunder roll,
He can snuggle back in the telephone pole.

From "Under the Tree" by Elizabeth Madox Roberts

EVALUATION:
Tell a story about a woodpecker you have seen.
Coloring, Size, Activities

(adapted from Project I.C.E.)

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All organisms interact among themselves and their environment to form an ecosystem.

DISCIPLINE AREA: Science - Grade 4
Ecosystem

OBJECTIVES: Define the meaning of fossil. Identify 2 fossil animals. Identify 2 fossil plants.
Through this lesson the student will now attempt to continue gathering further information on fossils.

ACTIVITIES: I. Student-centered in class activity
A. Make a diorama of the Coal Age Swamp, including the plants and animals
B. Read about developments of plants after the Coal Age.
II. Outside Resource and Community Activities
A. Borrow some fossils from rock collector, or a local museum. Let the children handle and examine the images of long ago or find pictures of fossil.
B. Make fossils. Collect various plant parts (leaves and stems, seed pods, bits of bark), animal parts (bones, feathers, shells) and make imprints by pressing them into soft clay. Pour in plaster of paris in clay mold for take-home fossil)

RESOURCES: Audio-Visual--
Movies: Message from a Dinosaur, G.B. Instructional Media Center No. 8106 (Encyclopedia Britannica)
Fossils are Interesting, Film Associates of California
Filmstrip: Prehistoric Man

EVALUATION: Why is it impossible for any organism to live independent of all organisms?

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All organisms interact among themselves and their environment to form an ecosystem.

DISCIPLINE AREA: 5th Grade Science

OBJECTIVES: To become aware of one method of determining animal presence.
To use a permanent method for recording animal tracks
To become familar with the animals of the area that leave tracks.

ACTIVITIES: Use plaster of paris mixed at a consistency of paint to record and identify animal tracks. These tracks are best found in muddy areas along streams or ponds. Don't forget the bird tracks plus the mammal tracks. An additional activity could be for the children to bring back to school any unknown tracks for identification.

RESOURCES: ½ cup plaster of paris/child
One good stream or pond with a variety of tracks. Preview this before going out.

EVALUATION: One simple evalutaion would be for each child to make and identify 2 or more tracks of animals of the area.
Another possible idea would be to match up animal pictures and their tracks.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All organisms interact among themselves and their environment to form an ecosystem.

DISCIPLINE AREA: Science grades 5 and 6 or the intermediate level.

OBJECTIVES: The students will successfully identify 7 out of 10 aquatic specimens collected on a field trip.

ACTIVITIES:
1. Field trip to water area.
2. Collect aquatic specimens
3. Classify
4. Observe
5. Measure for size comparison using the metric syste
6. View slides made by the students of their specimen they have collected.
7. Make booklets containing identified drawings of observations.

Suggested specimens to be collected:

1. Water striders	5. Young dragonflies	9. Mites
2. Snails	6. Salamanders	10. Leeches
3. Tadpoles	7. Frogs	11. Diving Beetles
4. Back swimmers	8. Fly larvae	

RESOURCES:
1. Films
   A. Chain of Life
   B. Life in a Pond
2. Books
   A. Beginner's Guide to Fresh Water Life
   B. Ponds (Golden, paper back)
   C. Insects (Golden, paperback)

EVALUATION:
1. Written or oral quiz to identify various specimens collected.
2. Check booklets for accuracy of drawings and descriptions

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All organisms interact among themselves and their environment to form an ecosystem.

DISCIPLINE AREA: Lower and upper elementary - Science
Math

OBJECTIVES: Following a unit on plant life, the students will illustrate (bulletin board display or chart form) the elements essential to plant growth.

ACTIVITIES: Spring time Activity:
1. Plant various fast frowing seeds (fall-winter rye); one set outdoors and an identical set indoors; label and chart growth for later comparisons
2. Visit an area where wild flowers grow and discuss how they interact with their environment
3. Visit local greenhouse and list likenesses and differences in comparison of plant growth in that environment and a natural one.

RESOURCES: Lakeview Florist, Menomonie
Al Koranski, 235-7700
Menomonie Greenhouse, Menomonie
Don Jenny, 2355529

EVALUATION: A. Students will illustrate the elements essential to plant growth
1. Chart form
2. Bulletin Board Display
B. Students will present their comparisons of plant growth in a natural and artificial environment on a chart showing statistical data and summary of results.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All organisms interact among themselves and their environment to form an ecosystem

DISCIPLINE AREA: Language Arts - Grades 6-7
(Using References)

OBJECTIVES: The student will list three specific examples in which animals interact among themselves to provide a balance in nature.
To use the card catalog with relative efficiency.

ACTIVITIES: 1. Use the encyclopedia to check the food chain of animals.
2. View the filmstrip: Food Webs and Pyramids
3. Write a report on -
   a. The types of animals that are prey to particular animals
   b. What animals are its predators

RESOURCES: 1. Filmstrip on food chain, "Food Webs and Pyramids" from Title III Environmental Education Resource Center
2. Encyclopedia
3. Card catalog and library

EVALUATION: 1. Give one example of a simple food chain.
2. Explain how a food chain differs from a food web.
3. Describe one example of a food web.
4. Describe a food web involving man.
5. How has man destroyed some of nature's food webs?

(adapted from Project I.C.E.)

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All organisms interact among themselves and their environment to form an ecosystem.

DISCIPLINE AREA: Social Studies - Junior High

OBJECTIVES: The student should be able to list 4 ways that early man depended on plant life, directly through berries, etc., or indirectly through animals, then showing that energy from the sun is converted to a form all living things can use for life.

ACTIVITIES:
1. Construct or draw the tools and weapons used by early man.
2. Prepare a report to be given to the class on, "life style of early man," (food gathering, hunting, etc.)
3. List the types of plants and animals consumed by early man.
4. Construct a life cycle chart which will show the position of man in relation to the plants and animals of his environment.
5. Name the present day activities that resemble the food gathering practices of early man.

RESOURCES: Books: How the First Man Lived, Hogban, Lancelot
Man's First Million Years, Lucas, Jannette
Exploring the Old World, Follett

Audio-visual:
Our Mr. Sun. 1 hr. - Bell Telephone Company
Wisconsin Telephone Company
Room 122B
845 North 38th St.
Milwaukee, Wisc. 53280

EVALUATION: 1. Explain in a paragraph or two how all organisms need and depend on one another for survival.
2. Develop proof for the statement: "Early man faced the identical problems man must face today."

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: All organisms interact among themselvesand their environment to form an ecosystem.

DISCIPLINE AREA: Biology - Secondary

OBJECTIVES: To have students capable of recognizing and constructing possible food chains and food webs after a 2-3 week study of an ecosystem.

ACTIVITIES: 1. Develop idea of building a ecosystem - use approach of: a. Individual, b. population, c. community d. ecosystem
2. Define each of above
3. Develop example how a particular organism can be fitted into each category
4. Study a outdoor community to serve as the laboratory for this activity

RESOURCES: 1. Outdoor laboratory area
2. Use filmstrips available
3. Refer to textbooks - BSCS Green Version; Smallwood and Green-Biology; BSCS Blue Version
4. Use library materials from list of research materials

EVALUATION: 1. Identification of organisms involved in forming a food chain, and food web.
2. Apply the concept by having students build a 3-4 link food chain successfully after 2 attempts.
3. Use tests; multiple choice to assist in evaluation

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #3. All organisms interact among themselves and their environment to form an ecosystem

DISCIPLINE AREA: Biology 10

OBJECTIVES: Each student in groups will become more knowledgeable of a natural community by constructing, by any artistic means available, a typical Red Cedar Slough Ecosystem using conventional symbols and designs.

ACTIVITIES:
1. Students will be assigned to read "Ecosystems" and "A Forida River Community" in Chapter 3 of BSCS green
2. Students will discuss above reading assignments
3. Students will discuss what they might expect to find in a Red Cedar River Slough Community
4. Students will visit a slough and attempt to inventory the slough's biota
5. Students will (in class) discuss the various creatures collected
6. Students will discuss various creatures not found but who left their signs
7. Students will discuss the possibility of other creatures who might be present through past experience of class members, fishermen, trappers, and land owners
8. Students, using construction materials, and working in 4 student groups, will construct their idea of a typical Red Cedar Slough Ecosy.

RESOURCES:
1. Pre-site: BSCS Chapter 3 (green)
   Various Taxonomic Keys
2. On-site: binoculars
   plankton net
   bottom sampling nets
   D.O. testing kit
   pH testing kit
   seine
   bus driver
3. Post-site: Large sheets of tag board and/or paper
   various colored construction paper and/or napkin
   glue, paste, and/or tape
   magic markers and/or felt tips
   Scissors and/or other sharp instruments
   Rulers and/or other straight edge
   T-square and/or other perpendiculars

EVALUATION:
1. Instructor will work and discuss with each group while they are working while determining their progress and lending aid
2. Instructor will attempt to grade each chart (or end product) in three lights: a. clarity of construction; b. completeness of construction; c. factuality of construction
3. Charts will be displayed (hung from wires) in laboratory
4. Students will be asked to construct a 4 step food pyramid in the correct order using the correct symbols and arrows

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #3. All organisms interact among themselves and their environment to form an ecosystem

DISCIPLINE AREA: Biology 10
Advanced Biology

OBJECTIVES: Students will have a better understanding of interaction by being able to recognize various organisms which live together in a given environment by setting up a nature trail through that environment.

ACTIVITIES:
1. Students will learn to use taxonomic keys to identify plants and animals.
2. Students will visit a given area and identify some of the plants and animals in that area.
3. Students will lay out a path through the area which will allow people to see the greatest amount without causing much harm.
4. Students will prepare signs with names of various animals and plants found in the area.
5. Students will take the signs out to the area and place them by the organisms.

RESOURCES:
Taxonomic keys
Paper
Stakes
Shovels
Rakes
Area near school which you can use for nature study

EVALUATION:
Instructor will check identification of plants and animals.
Instructor will approve of path through area before students set it up.
Students will be given an assignment to draw the trail and name some of the plants and animals that are found there.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #4. Man is responsible to present and future generations for the condition of the environment.

DISCIPLINE AREA: Social studies/Language Arts - Intermediate grade

OBJECTIVES: After a study of a soil conservation unit, the students will survey the immediate environment around their homes to determine what must be done now to insure the stable condition of their environment for the present and the future.

ACTIVITIES:
1. If child lives on farm, he can survey fields for signs of erosion, (water or wind) and work out a plan to see how it can be stopped.
2. If child lives near river or lake, he can survey the banks to see if there are any erosion signs and determine what can be done to stop it.
3. If child lives in town, a survey will be made of their own yards, (or they could to to relatives) and see what can be done to make the environment pleasing and stable in condition.

RESOURCES:
County agent at local court house
Soil conservation agent at local court house
Local agriculture teacher

EVALUATION: Oral or written reports on the surveys that were made and then include what recommendations they'll make to see that their environment conditions will be kept acceptable for the future.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #4. Man is responsible to present and future generations for the condition of the environment.

DISCIPLINE AREA: American Industry

OBJECTIVES: By the completion of the "transportation unit" each student will prepare a report on a form of transportation, describing its origin, uses, its contribution to present day environmental problems.

ACTIVITIES:
1. Lecture and present slide series on transportation
2. Assign readings: Transportation - Environment
3. Develop class discussion on forms and future of transportation
4. Each student will research information on transportation and environmental problems, using resource books, newspapers, and magazines available.
5. Complete paper in class with supervision from instructor

RESOURCES:
Resource Books - Transportation, Environment
Slide Series
Transparencies
Overhead
Newspapers
Magazines

EVALUATION: Evaluation developed from lecture, slide series, and assigned reading.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #6. Resources must be utilized to the best advantage, not only for a small number of individuals, or even for mankind as a whole but for the entire ecological complex.

DISCIPLINE AREA: Social Studies -- Grade 1
Resource Usage

OBJECTIVES: The children will show how man does change his environment by the making of the bulletin board and observe changes. The children will accept the fact that man does change his environment.

ACTIVITIES: I. Student-centered in class activity
A. Classroom
1. Introduce Natural Resources, p. 19 and 20 in Teacher's Curriculum Guide to Conservation Education.
2. Divide the bulletin board into 3 parts and labeled at the top; Land as it grew (natural); land man changed for the good of men; land man used badly. The children are to make a collage on a bulletin board using pictures from magazines and newspapers, which they have obtained and brought to class.

RESOURCES:
Publications: Teachers Curriculum Guide to Conservation Education
Audio-Visual:
For information about oil, write Education Division American Petroleum Institute, 1272 Ave. of the Americas, New York, New York, 10020

EVALUATION: Bring to class pictures showing land as it grew; land man changed for the good of men; land man used badly.

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CONCEPT: #6. Resources must be utilized to the best advantage, not only for a small number of individuals, or even for mankind but for the entire ecological complex.

DISCIPLINE AREA: Science -- Grade 2

OBJECTIVES: List 4 important ways forests play an importance to the quality of our life and the ecosystem. The children will share ideas on how they can use forest products in such a way as to conserve more trees. e.g. Use 2 side of writing paper. Use 1 paper towel before taking second. At home, use cloth towel instead of paper towels.

ACTIVITIES: I. Student-centered in class activity

A. Class activity
1. Committee collection of brainstorming on uses of wood.
2. List ways wood is used in room.
3. Ranger Rick's article read and discussed on danger of depleated forests.
4. Students report on camping in forest areas.
5. Discuss animal's distress when forest home is destroyed Dramatization may also be used.
6. List substitute materials (man-made) that can be used for wood products.
7. List what would happen if we ran out of lumber for building materials.

B. Collect pictures of forests. If location is convenient - plan a visit.

RESOURCES:

Publications: Books:
You and the Earth Beneath Us, May, Julian
Once There was a Tree: The Story of a Tree-A Changing Home for Plants and Animals, Bysck, Phyllis

Audio-Visual:
Film: Conservation For the First Time, McGraw-Hill, 9 min.
Community: Natural Forest -- Saw Mill

EVALUATION: Define ecology
What are three ecological problems facing mankind to-day?

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CONCEPT: #6. Resources must be utilized to the best advantage, not only for a small number of individuals, or even for mankind as a whole, but for the entire ecological complex.

DISCIPLINE AREA: Junior or Senior High levels
Social Studies, Economics, Language Arts

OBJECTIVES: After the completion of research concerning the environmental value of the Goodwill Industry, the students will compile an oral or written report on their findings.

ACTIVITIES: 1. Interview people who donate articles to Goodwill and list their reasons for doing so.
2. Compile a continuing tally of amount and kinds of articles donated to Goodwill.
3. Send letters of inquiry to the main office of the Goodwill Industry to discover how much of the used articles that come in are actually repaired or recycled.
4. Plan and implement a week long classroom "goodwill" industry where children donate old articles, repair them and on the final day hold a sale.
5. Tour Goodwill Industry in St. Paul

RESOURCES: Goodwill Industry
St. Paul, Minn.

EVALUATION: Students will compile an oral or written report which will include the following:
1. Report of statistical data
2. List advantages and disadvantages of having a local industry with the same aims of Goodwill.
3. Suggest other ways people may get rid of used or broken items without further contamination of the environment.

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CONCEPT: #6. Resources must be utilized to the best advantage, not only for a small number of individuals, or even for mankind as a whole but for the entire ecological complex.

DISCIPLINE AREA: American Industry

OBJECTIVES: By the completion of the "materials unit", each student will write and present to class a report on a natural or synthetic material of their choosing, describing its origin, characteristics, excavating uses, manufacturing methods, its industrial uses and its commercial uses.

ACTIVITIES: 1. Introduction to natural materials and synthetics by lecture.
2. Assign reading: Materials, pp.120-151.
3. Develop class discussion from reading and lecture
4. Each student will begin research on "materials project" of their choosing.
5. Each student will present to class their report on materials.

RESOURCES: Blackboard
Slide Series
Transparencies
Overhead
Natural material Samples
Synthetic material samples
Resource Books on materials

EVALUATION: 1. Each student will evaluate the reports given in class.
2. Student evaluation will be to identify materials that were presented in class.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #7. As populations increase, competition for available natural resources increases

DISCIPLINE AREA: Upper Intermediate or Junior High Social Studies

OBJECTIVES: The student will be able to discuss population growth and how this growth will effect the natural resources in the Menomonie Community

ACTIVITIES:
1. View the filmstrip "Ecological Populations and Communities." Discuss
2. Name as many populations as you can in the city of Menomonie
3. Collect the birth and obituary columns for two weeks from the local newspaper.
4. Compare and chart the birth and death rate
5. Give reports on over populations (man or animals)
6. Plan the simulation game as follows:

Realizing that the U.S. has 6% of the world's population and yet uses 50% of the world's available supply of natural resources, set up the following:
1. Prepare for a mid-afternoon snack
2. Select 6% of the class who are unusually robust and healthy-looking
3. Set these students at a table in front of class. Give them a generous helping of large cookies and beverage.
4. Give other class members a very small helping of each.
5. Draw out the implication of what the people of the U.S. are doing in respect to the world population

RESOURCES:
1. Filmstrip from Title III Environmental I.M.C.: Ecological Populations and Communities
2. Local newspapers
3. Encyclopedia on Populations

EVALUATION:
1. Name and describe two communities (not necessarily biological) of which you are a part.
2. What is a population explosion?
3. What is the danger to a biological community of explosive growth of one of its population species?

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ENVIRONMENTAL ACTIVITY
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CONCEPT: #7. As populations increase, competition for available natural resources increases.

DISCIPLINE AREA: Art/ Secondary Level

OBJECTIVES: The students will observe the increase in building in the Menomonie area and determine how this will have an effect on the availability of some natural resources.

ACTIVITIES: 1. Observe the construction being carried on today in the City of Menomonie.
2. Draw a composition depicting the use or abuse of a natural resource.
3. Discuss the composition and point out your finds.

RESOURCES: The City of Menomonie

EVALUATION: 1. Collect the compositions and look for use/abuse factors of natural resources.
2. Look for good composition and good use of media.

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ENVIRONMENTAL ACTIVITY
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CONCEPT: #8. Population control is essential in solving environmental problems because natural limits on human population have been altered by industrialization and modern technology.

DISCIPLINE AREA: Social Studies --- Grade 2
Transportation

OBJECTIVES: Children will identify 2 means of transportation used by people of long ago (e.g., ponies, canoes) and 5 ways of present transportation.
Children may voluntarily make a 3 dimensional picture showing one of the following: Life in early days through transportation or agriculture, or Present day means of transportation or agriculture. They may report this to the class.

ACTIVITIES: Outside Resource and Community Activities

I. Outside classroom
1. By reading the early history of their local community, the children will be able to trace the change of land use from Indian times to the tremendous growth of urban areas of our region.
2. Take a trip to a local historical site
3. Take a trip to a large industry.
4. Make sand table display of their community then and now
5. Interview older citizens to get information needed for reports.

RESOURCES: Publications: Books on local histories.
Audio-Visual: Slides of community then and now

EVALUATION: Make an aquarium. A biological community is defined in terms of a balanced aquarium.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #9. Increasing human population and rising levels of consumption, will inevitably result in increasing environmental contamination.

DISCIPLINE AREA: 5th and 6th grade math, science, social studies and art.

OBJECTIVES: Become curious about his community
Place himself in the community
Discover the components of his school-community
Orient himself in his community
Identify his world within the community

ACTIVITIES: Display pictures of things in community and take short walk, to find subjects of pictures.
On enlarged map of city have children locate their homes and and father's place of business or job.
The maps are then color coded identifying kids world and adult world.

RESOURCES: from Environmental Resource Center
Man's Habitat
The City Study I
Environmental Science Center
Golden Valley, Minnesota

1 map of the city/child

EVALUATION: Game "Where would you go." This game is a series of cards with questions. One example of a question would be, "Where would you get new shoes? A child picks a card and maps his route from home to the place. Where are the crosswalks and signals?

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #10: The impact of man upon his environment is correlated directly with his cultural values and priorities.

DISCIPLINE AREA: Language Arts

OBJECTIVES: The students will take a walking field trip and observe the different homes, the care of the homes and lawns, and compare these to decide what cultural values the people have. They will go in an area close to school and see at least three homes and then they will either write up an evaluation or give them orally.

ACTIVITIES:
1. Compare homes - painting, neatness, cleanliness on outside, etc.
2. Compare lawns - mowed, trimmed, etc.
3. Compare general site care
4. If poorly cared for, look for signs of extravagent spending (snowmobiles, big boat and motor, etc.)

RESOURCES: Community area

EVALUATION: Written evaluation of tour to tell how they think the persons living in the homes value their home and lawns.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: The impact of man upon his environment is correlated directly with his cultural values and priorities. #10.

DISCIPLINE AREA: Social Studies, Art
Junior High

OBJECTIVES: The students in a class field trip will visit the Knapp School site and study and examine the living quarters remains, (barn, house, silo) and from findings ascertain the how the original farm site might have looked.

ACTIVITIES: 1. Make a drawing of the original farm site as you imagine it to have looked, from the ruins still existing.
2. What problems might an archeologist meet in his search to make the story of mankind's past come to life for modern day students?

RESOURCES: Knapp School Site -- on location
Airel map of the farm site
Social Study Text on life of prehistoric man

EVALUATION: List 10 things Americans consider essential to their standards of living. Compare this with a list stating the essentials of life in the stone age.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #11. Man has a moral responsibility to modify his behaviorial patterns to reconstruct a harmonious and esthetically pleasing environment.

DISCIPLINE AREA: Social Studies - K
Population

OBJECTIVES: Each pupil will be able by use of puppets show that manners are useful in deeping order and respect in all phases of life. The student tries to use good manners and show courtesy every day.

ACTIVITIES: I. Student-centered in Class activity
A. Classroom
1. Puppets -- showing manners
a. Bad manners - ugly looking puppets
b. Good manners - nice looking puppets
2. Discuss the need for good manners:
a. Good manners at home
b. Good manners at the table
c. Good manners at school
d. Good manners on the bus
3. Practice using "Thank You", "Excuse Me," "Pardon me," and "Please."
4. Make a list of good manners
5. Let children practice addressing other teachers
6. Make and post good manner posters
7. Puppets - children use puppets to show they understand manners.
8. In halls and lunchroom, the pupils practice manners with other people.

RESOURCES:

Publications.
Books from library on manners
Manners for Moppets, Betty Betz, Grosset and Dunlap, 1962
What Do You Do Dear? Sesyle Joslin, Youn Scott, 1961
Manners Can Be Fun, Munro Leaf, Stokes, 1937

EVALUATION: List things you and your family do at home to show that you are using good manners.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #11. Man has the moral responsibility to modify his behaviorial patterns to reconstruct a harmonious and esthetically pleasing environment.

DISCIPLINE AREA: Language Arts in the 4th and 5th grades or on the intermediate level.

OBJECTIVES:
1. The students will become more cognizant of the esthetic values of the environment by writing about plants and animals.
2. For the students to become more profficient in writing and presenting speeches.

ACTIVITIES:
1. Composing and presenting speeches on:
   A. Community involvement
   B. Local problem areas
   C. Esthetic enjoyment
2. Taping speeches to be listened to by the rest of the class and evaluated.
3. Composing poetry on environment
   A. Adapt the poems to music
4. Make film strips to illustrate speeches

RESOURCES:
1. Film strips
   A. Environmental Decisions
      1. Forests
      2. Wildlife
2. Poetry books

EVALUATION:
1. To list environmental factor in relation to their esthetic values.
2. Short quiz on the problems presented in the speeches
3. Write a summary on esthetic values of the environment in relation to the unit.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #11. Man has a moral responsibility to modify his behavioral patterns to reconstruct a harmonious and esthetically pleasing environment.

DISCIPLINE AREA: Music (Intermediate)

OBJECTIVES: The student will list and explain at least four activities in which life styles were altered as a result of changing his attitude toward noise.

ACTIVITIES:
1. The student will make a tape recording of his environment. Play it back to demonstrate the need for noise control.
2. The student will check his television set, radio, air conditioner as to how they are operated below nuisance levels.
3. The student will check the family car, boat or other engines for adequate mufflers.
4. Support noise pollution ordinances, and work to have them strengthened.
5. Enjoy listening to soft music from a record.
6. Sing a song in 2-part harmony.

RESOURCES:
Cassette tape
Home environment
Listening record
Music text book

EVALUATION: Write a paragraph stating your reasons why noise pollution should be checked.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #11. Man has a moral responsibility to modify his behavioral patterns toreconstruct a harmonious and esthetically pleasing environment.

DISCIPLINE AREA: Biology 10

OBJECTIVES: Students will be able to recognize at least four conservation practices used in their area when given problems which are involved.

ACTIVITIES:
1. Students will read information on conservation problems and solutions which are used.
2. Students will describe one conservation practice which they are aware of.
3. Field trip to point out both good conservation practices and lack of them.
4. Filmstrip on conservation practices
5. Talk by conservation man

RESOURCES:
Biology books
Pamphlets from conservation department
Filmstrips
Library
Conservation department

EVALUATION: Give students a list of possible problems and have them give the conservation practice which they would use to solve the problem. They should be able to explain how this solution would help and how it should be used.

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: #12. Environmental decisions have both a positive and negative influence on man's behavioral patterns (life styles).

DISCIPLINE AREA: Social Studies (Intermediate)

OBJECTIVES: The student will list 3 Do's and 3 Don'ts which will help others change their behavioral patterns.

ACTIVITIES:
1. Class discussion on
   a. Discarding cans, bottles, papers
   b. Use of enzyme - detergents
   c. Use of pesticides as DDT
2. Form an "anti-pollution" club
3. Arrange with Dunn County Salvage Manager, Gary Olson, to collect paper and bottles for recycling.
4. Make a "before and after" poster on man's influencing his environment.

RESOURCES:
1. Encyclopedias for information on detergents and DDT
2. Current newspapers
3. Lecture by Salvage Manager

EVALUATION:
1. What are 3 ecological problems facing mankind today?
2. What steps is man taking to solve the above problems in ecology?
3. Why must all materials be recycled ?

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CONCEPT: #12. Environmental decisions influence man's life style in positive and negative ways.

DISCIPLINE AREA: Art - Secondary Level

OBJECTIVES: The students will select two environmental decisions of their choosing and prepare a paper (written) and a drawing of the positive and/or negative effect they have had on the environment.

ACTIVITIES:
1. Discuss environmental decisions that have been made and look at the positive or negative effect they may have.
2. Have the student select two problems or decisions and write up their finds.
3. Have the students prepare a composition depicting their finds.

RESOURCES: The community

EVALUATION: Discuss the written assignment. Look at content and selection of decision.
Talk about the compositions. Look for good composition, balance and design.

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ENVIRONMENTAL ACTIVITY
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CONCEPT: Use all of the K-12 Environmental Education Concepts developed by the team of district staff, Menomonie School District, 1971-72 or (revisions of above concepts by summer workshop group.)

DISCIPLINE AREA. Speech 10

OBJECTIVES: By the completion of the unit on Informative Speeches, Speech 10, Students will be able to research, organize, write, and present with logic - grammatic soundness an informative speech dealing with one of the above concepts.

ACTIVITIES: 1. Introduction to Informative Speeches. (Define, etc.) How and where they fit into present society.
2. Assign chapter on Informative speech from text.
3. Class discussion of chapter (essentials of informative speech.)
4. Present examples of classic informative speeches.
5. Students will research their speeches for presentation.
6. Students will present informative speeches in class.

RESOURCES: Tape recorder - for presentation of classic informative speeches
Library - for use in research and organization

EVALUATION: 1. Students will be evaluated by their class mates on their speaking ability etc. (Grading sheets will be used)
2. Students will be evaluated by instructor on speaking ability and speech organization (and graded accordingly)

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: Use all of the K-12 Environmental Education Concepts developed by the team of district staff - Menomonie School District, 1971-72, or (revisions of above concepts by summer workshop group)

DISCIPLINE AREA: Speech 10

OBJECTIVES: By the completion of the unit on Persuasive Speeches, Speech 10 students will be able to research, organize, write, and present with logic-grammatic soundness a persuasive speech dealing with one of the above concepts

ACTIVITIES:
1. Introduction to Persuasive Speaking (define, etc.), Discuss - Sales Propaganda (and use of Persuasive in society today.)
2. Assign chapter on Persuasive Speaking (text)
3. Class discussion of Persuasive Speaking (chapter)
4. Present examples of classic persuasive speeches
5. Students will research their concept choice for presentation
6. Students will present persuasive speeches in class

RESOURCES: Tape recorder and tapes or records of classic persuasive speeches
Library - for use in research and organization

EVALUATION:
1. Students will be evaluated by their classmates on their speaking ability - speaking organization (grading sheets will be used)
2. Students will be evaluated by instructor on speaking ability and speech organization (and graded accordingly)

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ENVIRONMENTAL ACTIVITY
General Form

CONCEPT: Natural Resources are not equally distributed over the earth or over time and greatly affect the geographic conditions and quality of life.

DISCIPLINE AREA. Social Studies

OBJECTIVES: The student will be able to comprehend the correlation between geographic conditions and natural resources and the quality of life.

ACTIVITIES:
1. Plot geographic conditions on map
2. Plot natural resources on map
3. Plot "developed"and "undeveloped" countries on map
   List common conditions of life for each
4. Compare maps to show effect of geographic conditions and natural resources on quality of life.

RESOURCES: Community people who have traveled abroad
Exchange students

EVALUATION:

Adapted from Project I.C.E.

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General Form

CONCEPT: Private ownership is in reality a trust, it must be tempered with a consideration for the rights of others.

DISCIPLINE AREA: Social Studies

OBJECTIVES: Develop an understanding of private ownership as stewardship, become aware of some of the reasons for low personal income in a rich country, measure shifts in attitudes and values relating to stewardship of private property, assess imperialism today.

ACTIVITIES:
1. Determine ratio of public to privately held land held in community.
2. Examine local zoning practices
3. Debate: Company "X" (Std. Oil, Dole, I.T.T., U.S. Steel, etc.) is, is not, guilty of imperialism today.

RESOURCES:
1. Local reclamation projects (call DNR office at court house)
2. Local industry - "stewardship" practices
3. Infringements on personal rights by local concerns - try to determine
4. "Imperialism Literature" in library
5. Various filmstrips listed on p.12 of I.C.E.

EVALUATION:

Adapted from project I.C.E.

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CONCEPT:

DISCIPLINE AREA:

OBJECTIVES:

ACTIVITIES:

RESOURCES:

EVALUATION: