DOCUMENT RESUME

ED 100 654 88 SE 010 345

TITLE Grade Two, Environmental Education Guide.
INSTITUTION Project I-C-E, Green Bay, Wis.
SPONS AGENCY Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.; Wisconsin State Dept. of Education, Madison.
PUB DATE [74]
NOTE 105p.

EDRS PRICE MF-$0.75 HC-$5.40 PLUS POSTAGE
DESCRIPTORS *Conservation Education; *Elementary Education; *Environmental Education; Grade 2; Instructional Materials; Interdisciplinary Approach; Learning Activities; *Natural Resources; Outdoor Education; Science Education; *Teaching Guides
IDENTIFIERS Elementary Secondary Education Act Title III; ESEA Title III; *Project I C E

ABSTRACT

This second grade environmental education guide is one of a series of guides, K-12, which were developed by teachers to help introduce environmental education into the total curriculum. The guides are supplementary in design; it is the teacher's decision when the concepts, objectives, activities, and resources may best be integrated into the existing classroom curriculum. This guide contains a series of episodes (minilesson plans), each having a number of suggested in- and out-of-class learning activities. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Although the same concepts are used throughout the K-12 program, emphasis is placed on different aspects of each concept at different grade levels. The second grade guide focuses on aspects such as graphs, personal responsibility, simple machine, fuels, and land use. Each of the 12 concepts is covered in one of the episodes contained in the guide. Further, each episode offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials useful to teachers and students. An appendix containing related game is included. (Author/TK)

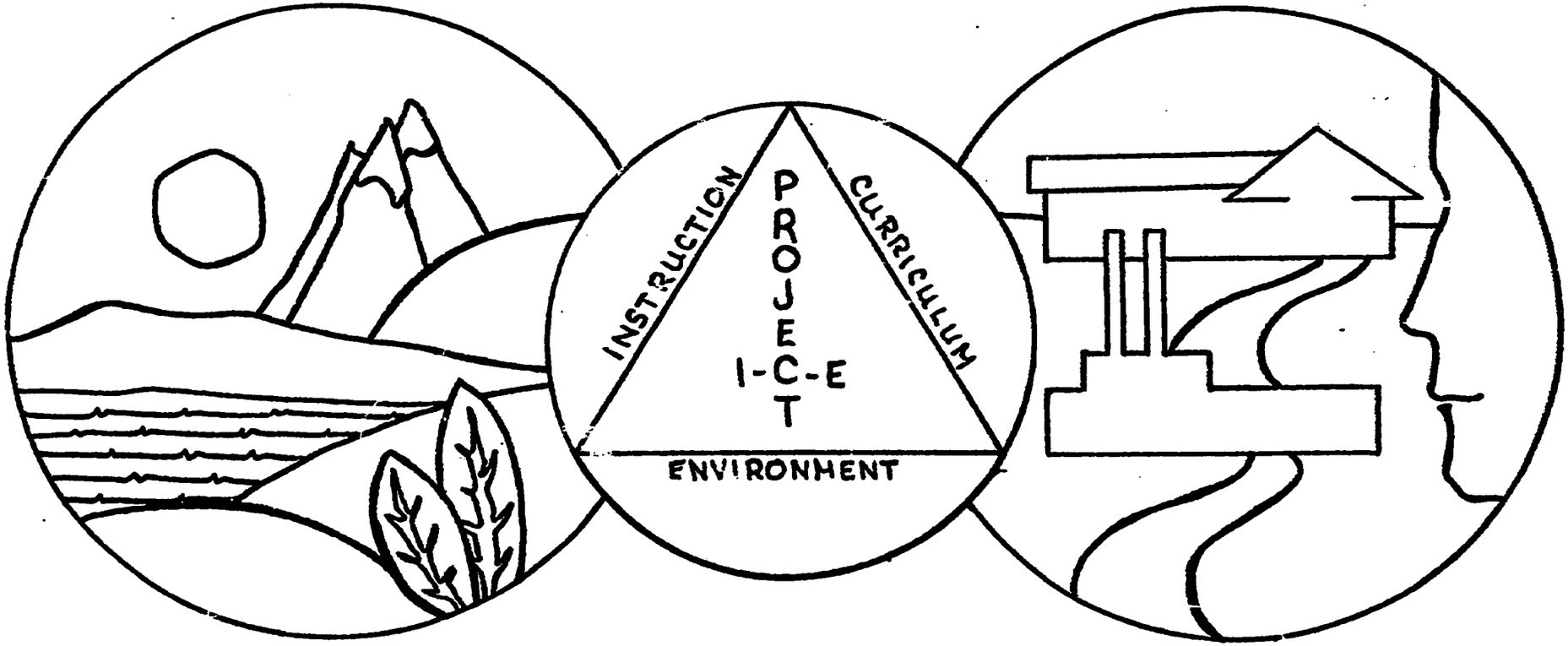
SE 018 345

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED 100654

ENVIRONMENTAL EDUCATION GUIDE

BEST COPY AVAILABLE



GRADE TWO

Robert J. Warpinski
Project I-C-E

P R O J E C T I - C - E
(Instruction-Curriculum-Environment)
1927 Main Street
Green Bay, Wisconsin 54301
(414) 468-7464

PROJECT STAFF

Robert Warpinski - Director

Robert Kellner Terrence Hess - Assistant Directors

George Howlett, Jr. - E. E. Specialist

Nancy Timm Lynn Kuehn - Secretaries

ALL RIGHTS RESERVED
These materials were produced pursuant
to a grant under Title III, E.S.E.A.
The Wisconsin Department of Public Instruction
Project No. 59-70-0135-4

Wisconsin Area "B" Regional Project
Serving All Schools in Cooperative Educational Service Agencies 3-8-9

Ludwig Petersen
Coordinator, C.E.S.A. #3

Kenneth Poppy
Coordinator, C.E.S.A. #8

John F. David
Coordinator, C.E.S.A. #9
Project Administrator

FORWARD TO PROJECT I-C-E ENVIRONMENTAL EDUCATION GUIDES

BEST COPY AVAILABLE

In 1969, the First Environmental Quality Education Act was proposed in the United States Congress. At the time of the introduction of that legislation, I stated:

"There is a dire need to improve the understanding by Americans of the ominous deterioration of the Nation's environment and the increasing threat of irreversible ecological catastrophe. We must all become stewards for the preservation of life on our resource-deficient planet."

In the three years since the Environmental Education Act was passed by the Congress, much has happened in the United States to reinforce the great need for effective environmental education for the Nation's young people. The intensive concern over adequate energy resources, the continuing degradation of our air and water, and the discussion over the economic costs of the war against pollution have all brought the question of the environmental quality of this nation to a concern not merely of aesthetics but of the survival of the human race.

The intense interest by the public in the quality of our lives as affected by the environment clearly indicates that we cannot just use incentives and prescriptions to industry and other sources of pollution. That is necessary, but not sufficient." The race between education and catastrophe can be won by education if we marshall our resources in a systematic manner and squarely confront the long-term approach to saving our environment through the process of education.

As the incessant conqueror of nature, we must reexamine our place and role. Our world is no longer an endless frontier. We constantly are feeling the backlash from many of our ill-conceived efforts to achieve progress.

Rachel Carson's theme of "reverence for life" is becoming less mystical and of more substance as our eyes are opened to much of the havoc we have wrought under the guise of progress. A strong commitment to an all-embracing program of environmental education will help us to find that new working definition of progress that is a pre-requisite to the continued presence of life on this planet.

- Senator Gaylord Nelson

PREFACE

PRIMARY TEACHERS!

Here's what you've been looking for!!

Lessons & Activities in all capacities

to INTEGRATE

With ALL subjects.

NO extra planning.

NO extra lessons.

Use daily, whenever, wherever,

the opportunity arises.

Slant this year's teaching

toward ECOLOGY!

Help your class become

AWARE

of their WORLD.

We will need their HELP

in PRESERVING it!

BEST COPY AVAILABLE

ACKNOWLEDGEMENT

The interest and dedicated effort of the following teachers from Wisconsin Area "B" has led to the development of the Project I-C-E Environmental Education K-12 series:

D. C. Aderhold, Bonduel
Joan Alioto, Denmark
Mary Anders, Winneconne
Eugene Anderson, Peshtigo
James Anderson, Green Bay
John Anderson, Peshtigo
Peggy Anderson, Green Bay
Walter Anderson, Wausaukee
Angela Anthony, Gibraltar
Dr. Harold Baeten, St. Norbert, DePere
William Baggs, Shiocton
Anthony Balistreri, Howard-Suamico
Lowell Baltz, Weyauwega
David Bartz, Sturgeon Bay
Bonnie Beamer, Coleman
Robert Becker, Fox Valley Luth., Appl.
William Behring, Lourdes, Oshkosh
David Bell, Neenah
Marie Below, Clintonville
Lousene Benter, Gillett
Lillian Berges, Seymour
Laura Berken, Oconto Falls
Peter Biolo, W. DePere
Carmella Blecha, Green Bay
Merlyn Blonde, Shawano
Barbara Jean Bobrowitz, Green Bay
William Bohne, Kimberly
Gailen Braun, Lena
Joan Charnetski, Sevastopol
Clifford Christensen, Winneconne
Bob Church, Little Chute
Lee Clasen, Luxemburg-Casco
Kathryn Colburn, Algoma
Merle Colburn, Algoma
Bill Cole, Gillett
Willard Collins, Crivitz
Ronald Conradt, Shiocton
Ken Couillard, Hortonville
John Cowling, Niagara
James Curran, Green Bay
Sara Curtis, Green Bay
Nicholas Dal Santo, Pembine
Judy DeGrave, W. DePere
Carol DeGroot, Ashwaubenon
Duane DeLorme, Green Bay
Ellen DePuydt, Gillett
John DeWan, Green Bay
Robert H. Dickinson, Oconto
R. A. Dirks, Gillett
Roberta Dix, St. Joe's Acad., G.B.
Dennis Dobrzenski, White Lake
Darwin Eastman, Appleton
Linda Eiting, Appleton
Janet Elinger, Ashwaubenon
Phyllis Ellefson, Wash. Island
Raymond Emerich, Hortonville
Mike Ercegovac, Winneconne
Gery Farrell, Menasha
Keith Fawcett, W. DePere
Billie Feichtinger, Green Bay
Rev. Bruno Frigo, Abbot Pennings, DePere
Ann Fuhrmann, Marinette
Raymond Gantenbein, Green Bay
Dona Geeding, Menasha
Armin Gerhardt, Appleton
Leroy Gerl, Oconto
Jack Giachino, Seymour
Rev. Gordon Gilsdorf, Sacred Heart, Oneida
Mike Gleffe, St. Matthews, Green Bay
Lillian Goddard, Coleman
Charles Gostas, Freedom
Karen Grunwald, St. James Luth., Shawano
Michael Haasch, Pulaski
Sr. Barbara Haase, St. Bernard, G.B.
Janelle Hagerty, Resurrection, G.B.
Robert J. Haglund, Green Bay
Robert Haen, Luxemburg-Casco
Donald Hale, Winneconne
Lee Hallberg, Appleton
Raymond Hammond, Hortonville
Russ Hanseter, Seymour
Herbert Hardt, Gibraltar
Emmajean Harmann, Sevastopol
Bill Harper, Lena
Beth Hawkins, Xavier, Appleton
Mike Hawkins, Xavier, Appleton
Terry Heckel, Marinette
Gary Heil, Denmark
Jerome Hennes, Little Chute
Robert Herz, St. James Luth., Shawano
Wendell Hillskotter, Weyauwega
Nannette Hoppe, Howard-Suamico
Joe Hucek, Pulaski
Catherine Huppert, DePere
Gene Hurrish, Green Bay
James Huss, Freedom
John Hussey, Green Bay
Sue Husting, Green Bay
Barbara Huth, Menasha
Sr. Claudette Jeanquart, St. Charles, Lena
Darrell Johnson, Hortonville
DeAnna Johnson, Denmark
Kathleen Jonen, Kaukauna
Sr. Lois Jonet, Holy Angels, Appleton
Ester Kaatz, Wausaukee
Paul Kane, Ashwaubenon
Ken Kappell, St. Alousius, Kaukauna
Kris Karpinen, W. DePere
Mel Kasen, Gibraltar
Ken Keliher, Appleton
Mary Chriss, Hortonville
Mike Kersten, Suring
George Kreiling, Marinette

James Krenek, Coleman
Bernadyne King, Neenah
Everett Klinzing, New London
Douglas Koch, Cath. Cent., Marinette
Frank Koehn, Resurrection, G.B.
Lynn Koehn, Pulaski
Jack Koivisto, Green Bay
Fred Krueger, Oshkosh
Fritz Krueger, Oshkosh
Jim Krueger, Winneconne
Ervin Kunesh, Marinette
Sr. Mary Alyce Lach, Cathedral, G.B.
Thomas LaFountain, Appleton
Steven P. Lapacz, Resurrection, G.B.
Mae Rose LaPointe, St. John High, L. Chute
Rosemarie Lauer, Hortonville
Kathleen LeBreck, Oconto
Robert Lee, Neenah
Don Leibelt, Green Bay
Phillip Lewicki, Gillett
Harold Lindhorst, St. Martin Luth., Clint.
Edward Linn, Appleton
John Little, Winneconne
Dennis Lord, Little Wolf
Ellen Lotz, W. DePere
Jean Lucier, Ashwaubenon
Judy Luedtke, St. Rose, Clintonville
Roy Lukes, Gibraltar
Sr. Anna Maar, St. Philips, G. B.
James Maki, Sturgeon Bay
Doris Malcheski, Howard-Suamico
Donald Marsh, Bonduel
Joyce Mateju, Algoma
Mary Mathis, Denmark
Margaret McCambridge, White Lake
Judy McGown, Green Bay
Kathleen McMahon, Green Bay
Margaret McMahon, Little Chute
Rick Menard, Little Chute
Priscilla Mereness, Wrightstown
Robert Meyer, Neenah
Richard Minten, W. DePere
David Miskulin, Goodman
Wendell Mitchell, Green Bay
Sharon Moore, Pulaski
Gloria Morgan, Linsmeier, G.B.
Lyle Nahley, Green Bay
Arnold Neuzil, Shiocton
Jim Nuthals, Lourdes, Oshkosh
Dorothy O'Brien, Wausaukee
Mildred O'Connell, Green Bay
Don Olsen, Shawano
Neil Olsen, Pulaski
Jean Marie O'Malley, Green Bay
Terry Otto, St. John Luth., Suring
Carl Paquet, Denmark
Ed Patschke, Menasha
Arthur Paulson, Oconto Falls
David Paulus, Neenah
George Pederson, Southern Door
AnnaMay Peters, Florence
Connie Petersen, St. Martin Luth., Clint.
Paul Plantico, Green Bay
Gene Ploetz, Kaukauna
Virginia Pomusl, White Lake
Willard Poupore, Little Chute
Marie Prochaska, Lena
Christine Proctor, Wausaukee
Rosemarie Rafath, Clintonville
Mark Reddel, St. Martin Luth., Clint.
Jack Rickaby, Hortonville
William Roberts, Sturgeon Bay
Gordon Rohloff, Oshkosh
Gladys Roland, Little Wolf
Ben Roloff, Howard-Suamico
Jack Rosenthal, Lourdes, Oshkosh
Kathryn Rowe, Appleton
Roger Roznowski, Southern Door
Mary Margaret Sauer, Menasha
Elmer Schabo, Niagara
Edwin Schaefer, Kaukauna
William Schaff, St. Joseph, Appleton
Arthur Schelk, Suring
Greg Schmitt, Cathedral, G.B.
Larry Schneider, DePere
Ron Schreier, Omro
Allan Schuh, Pulaski
Janet Serrahn, Sevastopol
Carolyn Stoehr, New London
Calvin Siegrist, Howard-Suamico
Peter Skroch, Oconto Falls
Mary Smith, Green Bay
Lee Smoll, Little Chute
David Soltesz, Crivitz
Bruce Sonnenberg, Neenah
Beverly Splitgerber, Green Bay
Wayne Splitgerber, Green Bay
Doris Stehr, Mt. Calvary Luth., Kimberly
Bill Stillion, Shawano
Ginger Stuvetraa, Oshkosh
Judy Sweedy, Denmark
Richard Switzer, Little Chute
Sr. Dorothy Marie Tappa, Xavier, Appl.
Nancy Tebo, Neenah
Jackie Thiry, Denmark
John Torgerson, Kewaunee
Clarence Trentlage, Freedom
Carol Trimberger, Kewaunee
Jack Twet, Freedom
Tim Van Susteren, Holy Name, Appleton
Mary Wadzinski, Howard-Suamico
Marion Wagner, Gillett
Ruth Ward, Crivitz
Cathy Warnack, White Lake
Susan Weller, Green Bay
Dallas Werner, Kaukauna
Lila Wertsch, St. Margaret Mary, Neenah
Ruth Windmuller, Green Bay
Tom Weyers, Cathedral, Green Bay
James Wiza, DePere
Ralph Wohlt, New London
Warren Wolf, Kimberly
Peggy Wolfgram, Pulaski

DIRECTIONS FOR USING THIS GUIDE

This guide contains a series of episodes (mini-lesson plans), each containing a number of suggested in and out of class learning activities. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Further, each episode offers subject area integration, multi-disciplinary activities, where applicable, both cognitive and affective behavioral objectives and suggested reference and resource materials useful to the teacher and students.

1. This I-C-E guide is <u>supplementary</u> in design--it is not a complete course of study, nor is its arrangement sequential. You can teach environmentally within the context of your course of study or units by integrating the many ideas and activities suggested.

2. The suggested learning activities are departures from regular text or curriculum programs, while providing for <u>skill development</u>.

3. You <u>decide when</u> any concepts, objectives, activities and resources can conveniently be included in your unit.

4. All episodes can be adapted, modified, or expanded thereby providing great <u>flexibility</u> for any teaching situation.

5. While each grade level or subject area has its own topic or unit emphasis, <u>inter-grade coordination</u> or <u>subject area articulation</u> to avoid duplication and overlap is highly recommended for any school or district seeking effective implementation.

This total K-12 environmental education series is the product of 235 classroom teachers from Northeastern Wisconsin. They created, used, revised and edited these guides over a period of four years. To this first step in the 1,000 mile journey of human survival, we invite you to take the second step--by using this guide and by adding your own inspirations along the way.

PROJECT I-C-E TWELVE MAJOR ENVIRONMENTAL CONCEPTS

1. The sun is the basic source of energy on earth. Transformation of sun energy to other energy forms (often begun by plant photosynthesis) provides food, fuel and power for life systems and machines.

2. All living organisms interact among themselves and their environment, forming an intricate unit called an ecosystem.

3. Environmental factors are limiting on the numbers of organisms living within their influence. Thus, each ecosystem has a carrying capacity.

4. An adequate supply of clean water is essential to life.

5. An adequate supply of clean air is essential for life.

6. The distribution of natural resources and the interaction of physical environmental factors greatly affect the quality of life.

7. Factors such as facilitating transportation, economic conditions, population growth and increased leisure time influence changes in land use and population densities.

8. Cultural, economic, social, and political factors determine man's values and attitudes toward his environment.

9. Man has the ability to manage, manipulate and change his environment.

10. Short-term economic gains may produce long-term environmental losses.

11. Individual acts, duplicated or compounded, produce significant environmental alterations over time.

12. Each person must exercise stewardship of the earth for the benefit of mankind.

A "Concept Rationale" booklet and a slide/tape program "Man Needs His Environment" are available from the I-C-E RMC to more fully explain these concepts.

TABLE OF CONTENTS

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 1 - Energy

ORIENTATION Sun Energy

Integrated with:

SUBJECT Math, Science, Health

TOPIC/UNIT Graphs, Plants, Nutrition

BEHAVIORAL OBJECTIVES

Cognitive:

Trace one food source from daily menu back to the sun.

Affective:

Support the need of adequate sunlight for all plant life with statements indicating reasons for this need.

Skills Used:

1. Observation
2. Discussion
3. Making graphs
4. Comparison
5. Identification

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Math - Spring Project
   A. Plant Growth Comparison Graph
      1. Plant four seeds in same size pots and soil.
         a. First pot place in sunlight.
         b. Second in dark place.
         c. Plant a small sunflower seed in one pot.
         d. Plant a larger sunflower seed in another.
      2. Watch growth of all pots. As soon as a plant appears, record date and height of each plant. Continue for one week, recording each day.
      3. Make a chart for each plant showing the growth over 7 days as a class project.
      4. Compare the chart of all the plants. Discuss the difference

(Continued)

Outside or Community:

A. Visit a greenhouse or have a florist speak to the group about plant growth.
B. Home Ec. teacher can speak on good energy foods for children.

SUGGESTED RESOURCES

Publications:

Books:
Push and Pull; The Story of Energy by Paul Blackwood, 1966, McGraw-Hill
Energy, Mitchel Wilson & Ed. of Time-Life, 1968, Time-Life Books
What Does the Sun Do?, Kinney
Plants in the Classroom and Fish and Water Temperature, National Wildlife Federation, 1412 - 16th St., Washington, D. C.

Audio-Visual:

Instructor-Primary Science Concept Charts - "Plants"
Films:
Plants and Their Importance, BAVI
Foods from the Sun, G. B. Instructional Media Center No. 4044, Encyclopedia Britannica
Planting Our Garden, Encyclopedia Britannica
How Sunshine Helps Us, Coronet
Food From the Sun, BAVI, EBF
(Continued)

Community:

Visit a greenhouse or have a florist speak to the group.
Dietician

CONTINUED OR ADDED LEARNING ACTIVITIES

AUDIO-VISUAL (Continued)
Filmstrips:
Photosynthesis Seeds, Herbert E. Budek, 1967
Encyclopedia Britannica
Plant Needs
How Plants Live
Parts of Plants
How Seeds Sprout and Grow into Plants
How Seeds are Scattered
Plants We Use

CLASSROOM (Continued)

II. Science
- A. Discussion of a sunflower using a picture or the flower.
- B. Construct sunflower (seed, blossom, roots, leaves, stem).
- C. Discuss how do they think sunflower got its name, tell what the sun's job was in growing this plant, tell what would have happened if it had been without sun and tell values of sunflower (bird food, chickadee, aesthetic, plants) and plants with seeds.

III. Health - Food Unit
- A. Children bring in well-washed can, cardboard cartons and frozen food packages for a display, "Plant Parts We Eat". Classify the exhibit to show foods from roots, stems, leaves, flowers, fruits and seeds.
- B. Food from school menu--student traces food back to a plant source. Ex.-meat-store-packing plant-farmer, pig-corn-plant-sun, carrot-store-farmer-garden-seed-sun.
- C. Discuss the four basic food groups.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 1 - Energy

SUBJECT Art

ORIENTATION Sun Energy

TOPIC/UNIT Clay, Printing, Drawing, Puppets

BEHAVIORAL OBJECTIVES

Cognitive:

Describe the importance of conserving the energy of the sun.

Affective:

Indicate awareness of aesthetic factors of the sun by completing a project which projects his image of the sun.

Skills Used:

1. Clay work: a. texture, b. pinch, c. slab.
2. Mosaic techniques.
3. Simple printing techniques.
4. Puppet construction.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Mosaic - sun mosaic could be done with seeds or Indian corn on cardboard.
B. Sun designs - plastacine modeling clay used as a stamp for printing.
C. Sun puppets.
   1. Use stuffed paper bag to construct a talking sun.
   2. Show rays as arms, etc.
   3. Some students may want to make clouds, stars, moon, etc. to complete the "show".
   4. Correlate with music activity. "Let the Sunshine In".

Outside or Community:

A. Students could write letters to their congressman and influential community members about conservative use of the sun's energy and stamp the letter and envelope with their sun design.
B. The students will tell how the weather makes them feel. Make a chart for one week and indicate how each child feels each day by  or  faces.

SUGGESTED RESOURCES

Publications:

"Sunbursts and Papier-mache", D. DeLa Rosa & D.D. Ebert, School Arts, pages 6-7, June '71

"Mask Making for Minors", B. G. Oettel, School Arts, 68:24-25, N. '68

"Paper Bag Figures", J. Heath, School Arts, p. 48, April '72

"Ecology or The Eggshells Go Back to the Chicken", T. Sezari, School Arts, 71:22-23, April '72

"Drawing with Mixed Media", M.B. Bowman, School Arts, 71:14-15 N '71 (Cont.)

Audio-Visual:

Films:

The Sun Symbol in Art, Bailey

How To Make a Puppet, BAVI

Kit:

Environmental Awareness, ICE RMC, KT 16

Community:

Beach facilities

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

"Mosaics in the 3rd Grade," Arts and Activities, 68:25-7, Sept. '70

"Mosaics: Tiles and Beans," Instructor, 79:93, June '70

"It Just Happened; Clay Modeling," Arts and Activities, 69:22-4, March '71

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 1 - Energy

SUBJECT Physical Education, Music, Drama

ORIENTATION Sun Energy

TOPIC/UNIT Rhythmic Activities, Pantomime
Possible Rainy Day Activity

BEHAVIORAL OBJECTIVES

Cognitive:

Describe orally how we depend on the sun through plants we eat.

Affective:

Enthusiastically participate in physical activities and discussion of ways that the sun is important to the individuals.

Skills Used:

1. Non-locomotor movements (sun).
2. Kinesthetic sense of the maximum range of body movements (Ex. smallest to largest, lowest to highest).
3. Transform imagination into movements.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Physical Education, Music and Drama
   A. Teacher creates atmosphere through questioning the students about early morning atmosphere of the sun.
      1. What do we see in the morning?
      2. What does it do?
      3. Does it help us?
      4. How does it help us?
   B. With background music, children will show with their bodies how the sun rises.
   C. Discuss how eating the fruit gives us energy from the sun.
      1. How does eating fruit give us energy?
      2. Does this energy come from the sun?
      3. How do you know if it does or doesn't?
   D. Discuss where seeds got the energy to grow into flowers.
      1. Where do all plants get energy?
      2. What would happen if we didn't have any plants? (Continued)

Outside or Community:

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Mel Nicks, Curriculum for Elementary Physical Education, Diocesan Dept. of Education, Green Bay, WI, 1965 **Audio—Visual:** Poster showing stages of plant growth Background music for morning sounds - Peer Gynt Suite, Grieg. Grand Canyon Suite, Grofe. **Community:**	CLASSROOM (Continued) D. 3. Where do we get our energy?

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 2 - Ecosystem

SUBJECT Language Arts, Art

ORIENTATION Natural Community Structure

TOPIC/UNIT Poetry Appreciation

BEHAVIORAL OBJECTIVES

Cognitive:

Identify two kinds of woodpeckers, by sound, and illustrate where they build nests.

Affective:

Study on their own about other birds and their habitats.

Skills Used:

1. Listening.
2. Use of field glasses for identification.
3. Recognize local -
   a. Red-headed
   b. Hairy and Downy
4. Compare and contrast other similar habits.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts and Art
   A. Poem: "The Woodpecker"
   B. Collect pictures--mural with environment added.
   C. Draw pictures and write story about woodpecker observed.
   D. Discussion:
      Are woodpeckers necessary? What happens when all rotten and decayed positions of trees are removed?
      1. Nesting places gone.
      2. Food supply limited.
      Are artificial methods possible to attract woodpeckers?

Outside or Community:

A. Outdoor field trip where woodpecker damage is shown.

SUGGESTED RESOURCES

Publications:

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

Audio-Visual:

Taped woodpecker sounds
Stuffed specimens from local museum, etc.
Birds, picture study prints, SVE
Nature's Half Acre, color film, ICE RMC, Film #210

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

THE WOODPECKER

The woodpecker pecked 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 sparkles 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

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 2 - Ecosystem

SUBJECT Language Arts

ORIENTATION Rabbit Habitat

TOPIC/UNIT Poetry Appreciation

BEHAVIORAL OBJECTIVES

Cognitive:

Pretend to be a rabbit and write a creative story telling about the food he eats, his shelter, and how he protects himself from his enemies.

Affective:

Continue evaluating for himself the good and bad traits of a rabbit.

Skills Used:

1. Evaluation.
2. Dramatization.
3. Discussion.
4. Voting.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Poem "The Rabbit".
B. Pretend that child is a rabbit:
   1. Where does he build his home?
   2. What are his natural enemies?
      a. Man - hunting
      b. Dogs - hunting
      c. Foxes and hawks
   3. How can a rabbit protect himself?
      a. Color blends
      b. Natural protection by snow.
C. Panel discussion.
   1. Rabbits are nuisance and it is all right to set traps and hunt them.
   2. Rabbits enrich our lives and the damage done to trees and shrubs could have been eliminated.
D. Class will decide which presentation is best presented--pro and con, by voting.

Outside or Community:

A. Visit school library for stories, both factual and fanciful.
B. Observe a rabbit when students see one.

SUGGESTED RESOURCES

Publications:

Time for Poetry - A Teacher's Anthology by May Hill Arbuthnot, "The Rabbit" by Elizabeth Madox Roberts, page 96.

Audio-Visual:

Films:
Rabbits, AIMS, BAVI
Hoppy the Bunny, Coronet, BAVI
Rabbit, Picture Study Prints, SVE

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

THE RABBIT

When they said the time to hide was mine,
I hid back under a thick grapevine.

And while I was still for the time to pass,
A little gray thing came out of the grass.

He hopped his way through the melon bed,
And sat down close by a cabbage head.

He sat down close where I could see,
And his big still eyes looked hard at me.

His big eyes bursting out of the rim,
And I looked back very hard at him.

From "Under The Tree" by

Elizabeth Madox Roberts

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 2 - Ecosystem

ORIENTATION Food Chains

Integrated with:

SUBJECT Science, Language Arts, Art

TOPIC/UNIT Ecosystem

BEHAVIORAL OBJECTIVES

Cognitive:

Draw pictures of four food chains involving animals and their environments.
Identify several food chains.
Compare the habitats and food requirements of animals.

Affective:

Continue to investigate the life cycle of various kinds of animals and their special environments.

Skills Used:

1. Scientific investigation.
2. Record observations.

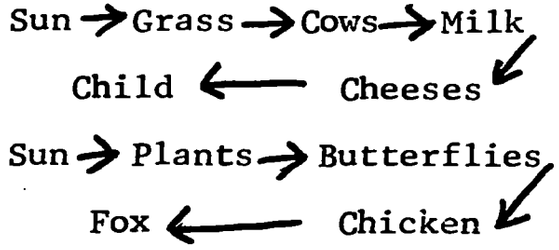
STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   A. Make a chart of living thing that make their homes in a city or rural environment. Do areas of mammals, birds, insects and other tiny animals and plants.

II. Language Arts
   A. Report to the class on one mammal and list its requirements for survival.
   B. Read to the class--Charlotte's Web.

III. Art
   A. Make a bulletin board of these food chains and discuss with children.



Outside or Community:

A. Take a field trip to a local nature center, zoo, marsh, pond.

(Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Books:
Children of the Ark by Robert Gray.
You and the World Around You by Millicent E. Selsom.
Farewell to Shady Glade by William Peat
The Wump World by William Peat.
The Barn by Shoenheer
Life Cycles, Science Curriculum Improvement Study Series, ICE RMC, 110 Bu

Audio-Visual:

Films:
Animal Communities and Groups, Encyclopedia Britannica
Common Animals of the Woods, Encyclopedia Britannica
Living Things Are Everywhere, Encyclopedia Britannica
We Get Food from Plants and Animals, McGraw-Hill
Cry of the Marsh, ICE RMC, Film #390
Communities of Living Things, filmstrips, ICE RMC, FS St 6

Community:

Local pet store - for frog eggs
Local pond

CLASSROOM (Continued)

III. A. Sun → Water plants → Bugs → Ducks

Sun → Grass → Rodents → Eagle

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 2 - Ecosystem **SUBJECT** Social Studies, Language Arts

ORIENTATION Interdependence **TOPIC/UNIT** Community Helpers

BEHAVIORAL OBJECTIVES

Cognitive:

Make a class chart showing how families develop into communities and divide responsibilities (labor, protection, education, etc.)

Describe how each person depends upon the services and products of the other.

Affective:

Investigate and continue to learn about our community and the way in which we help each other by specializing in producing goods and services. Indicate that all jobs have value to a community by making statements such as: "The garbage man is important to our health" and "The doctor is important to our health".

Skills Used:

1. Discussion.
2. Interview people and ask simple questions.
3. Reading.
4. Letter writing.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   A. Have a discussion on: What does your father do? What does your mother do?

II. Language Arts
   A. Have parents write a letter telling what his or her occupation is. These can be read to the class.
   B. Make a figure and label of the parents and arrange on a bulletin board as to kinds of helpers. Ex.-protection, health and education, food helpers, construction workers, etc.

Outside or Community:

A. Visit as many stores, banks, business offices, post offices, etc. as possible to really experience the diversity and variety of specialization so each family doesn't have to do all kinds of work.
B. Tapes from individuals on their work can be obtained if they cannot come.
C. Possible community workers can visit the classroom to tell how their services or products help others.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: People and Their Environment; Teacher's Curriculum Guide to Conservation Education, ICE RMC, 170 Br Working World, Senesh "I Want To Be" Books by Greene, Ex.-I Want To Be A Doctor I Want To Be A Farmer A Place to Live, ICE RMC, 110 A Soc. Studies book, Exploring Our Needs by McIntire-Hill **Audio-Visual:** Films (from BAVI): Community Keeps House Everyone Helps in a Community Helpers in Our Community How Communications Helps the Community One Day on the Farm People Who Work at Night Stores in our Community We Want Goods and Services What Our Town Does For Us **Community:** Community workers visit class: nurse, fireman, policeman, etc.	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 2 - Ecosystem

ORIENTATION Life Cycle

Integrated with:

SUBJECT Language Arts, Science

TOPIC/UNIT Informational Writing

BEHAVIORAL OBJECTIVES

Cognitive:

Explain the difference between frogs and toads. The child will orally describe the place where we find frog eggs.

Affective:

The child will choose which they would rather be--a frog or toad. Ex.-frog, I like to swim; toad, I like insects.

Skills Used:

1. Discussing.
2. Identification.
3. Informational writing.
4. Listening.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts
   A. Read:
      1. Frog and Toad Are Friends
      2. The Letter
      3. Olly's Polliwogs
   B. Use above to discuss "life cycles".

II. Science
   A. Discuss frog and toad activities:
      1. How and what they eat.
      2. How they swim.
   B. Discuss how frogs and toads change.
   C. How they fit into balance of nature.
      1. Eat bugs, etc.
      2. Food for humans, and also other small animals.

III. Language Arts
   A. On a large sheet of paper, draw each development of the frog.

Outside or Community:

A. Visit nearby pond, bait store or hatchery to obtain frog and toad eggs and observe them each day for changes using magnifying glass.

B. Visit a kindergarten and tell or show what we have learned about the life cycle of a frog.
   1. Choose a group of ten children having each responsible to present the talk on frogs to a small group of kindergarten children.
   2. Let each child choose the materials (i.e. pictures, books, flannel boards) they would use with their talk.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

The Old Bullfrog, Bernice Freschet
Frog and Toad are Friends, Arnold Lobil
The Letter, Arnold Lobil
Olly's Polliwogs, Anne & Harlow Rockwell

Audio–Visual:

Frog eggs in glass jar.
Magnifying glass.
Glass jar for polliwogs.
Folk song, "Froggie Went A Courting"
Films:
Frogs and How They Live, BAVI
Life in a Pond, BAVI
Tad, The Frog, BAVI

Community:

E. S. E. A. Title III — PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 2 - Ecosystem

SUBJECT Art

ORIENTATION Sea Life

TOPIC/UNIT Crayon Resist Mural

BEHAVIORAL OBJECTIVES

Cognitive:

Construct a painting that includes a variety of sizes and species of fish and other underwater life including shells, seaweed, rocks or coral and the water itself in a way that indicates the dependence on each other.

Affective:

Display his awareness of the interdependence of underwater life by the objects he chooses to depict in his art work.

Skills Used:

1. Familiarization with the resist method of painting.
2. Introduction to combining art media in a meaningful way (constructive).

(Continued)

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Show film Still Waters.
B. Crayon resist water color (tempra) painting to show the underwater plant and animal growth and their dependence on one another.
   1. Include in the drawing fish, seaweed, water lily.

Outside or Community:

A. Visit a local aquarium, tropical fish store or the home of a person having a tank of fish.
B. Visit to a museum (such as the County Museum in Milwaukee) to view the dioramas of sea life.

SUGGESTED RESOURCES

Publications:

Translucent Fish, V. B. Knight, il. Instructor, 78:43 MY, '69
Drawing for Environmental Awareness, A. P. Taylor, il. School Arts 68:12-13, Mr. '69
Drawing with Mixed Media, M. B. Bowman, School Arts, 71:14-15, N '71

Audio-Visual:

Slides or films on sea life.
Crayon Resist, B.F.A. film, also available from BAVI
Still Waters, film, ICE RMC, Film #510

Community:

Aquariums
Museums
Pet stores

CONTINUED OR ADDED LEARNING ACTIVITIES

SKILLS (Continued)

3. Ability to draw a variety of shapes to suggest a variety of plant and animal growth.
4. Use and care of a paint brush.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 2 - Ecosystem

SUBJECT Physical Education, Science, Music

ORIENTATION Food Chain

TOPIC/UNIT Singing Games

BEHAVIORAL OBJECTIVES

Cognitive:

Describe several food chains.

Compare the food requirements of animals.

Explain how nature provides claws etc. for animals to defend themselves with and to get food, using examples.

Affective:

Continue to investigate the life cycle of several kinds of animals and their environment outside of class.

Skills Used:

1. Locomotor movements in rhythm.
2. Identification of food chain relationships.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Physical Education
   A. Using the old familiar song: Farmer in the Dell, the students may enjoy changing the words to show various food chain relationships. Be sure to explain each term used. Example:
      1. The clever little fox
      The clever little fox
      Heigh-o the dairy-o
      The clever little fox
      2. The fox takes the mouse...
      3. The mouse takes the seed...
      4. The seed takes the soil...
      5. The soil takes the stump...
      6. The stump takes the toadstool...
      7. The toadstool takes the slug...

(Continued)

Outside or Community:

A. Take a field trip to a local nature center, marsh, pond, creek or zoo.
B. Study backyard creatures in school or nearby park. (Use magnifying glass if possible).
C. Assemble various food chains in correlated science unit.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Books:
The Living Community
A Venture into Ecology, Carl Hirsch
Patterns of Nature, Jeffrey Baker

Audio-Visual:

Introducing Animal Series, set of study prints, ICE RMC, KT 19
The Environment of Man; An Introduction to Ecology, set of filmstrips, records, ICE RMC, KT 2

Community:

CLASSROOM (Continued)

8. The slug takes the bug...
9. The bug takes the bird...
10. The bird takes the worm...
11. The worm takes the soil...
12. The soil takes the plant...
13. The plant takes the sun...
14. The sun stands alone.

B. Physical activity might be forming circles, holding hands and changing direction of movement with each line.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 2 - Ecosystem

SUBJECT Physical Education, Science

ORIENTATION Animal Movements

TOPIC/UNIT Self-testing Activities, Animal Life

BEHAVIORAL OBJECTIVES

Cognitive:

Imitate the movements of four animals; the inchworm, the crab, the cricket and the frog.

Explain how the different types of movement are appropriate for the animal in his habitat.

Affective:

Further investigate how differently animals move and why. They can then experiment with new locomotor movements.

Skills Used:

1. Locomotor skills in bending and squatting positions.
2. Large muscle movement.
3. Small muscle movement.
4. Body balance.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Physical Education
   A. Class activities
      1. Question the children about the ways animals move.
      2. Direct them to try and move like:
         a. An inchworm:
            -bend over until your hands touch the floor in front of you,
            -rest on your hands and feet,
            -slowly bring your feet up as close as you can to your hands.
            -inch your hands forward.
         b. A crab:
            -squat down and reach back, putting both hands on the floor without sitting down,
            -keeping your body stiff and in a straight

(Continued)

Outside or Community:

I. Science
   A. Bring a crab, frog or cricket to school.
   B. Choose one of the above animals and read as much as you can about it. Report on its movements.
   C. Take a nature walk to a creek to observe frogs and crabs in action.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Nicks, Mel, Curriculum for Elementary Physical Education, Diocesan Dept. of Education, Green Bay, WI, 1965

It's Your World, I-C-E field activity guide

Audio-Visual:

Community:

CLASSROOM (Continued)

line, walk forward, backward and sideways.

c. A cricket:
-squat and spread your knees,
-put your arms between your knees,
-put your arms between your knees and grasp the outside of your ankles with your hands,
-walk forward and backward, chirping like a cricket.

d. A frog:
-squat down with your hands placed on the floor, slightly in front of your feet,
-jump forward a few feet, landing on your hands and feet at the same time.

e. A grasshopper:
-sit down on floor, legs extended. Pick up body with hands and move forward using feet as a lever.

II. Science

A. A sensory development, "It's Your World" field activity guide.

Environmental: **Integrated with:**

CONCEPT NO. 3 - Carrying Capacity **SUBJECT** Mathematics

ORIENTATION Carrying Capacity **TOPIC/UNIT** Measurement - Liquid and Dry

BEHAVIORAL OBJECTIVES

Cognitive:

Define the word "capacity".

Conduct an experiment to find out which container holds the most popcorn.

Affective:

Display a curiosity about the carrying capacity of other containers of different sizes and shapes by collecting them and using water, beans, etc. to compare carrying capacities.

Skills Used:

1. Listening.
2. Experimenting.
3. Discussion.
4. Comparing.

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

A. Tell the children the story of Pete's Popcorn Problem.
   1. Supplies for class.
      a. Two containers of different volumes with deceptive shapes so that children cannot tell at a glance which is larger.
      b. Popcorn or some similar material in one large container.
      c. For each group of 3 or 4 children, one tray with 2 small containers of different volumes and shapes. Children can bring this from home. One plastic container (12 oz.)
   2. After story, ask these questions: What did Pete want to find out? (which container would hold the most popcorn) How did he find out?

(Continued)

Outside or Community:

A. Take the same size container of sand, gravel, clay and rich soil. (You may use any other kinds available).
   1. Put water into the containers until the soil will absorb no more.
   2. Compare the measurements to see the different capacities of soil to hold water.

B. County agent will come to speak to the group on the kinds of soil and the best uses of each kind.

C. Contact Mr. Howlett, Project I-C-E office.

SUGGESTED RESOURCES

Publications:

Introducing Measurement, Minnemast, Minnesota Mathematics and Science Teaching Project, ICE RMC, 110 Un5

Things That Measure, Philip Corona, Prentice Hall, 1962

Audio-Visual:

Community:

County agent on kinds of soil

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

2. Ask the children for suggestions.
3. Divide class into small groups and give each group two small unfilled containers and the large plastic container filled with popcorn.
   a. Ask the children to find out which container they would use if they were going to take home some popcorn.
   b. Watch children to see how they decide.
4. Review the word "capacity" (introduced in 1st grade), how much it can hold.

PETE'S POPCORN PROBLEM

Pete liked popcorn very much! He ate popcorn plain and buttered. He liked popcorn balls and caramel popcorn. He ate popcorn while he watched TV and as a snack just before he went to bed. He liked going to the movies because he could buy an especially big box of popcorn there! Pete would even eat popcorn for breakfast--if only his mother would let him.

One day Pete's father told him he had a special surprise for him.

"What is it, Daddy? What is it?" Pete asked.

"You will find out on Saturday. I know you will like this surprise very much!"

Pete woke up early on Saturday. So did Daddy.

"Today's Saturday, Dad. Tell me what my surprise is -- please," Pete asked.

"We will drive to the surprise. Come on! Let's get started." Soon they came to a big, big building. Pete saw a sign. He didn't know many of the words on the sign but he did know one! POPCORN!

(Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	Pete's Popcorn Problem (Continued) "A friend of mine owns this popcorn factory," Daddy said. "I told him how much you like popcorn. He said we could see workers here getting all kinds of popcorn ready for people to buy." Pete and his father met the man who owned the factory and he showed them the popping machines. Then Pete saw how they packaged the popcorn and how they made popcorn balls. When they had seen all these things the man said, "Would you like to take some popcorn home?"
Audio–Visual:	"Oh, yes!" Pete answered. "You must decide one thing. Here are some different containers." (Point out the two containers you have set out.) "You may fill one of them with popcorn." Pete looked at the containers. They were different shapes. He wanted to be sure he took as much popcorn as he could. He know he had a problem!
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 3 - Carrying Capacity **SUBJECT** Art, Physical Education

ORIENTATION Imbalance and Balance of Nature **TOPIC/UNIT** Presentation of Balance and Imbalance of Nature

BEHAVIORAL OBJECTIVES

Cognitive:

Illustrate an imbalance of nature by adding plants and animals to a forest scene.

Affective:

Show awareness of imbalance and balance of nature by bringing into class examples from the neighborhood.

Skills Used:

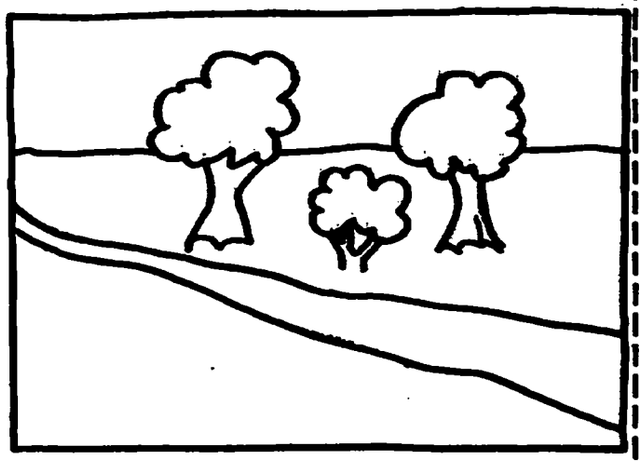
1. Cutting and gluing.
2. Design.
3. Awareness of architectural styles.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Art

A. Using a large sheet of Manila paper or tagboard the teacher can draw a simple wooded scene:



1. The children will draw and cut out (using construction paper):
   a. animals
   b. plants

Then the children will place the figures on one by one to show the implications of overcrowding.

(Continued)

Outside or Community:

A. Observe and discuss a wooded (natural) area. Discuss what they could add in terms of animals and plants and if it would cause an imbalance of nature.

B. Speaker from DNR on imbalance and balance of nature.

C. Discuss the food chain of animals and how it controls the balance of nature.

SUGGESTED RESOURCES

Publications:

The Modern City Planning in the 19th Century, Francois Choay
The Modern City Planning in the 20th Century, George R. Collins
The Image of the City, Kevin Lynch, 1960
Design of Cities, Edmund N. Bacon, Viking Press, 1967
Too Many People?, ICE RMC, 190 Ki
Aesthetic Education for What? Helen Diermert, School Arts, April '72, page 37.
(Continued)

Audio-Visual:

Films:
Nature's Half Acre, ICE RMC, Film #210
More, ICE RMC, Film #530
Animal Predators and the Balance of Nature, BAVI
Ecology - The Pollution Problem, teaching pictures, ICE RMC, KT 39
Environmental Quality Index - America Is In Trouble, ICE RMC, KT 9

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)
Environment: Children Explore Their School, Their Community, Their Values, C. E. Knapp, Instructor, p. 62-64, Jan. '62 and Feb. '72.
From the Scrap Box, H. Ferry, Instructor, 80:44, Feb. '71.
Get Acquainted College, B. Riebman, Arts and Activities, 69:17, April '71.

CLASSROOM (Continued)

B. This can also be created by adding taking people away from an area in the classroom.

II. Physical Education

A. "A Hunting We Will Go". Children line up single file. First in line will become the hunter. Everyone behind becomes deer. Sing "A Hunting We Will Go, A Hunting We Will Go, Heigh-o! The Dairy-o!, A Hunting We Will Go!" The line disperses when hunter yells "bang". Hunter tags deer and they play dead.
Variations:
1. More hunters.
2. Less hunting space.
Discuss how wildlife is affected when an area is overpopulated.
a. Wildlife area restricted.
b. Too many hunters.
c. Too few animals.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 3 - Carrying Capacity

ORIENTATION Survival

Integrated with:

SUBJECT Science, Art, Language Arts

TOPIC/UNIT Animals, Letter Writing, Poster Making

BEHAVIORAL OBJECTIVES

Cognitive:

List or draw three small animals or insects helpful to man.

List the factors (land, water, topsoil, light penetration) which are most affected by specific disasters.

Affective:

Orally express a realization that animals need to struggle to live.

Skills Used:

1. Collecting.
2. Recording.
3. Letter writing.
4. Discussing.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   - A. Bulletin board display of natural hazards of floods, tornadoes, earthquakes, collected from newspapers and magazines.
   - B. Read and show short picture book, The Last Free Bird, by Harris A. Stone. Discuss the disasters that occur in nature.

II. Language Arts
   - A. Write letter to local forest ranger station for information on how to prevent and control forest fires.

III. Art
   - A. Make safety posters on preventing forest fires; water safety.

Outside or Community:

A. Veterinarian will visit class to discuss the diseases and control of the diseases in domestic animals.
   1. Each student will have a question ready on sicknesses of their pets.

B. Collect bugs and small animals in jars; discuss useful and harmful types. Release useful ones in natural environment. Helpful--ladybugs, spiders, bees, dragonflies.

C. Local forest ranger will explain how to prevent and control forest fires.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Ranger Rick articles published by National Wildlife Federation on forest fires, earthquakes, glaciers, water pollution or lack of water, Dec. '70 and March '71.
Grishka and the Bear, Rene Guillot
Hoogie's Rifle Gun, Miska Miles
The Last Trumpeter, Ross Elliott Hutchins
Vanishing Wild Animals of the World, Robert Fitter

Audio–Visual:

Films:
How Animals Life in Winter, IMC F-9-DII
Insects in the Garden, Encyclopedia Britannica
How Animals Defend Themselves, BAVI
Cry of the Marsh, ICE RMC, Film #390

Community:

Trip to wooded area, find animal homes.
Forest ranger visit to talk about forest fires.
Local game farm.
Veterinarian visit.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0125–4

Environmental:

CONCEPT NO. 4 - Water

ORIENTATION Water Quality

Integrated with:

SUBJECT Science, Social Studies, Language Arts

TOPIC/UNIT Water

BEHAVIORAL OBJECTIVES

Cognitive:

Identify five water pollutants after observation of pure and impure water.

List five ways in which their family makes use of water.

List two ways in which the family can conserve water.

Affective:

Ask questions or volunteer information regarding local pollution of water in a teacher-led discussion.

Skills Used:

1. Observation
2. Dramatization
3. Selection of pictures
4. Comparison
5. Letter writing
6. Investigation

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   - A. Catch children's interest and dramatize how terrible it would be if our school room bubblers wore this sign: DO NOT DRINK THIS WATER IT IS POLLUTED.
   - B. Place drops of polluted water under microscope or magnifying glass, discuss what they see.
   - C. Compare and observe pipecleaners dipped into clean and polluted water.
     1. Which kind of water would you like to play and swim in? Why?
     2. What living things make their homes in water?
   - D. Class prepare a display of different types of water contaminators.

(Continued)

Outside or Community:

- A. Take children on a field trip to a polluted stream in your area. Why is it that way? Take them also to a well-managed farm pond. Look for beautiful things. Have a picnic and then discuss where the litter belongs.
- B. Visit local stream, pond, or fish hatchery to observe plants and animals in polluted and unpolluted water.
- C. Hear talk by conservationist, water department representative or chemist about purification of water (optional).
- D. Trip to water works or sewage plant.
- E. Contact George Howlett, Project I-C-E office. He has excellent slides on water.

SUGGESTED RESOURCES

Publications:

People and Their Environment; Teacher's Curriculum Guide to Conservation Education, ICE RMC, 170 Br
Science Experiments with Water, Sam Rosenfeld
What Is Water?, Adaline Hagaman
Working With Water, E. A. Catherall
Let's Go to Stop Water Pollution, Michael Chester
Water Fit To Use, Carl W. Carlsen
(Continued)

Audio-Visual:

Films:
Life Along the Waterways, BAVI
Life in a Drop of Water, BAVI
Seashore Life, BAVI
Seashore, BAVI
Water: A First Film, BAVI
We Explore the Stream, BAVI
The Ocean, A First Film, Bailey
Living Things in a Drop of Water, Encyclopedia Britannica
Water and What It Does, Encyclopedia Britannica
Rise and Fall of the Great Lakes, ICE RMC, Film #240

Community: (Continued)

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

1. salt, sugar, food coloring, fertilizer, oil, detergent, soil, etc.

E. Divide the class into two groups; 1/2 class is "We Care" and 1/2 of class is "We Don't Care." The "We Care" group changes water in one fish bowl each day. It keeps the environment clean. The "We Don't Care" groups keeps a record of the elements, such as dirty nail, dust, mud, dead leaf, chicken bones, detergent suds, gum introduced in other fish bowl. Observe murkiness, foul air. Discuss with children what would happen if fish lived in each bowl.

II. Language Arts

A. Write the feelings of a fish in "clean environment" or "polluted environment".

B. Write letters to your municipal water department for information about how much water your city uses in a year. Compare information to information gathered from other city water department.

III. Social Studies

A. Show pictures of:
1. Polluted stream showing dead fish.
2. Clear stream of water.
3. People fishing.
4. Water recreation.

B. List ways family waste clean water. Ex.-showers vs. baths, letting faucets run needlessly, drippy faucets.

MEMORY GAME: Each person names a way to use clean water. Second person lists the first way and an additional way, third person lists the first two and an additional way.

PUBLICATIONS (Continued)
Water for Your Community, Edward Rodlauer
Water: Our Most Valuable Natural Resource, Ivan Green
The Clean Brook, Margaret Farrington Bartlett
Rivers, Delia Goetz
(Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	PUBLICATIONS (Continued) Adventures of Walter Waterdrop - Needed Clean Air, free coloring book available from the U. S. Environmental Protection Agency, Office of Public Affairs, One North Wacker Drive, Chicago, Illinois 60606. AUDIO-VISUAL (Continued) Large picture from Wisconsin Conservation Department which contrasts clean and dirty streams and surroundings.
Audio—Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 4 - Water

SUBJECT Art

ORIENTATION Use and Misuse of Water

TOPIC/UNIT Mural

BEHAVIORAL OBJECTIVES

Cognitive:

Design a mural on use and misuse of water.

Affective:

Demonstrate an awareness of all the different items that might pollute a stream and appreciation for a clean stream by suggesting that items be removed from a stream or ditch. The items removed will indicate this awareness.

Skills Used:

1. Running
2. Fairness in play
3. Tagging
4. Dodging

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Make large mural of magazine pictures or drawn pictures on uses of water.
   1. Industry--paper mills canning factories, breweries, hospitals, fire departments, construction companies, etc.
   2. Farms
   3. Homes
   4. Doctors, dentists, etc.

B. Divide class into groups. Have each give a skit based on the character from the Electric Company--Man on the Street.
   1. Each child will have a minimum of six questions which will pertain to misuse of water.
   2. Teacher can suggest the characters that will be interviewed.
      a. Donna Drain
      b. Peter Pipe
      c. Dirty Dan
      d. Clean Clara

Outside or Community:

A. Possible correlation with classroom teacher's scheduled visit to a polluted stream.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	
Audio–Visual: Films: Your Friend the Water - Clean and Dirty, BAVI Water, Water Everywhere, BAVI	
Community:	

Environmental: | **Integrated with:**

CONCEPT NO. 5 - Air | **SUBJECT** Social Studies

ORIENTATION Air Pollution | **TOPIC/UNIT** Seasons

BEHAVIORAL OBJECTIVES

Cognitive:

Draw two ways nature cleans air.

Identify which season in depicted in a picture or sketch.

Affective:

Notice any daily effects nature has or is using to clean air when air is stagnant and comment about this in class.

Skills Used:

1. Making a booklet.
2. Brainstorming.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Explain that nature helps clean the air by precipitation. Children can make a booklet of each season's precipitation. Example:
   Winter--snow scene
   Fall--rain in fall scenery
   Summer--rain in hot climate

B. Another of nature's ways to clean air is in air movement. Class divide and brainstorm air movement on people during seasons and ways to detect air movement. Class shares results and adds to their booklets. Winter:
   1. See chimney smoke in wind direction.
   2. Feel cold wind on cheeks.
   3. People dress accordingly.
   4. Cold wind blows warmer air away from the body.

(Continued)

Outside or Community:

A. See weather experiment used to measure wind or precipitation at airport.

B. Visit, observe or make weather station.

SUGGESTED RESOURCES

Publications:

Social studies texts.
Busy Winds, Irma S. Black, Holiday House, Pre-K-4.
Clean Streets, Clean Water, Clean Air, Cynthia Chapin
The Sun, The Wind, The Sea and The Rain, Schlein
Rain, Rain Rivers, Shulevitz
What Will The Weather Be?, Barr and Chaplin.
When Air Moves, Freeman
The Storm Book, Zolotow

Audio-Visual:

Films:
Weather - Why It Changes, BAVI
Rain Shower, BAVI
Weather Scientists, BAVI
Air and What It Does, BAVI
Environmental Education Activity Cards (Air, Water, Land, Life), ICE RMC, KT 40

Community:

Airport

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

B. 5. Wind chill temperature given on radio and TV weather news.
6. Wind blows and spreads out the results of air pollution.
Same type of thing for the other seasons.

C. Have the children draw their own creation of a super-dooper fantastic air cleaner. Use KT 40, Project I-C-E.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 5 - Air

SUBJECT Science

ORIENTATION Endangered Species

TOPIC/UNIT Animals

BEHAVIORAL OBJECTIVES

Cognitive:

Describe orally or in writing the physical effects of animals living in clean and unclean air.

Affective:

Voluntarily name two places or situations where he feels either animals or people have created an unhealthy air situation and defend his position.

Skills Used:

1. Recognition of endangered species.
2. Discussion.
3. Listing.
4. Problem solving.
5. Collecting pictures.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Discuss how some animals in winter breathe underground. Air is present in soil. Snow acts as insulation (blanket). If this blanket is compacted, such as with a snowmobile, animals no longer have enough air to breathe.

B. Read and discuss about the various animals who have moved from concentrated populations with heavy air pollution to deserts and more sparsely inhabited areas Display on bulletin board. *Ranger Rick publications.

C. Make a class scrapbook of pictures of endangered species. Free pictures available through Scholastic Weekly Reader or Dept. of Natural Resources.

Outside or Community:

SUGGESTED RESOURCES

Publications:

The Unclean Sky: A Meteorologist Looks at Air Pollution, Lewis Batton, 1966
Dangerous Air, Lucy Kavaler, 1967
About the Nature of Air, Harry Sootin, 1967
America's Endangered Wildlife, George Laycock, 1969
Ranger Rick, National Wildlife Federation, Dec., 1970
Needed: Clean Air, free from Environmental Protection Agency, Chicago

Audio-Visual: (Continued)

Filmstrips:
Urban Ecology, Eye Gate, ICE RMC, FS St 3
Freshwater Community, Budek
Seashore Community, Budek

Films:
Winter is Here - Animals Adapt to Winter, International Film Bureau
Animals in Winter, BAVI

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)
Winter Sleeping Wildlife, Barker
Winter Sleepers, Sarasy
Time for Sleep, Selsam
Winter Tree Birds, Ozone
All Ready for Winter, Anderson
Bears are Sleeping, Yalya
All Ready for Winter, Adelson
Whitefoot, Story of a Wood Mouse, McClung
Animals of the Small Pond, Erickson
Let's Find Out About Winter, Shapp
Bats, Ripper

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 5 - Air

ORIENTATION Smells

Integrated with:

SUBJECT Language Arts

TOPIC/UNIT Creative Writing

BEHAVIORAL OBJECTIVES

Cognitive:

Identify pleasant and unpleasant odors in nature.

Affective:

Voluntarily relate to class several examples of unusual smells encountered outside the classroom.

Skills Used:

1. Listing positive and negative aspects.
2. Discussing.
3. Making judgments.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Discuss with children why we can smell the hot lunch.
B. List odors which they like.
C. List odors they dislike.
D. Smell odors such as smoke, onions, perfume, etc.
E. Creative writing: "I like the smell of..." Ex.-cake in the oven, fresh bread baking, lilacs in spring.
F. Draw pictures of things that have pleasant and unpleasant odors.
   1. Flowers
   2. Skunks

Outside or Community:

A. Children will bring materials from home and community for a smelling party.
B. Bring in pictures of polluted air.
C. Bring in articles to smell; half of the room can bring in nice odors and the others the bad odors.
D. It's Your World, creative unit available free for the asking at Project I-C-E.
   1. Sit-in outdoors for experiences with the senses.
   2. Possible art activities.
   3. Tape recording during experiences to be used as a conclusion activity in classroom.
   4. This will also be covered in 1st and 2nd grade.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Poem: The Wind, Robert Louis Stevenson
The Air Around Us, Bertha Parks, 1941, old but good reference for teachers
The Wump World, Peet
The Air We Live In, Marshall
Dangerous Air, Lucy Kavaler
The First Book of Air, A Basic Guide to the Earth's Atmosphere, David C. Knight
Air, Edna Preston

Audio-Visual:

Pollution, filmstrip, Trola Assn., BAVI
The Runaround, free film from Tuberculosis and Respiratory Disease Assn., Milwaukee, WI
The Only World We Have, kit
Ecology - The Pollution Problem, posters, ICE RMC, KT 39

Community:

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: | **Integrated with:**

CONCEPT NO. 5 - Air | **SUBJECT** Art

ORIENTATION Clean Air | **TOPIC/UNIT** Air Pollution Painting

BEHAVIORAL OBJECTIVES

Cognitive:

Describe the effects of air pollution on the color of an object through the use of an illustration.

Affective:

Join in the making of illustrations (bumper stickers, etc.) that indicate the implications of polluted air.

Skills Used:

1. Painting
2. Discussion
3. Observations
4. Awareness

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Paint an outdoor scene using bright colors.
   1. Discuss what would happen to it if the air became polluted.
   2. Overlay a piece of gray tissue paper to create this polluted air effect.
   3. Discuss what effect this has on the colors and details in the painting.

B. Make bumper stickers on how the earth looks when polluted. Theme: Do You Want This?

Outside or Community:

A. Take students outdoors to do sketches for their painting.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Painting, Zaidenberg, A. The Artist's Handbook of Materials and Techniques, Ralph Mayer, 1970	
Audio–Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 6 - Resources **SUBJECT** Science

ORIENTATION Natural Resources **TOPIC/UNIT** Fuels - Energy

BEHAVIORAL OBJECTIVES

Cognitive:

Diagram one energy chain from the sun to the final animal or plant.

Affective:

Voice a concern about the current energy crisis with statements such as "We shouldn't leave the lights on while we're gone for a long time", "If we don't conserve energy, we won't have any to use."

Skills Used:

1. Discussion
2. Experimentation
3. Demonstration
4. Committee work

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   A. Relate fuels as food energy for machines.
   B. Green plant display-pressed plants or pictures to show plants store energy from the sun in a food-making process.
   C. List fuels on board used to heat our homes. Ex.-wood, coal, gas, oil.
   D. Committees draw fuel chains for each listed.

sun → plants → wood

sun → compressed plants → coal

sun → { animals & plants } → { gas & oil } → in sand-stone

   E. Make a sample or model of an oil well:
      1. Fill a jar with marbles.

(Continued)

Outside or Community:

A. Visit a lumberyard, gas station or coal yard, museum which may have examples of the fossil fuels.
B. Have the children bring in current event articles about fuel shortages.

SUGGESTED RESOURCES

Publications:

America's Treasure, Reed, children's book
Natural Resources, Huberty and Flock
Conservation of Natural Resources, Smith
Lorax by Dr. Seuss
The Forest, Peter Farb
The First Book of Energy, George R Harrison
A Tree is a Plant, Clyda Bulla
True Book of Trees, Illa Podendorf

Audio–Visual:

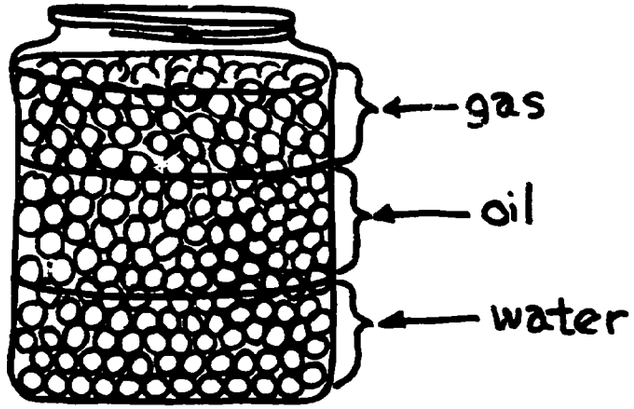
Our Natural Resources, film, BAVI
Natural Resources - Coal, Oil, Natural Gas, Eye Gate
Conservation - A Picture Discussion Kit, free from American Petroleum Institute or ICE RMC, KT 8

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

2. Fill half full of water.
3. Add a few spoonfuls of kerosene or crude oil.
4. Put cap on jar, watch oil float to top.



F. Possible correlation with Dinosaur unit.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 6 - Resources **SUBJECT** Science, Art

ORIENTATION Depletion of Natural Resources **TOPIC/UNIT** Forest Conservation

BEHAVIORAL OBJECTIVES

Cognitive:

List four important ways forests play an importance to the quality of our life and the ecosystem.

List ways that can be used for conserving forest products and describe how each will conserve forest products, ex.- use two sides of writing paper.

Affective:

Share ideas on how they can use forest products in such a way as to conserve more trees. Actual use of conservation practices such as using both sides of the writing paper and challenge those that do not and suggest that they do use conservation practices.

Skills Used:

1. Brainstorming
2. Listing
3. Discussing

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   - A. Class brainstorms on uses of wood in room, home and community.
   - B. Ranger Rick's article read and discussed on danger of depleted forests.
   - C. Discuss animals' distress when forest homes are destroyed. Dramatization may also be used.
   - D. List what would happen if we ran out of lumber for building materials. Contrast this list with a list of substitute materials (man-made).
   - E. Show filmstrip and children follow along with comic books. See free publication back of this page.

II. Art
Have the child draw and color a picture of a

(Continued)

Outside or Community:

SUGGESTED RESOURCES

Publications:

What Is A Tree?, Gene Darby
Christmas Trees and How They Grew, Glen O. Blough
You and the Earth Beneath Us, Julian May
Once There Was a Tree: The Story of a Tree-A Changing Home For Plants and Animals, Phyllis Busch
Ranger Rick magazine, National Wildlife Federation.
Free: Jr. Forest Ranger Kit from National Wildlife or inquire at

Audio-Visual: (Continued)

Films:
Winter-Animals Adapt to Winter, International Film Bureau
Filmstrip:
Sonny Squirrel and the Pine Trees, BAVI
Our Wonderful Woodlands, American Forest Institute, ICE RMC, FS St 7 or order free.

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

DNR office. (Contains coloring book, Smokey Bear Song sheet, pen, bookmark, etc.)

CLASSROOM (Continued)

magic forest. They could include:

A. Candy flowers
B. Orangeade waterfall
C. Trees that sprout marshmallows
D. Hot fudge river

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 6 - Resources

SUBJECT Physical Education

ORIENTATION Resource Distribution

TOPIC/UNIT Games

BEHAVIORAL OBJECTIVES

Cognitive:

Explain the importance of the forest in providing animal homes.

Affective:

Show concern about the loss of forests as a natural resource by writing stories that indicate the loss of animals if forests vanish.

Skills Used:

1. Running
2. Tagging
3. Dodging
4. Fair play

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Game illustrates the plight of the animal searching for a home.

SQUIRRELS AND TREES

1. Players in groups of three with hands clasped together, forming a tree. One squirrel is placed in each tree. One odd squirrel is without a tree.
2. The "it" person is the fox and chases the squirrel. The squirrel reaches safety when he takes a tree and the other squirrel must run. If he is caught, he changes roles with the fox and becomes the catcher.
3. When a new squirrel enters a tree, rotate with a part of the tree; therefore, letting everyone have a chance to run.

Outside or Community:

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Sing With Smokey; A Conservation Song Book, ICE RMC, 170 Ho	
Audio—Visual: Pictures of forest fires. Film: Our Natural Resources, BAVI	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 7 - Land Use

SUBJECT Social Studies, Art

ORIENTATION Transportation Systems

TOPIC/UNIT Transportation

BEHAVIORAL OBJECTIVES

Cognitive:

Rate a list of modes of transportation into groups according to the greatest affects on land use.

Example:

Wagon	3	Airplane	3
Walking	4	Horse	4
Railroad	2	Car	1
Jet	1		

Affective:

Voluntarily share with the class the different modes of transportation observed outside the classroom.
Suggest walking instead of an auto when going on a field trip to an area several blocks away because it would have less of a detrimental effect on the land use.

Skills Used:

1. Reporting
2. Observation
3. Interviewing
4. Collecting information
5. Interpretation
6. Sequential order
7. Listening
8. Listing
9. Reading

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
- A. Introduce with movie, Boomsville. (Outside Activity A)
- B. When they get back to the classroom, a composite list of ways of transportation will be made.
- C. Use I-C-E Field Activity Guide "Don't Use Traffic Jam on Peanut Butter Sandwiches". Available from Project I-C-E.

II. Art
- A. Create a simple collage by gluing yarn or string onto paper or tagboard in design representative of highway patterns seen on maps, films or outside on field trips.
  1. Stress shape, thick and thin line, direction of line, connected lines, overlapping,

(Continued)

Outside or Community:

- A. The children and teacher will go for a walk and note the various ways of land transportation.
- B. Take a trip to a local historical site.
- C. Interview older citizens to get information needed for reports.
  1. What types of transportation did they use?
  2. What condition was the land used for the transportation?
- D. National Railroad Museum, Green Bay, Wisc.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

I Want To Be A Pilot, Green
I Want To Be An Engineer, Green
The First Book of Trains, The First Book of Cars, The First Book of Airplanes, Jean Bondick
The Big Book of Trains, George J. Zaffo
The Traffic Jam, Gerald Leinuand, teacher reference

Audio-Visual:

Films:
Boomsville, ICE RMC, Film #400
Airport in the Jet Age, BAVI
Airplanes Work For Us, BAVI
Big Wide Highway, Coronet, BAVI
What's So Important About the Wheel?, Journal Films, BAVI
Transportation by Helicopters, AIMS, BAVI

Community:

National Railroad Museum, Green Bay, WI
Chamber of Commerce

CLASSROOM (Continued)

interesting shapes between lines.
2. Using different colors and textures of cord will create more interest.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 7 - Land Use **SUBJECT** Social Studies, Language Arts, Art

ORIENTATION Leisure Time **TOPIC/UNIT** Land Use

BEHAVIORAL OBJECTIVES

Cognitive:

Choose the positive statements from a list of ten regarding changes in land use and population density.

Affective:

Create their own picture signs, which will tell people what to do or not to do in a park or public area for their own safety, e.g., no swimming, polluted water, wild animals, do not feed the bears.

Skills Used:

1. Interviewing
2. Map study skills
3. Illustrations
4. Dramatization
5. Sign making

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies

A. Show beautiful flower. Ask them to give some opinions on it. Give out paper and tell them to draw a picture of it. WAIT-teacher then steps on flower. Now who would like to draw a picture? What happened? Discuss what happens to ecosystem when many people come to a wildlife area for a summer vacation or holiday. (land abuse)

B. Make a bulletin board of beach scene with pigs in bathing suits, under sun umbrellas, cans all over with other garbage. Littered beach. Which are you? Other caption-Increase Leisure Times.

(Continued)

Outside or Community:

A. Children may interview parents about what they do in their free time. Report to class. Class list best ways of using free time for adults.

B. Visit facilities available in town made for people with leisure time.

C. Show slides of vacation trip and the special facilities provided for tours. How was land changed?

SUGGESTED RESOURCES

Publications:

Where Is Home?, McClellan, Black
Once There Was A Tree, Phyllis Busch
The Little House, Virginia Burtan
Too Many People, Richard Kimball, ICE RMC, 190 Ki
Miguel's Mountain, Binzen
A Big Pile of Dirt, Clymer

Audio—Visual:

Films:
Wisconsin Vacationland, BAVI
Wisconsin Interstate Highway, BAVI
Transportation: Foot Path to Air Line, BAVI
Better Use of Leisure Time, Coronet, BAVI
Woodland Manners, BAVI
Population Posters by Richard Kimball, ICE RMC, 190 Ki
Film: The Tree House, King Productions

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

II. Language Arts
- A. Pantomime large group situation: crowded elevators, department sales, sidewalk sales. Draw pictures of crowded highways. Stress population growth.
- B. Children inquire what time parents finish work and the time they go to work. Why do some parents have to work at night?
- C. Discuss solutions to the lack of sufficient highways. Ex.-more roads, people ride together, live closer to work.
- D. Students indicate on the map where their family has gone on vacations or where their family once lived. Mark all locations. Locate vacation brochures and correspond to map locations.

III. Art
- A. Illustrate conservation signs: Stay off of grass, no hunting, no trespassing, private, no littering, etc. Discuss how ecosystem is affected when few men break laws, how affected when many break laws.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 7 - Land Use

SUBJECT Mathematics

ORIENTATION Land Use

TOPIC/UNIT Area and Counting

BEHAVIORAL OBJECTIVES

Cognitive:

Correctly count the number of people in a given area and compare the number of people to the number of houses.

Affective:

Offers to find new and better uses for a given land space.

Skills Used:

1. Census - counting
2. Research
3. Area measurement

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Take a given area in classroom and mark off. In this area place a box shaped for a small house. Tell children that only two people live in the house and there is only that much room. Each day the teacher adds a new item that will require more area on the given lot. (car-garage)(more money-bigger house)(children-more rooms)(recreation room) Children should see that the same area supports more buildings and people.

B. Have parents help child measure how big a lot they live on.

C. Take a census on each home, finding these things:
   1. Number of rooms.
   2. Number of people.
   3. Size of garage (1 or 2 car)

Outside or Community:

A. Visit an apartment building to see how space is used and number of people in the apartment.

B. Count the number of houses in their block.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Ecology: The City, ICE RMC, I30 McI0

Community Planning Handbook, ICE RMC, 110 Gi

Audio—Visual:

Films:

Cities are Different and Alike, BAVI

The City, BAVI

Boomsville, ICE RMC, Film #400

Kit:

Eco-Lab, ICE RMC, KT 21

Community:

Real estate agency

BEST COPY AVAILABLE

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 8 - Values and Attitudes

SUBJECT Mathematics

ORIENTATION Quality of Life

TOPIC/UNIT Addition and Subtraction

BEHAVIORAL OBJECTIVES

Cognitive:

Correctly add and subtract as he plays the ecology game.

Affective:

Suggest ways of achieving a cleaner world.

Skills Used:

1. Number line.
2. Forward movement.
3. Backward movement.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Use a number line from 1 - 10.
   1. Make sure the students are familiar with a number line.
   2. Use the chart to get the idea of movement on a number line.
   3. You can improvise on the chart according to need.
   4. A forward direction could be a result of positive ecological action. Reverse direction could be a result of negative ecological action.

B. Use the game on the next page.
   1. Make a game board for every four students, or use long roll of colored shelf paper divided into sections by colored tape.

(Continued)

Outside or Community:

A. Keep track of amount of garbage collected at home. Also, number of cans, glass and paper.

B. Contact janitor to keep track of amounts. Ex.-number of boxes, sacks of garbage, unburnable amounts.

BEST COPY AVAILABLE

SUGGESTED RESOURCES

Publications:

Ecology: The City, 130 Mc10, ICE RMC
The Environmental School, ICE RMC, 120 Me
A Place to Live, ICE RMC, 110 A
The True Book of Conservation, Richard Gates

Audio-Visual:

Films:
Our Land Needs Your Help, BAVI
Nature Is For People, BAVI
Lakes, BAVI

Community:

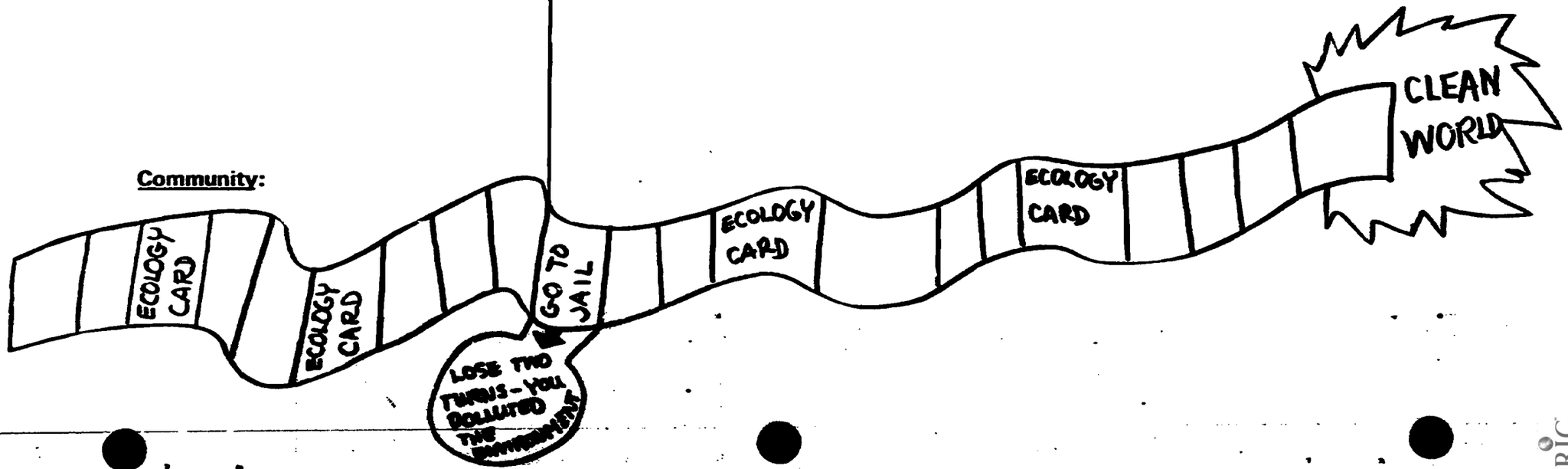
CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

2. You will need dice and place markers for each team.
3. You will need positive and negative cards with points for ecological actions.
4. Roll the dice and go the number of spaces you roll. Do what the square tells you.
5. The winner is the person who gets to "Clean World" first.
6. Discuss how many people fluctuate on their values and attitudes toward environment.

Sample Cards:
Forward 2 if you pick up paper in the room.
Forward 4 if you walked to school.
Forward 1 if you turned off a light.
Back 3 if you burned garbage this week.
Back 2 if you have books on the floor.
Back 1 if you wasted food.
Back 6 if you killed a bird.

C. Talk about what kinds of things we do back and forth on our route to a clean world. Use a zig-zag line to illustrate progress. (See sample chart below)



E. S. E. A. Title III – PROJECT I–C–E 59–70–U135–4

Environmental:

Integrated with:

CONCEPT NO. 8 - Values and Attitudes

SUBJECT Language Arts, Art

ORIENTATION Urban Growth vs. City Growth

TOPIC/UNIT Creative Writing

BEHAVIORAL OBJECTIVES

Cognitive:

Compare and contrast the different environments of a city and a country tree.

Affective:

Demonstrate a concern for the future of our environment as a result of our current environmental practices through the writing of a creative story.

Skills Used:

1. Observation
2. Note taking
3. Story writing
4. Discussion

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts
   A. Theme "City Tree, Country Tree". The children will be writing a story from the tree's point of view of life in the city. Then being a tree in the country.
      1. List answers on the board from class discussion on questions:
         a. Where you live
         b. Why you live there
         c. Who your neighbors are
         d. How you help other plants and animals
         e. What you feel towards people
      2. Divide the class into two groups. One group writes the story on the city tree, the other group on the country tree. Include ideas from the board.

(Continued)

Outside or Community:

A. Children will observe a tree and discuss the surrounding environment.

SUGGESTED RESOURCES

Publications:

The Last Free Bird, Harris Stone
The Wump World, Feet
End of the Line, Udry
A Place to Live, ICE RMC, 110 A
The Honey Boat, Polly Burroughs
The Big Pile of Dirt, Eleanor Clymer
A Small Lot, Keith
Noah's Ark, Bolliger

Audio-Visual:

Film:
Garbage, ICE RMC, Film #260

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

3. Group different tree environments together and read these to the class.

II. Art

A. The children can draw pictures of their tree and its surrounding environment.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 9 - Management

SUBJECT Language Arts, Social Studies, Art

ORIENTATION Land Use

TOPIC/UNIT Social Studies

BEHAVIORAL OBJECTIVES

Cognitive:

Identify and report changes in their environment and evaluate the results of that change.

Affective:

Notices changes in his neighborhood and tells his classmates about this change and whether he feels that they are for a better environment or not.

Skills Used:

1. Interviewing
2. Reporting
3. Gathering information
4. Contrasting

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies and Language Arts
   A. Motivation: Poem Study. See poem, "Indian Children".
   B. Students brainstorm in a discussion those local changes that they have seen. Teacher records ideas on 1/2 of the chalkboard for next day's discussion.
   C. Students prepare specific interview questions for parents regarding the changes they have seen in their community. Sample questions:
      1. How has our property changed in the last ten years?
      2. How has the business or downtown area changed?
   D. Put discussion ideas given by students on 1/2 of the board and interview

(Continued)

Outside or Community:

A. Have a local newspaper man, librarian or museum curator answer questions written by students prior to the speaker's presentation.

SUGGESTED RESOURCES

Publications:

"Indian Children" poem, Annette Wynn, Arbuthnot Anthology
Little Boy Brown, Harris
A Small Lot, Keith
Just Right, Moore
Farewell to Shade Glade, Peet
The Wump World, Peet
Fly, Homer, Fly, Peet
The L[illegible]e Tree Bird, Harris Stone
First Adventure, Elizabeth Coatsworth
Trail of Apple Blossoms, Irene Hunt

(Continued)

Audio-Visual:

Films:
Boomsville, ICE RMC, Film #400
History in Your Community, Coronet, BAVI
Pictures of your community in the past, from the library, newspaper office, family albums or museums

Community:

Local histories of the community to be read by the teacher and highlights told to the children.
Chamber of Commerce

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)
The Incas Knew, Tillie Pyne
Tucker's Countryside, George Selden
My Side of the Mountain, Jean George
The Indians Knew, Tillie Pyne

CLASSROOM (Continued)
results from parents on the other half. Discuss the changes.

II. Art

A. Poem Study: "Indian Children" by Annette Wynn, to appreciate the original past. Put on blackboard the poem "Indian Children".

INDIAN CHILDREN

When we walk to school each day
Indian children used to play,
All about our native land,
Where the shops and houses stand.

And the trees were very tall,
And there were no streets at all,
Not a church, not a steeple--
Only woods and Indian people.

Only wigwams on the ground,
And at night bears prowling round--
What a different place today
Where we live and work and play.

B. Students make a collage by bringing three pictures of things they would like to see in their environment and three that they would like to eliminate.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 9 - Management

ORIENTATION Land Usage

Integrated with:

SUBJECT Language Arts

TOPIC/UNIT Observation

BEHAVIORAL OBJECTIVES

Cognitive:

Describes his observations of a given natural environment and what he would do to improve the site in a report to the class. The report would include:

a. Location
b. Plant types & names (if known)
c. Animal types & names (if known)

(Continued)

Affective:

Continually identify changes that occur in his surrounding environment (neighborhood) and report these observations to the class.

Skills Used:

1. Comparison area
2. Note taking
3. Story writing
4. Observing
5. Spelling

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Ask the children to help you list places of natural areas around the school building.

B. Children, in pairs, will choose from the list which site they plan to observe.
   1. They take notes on the site's exact location, what lives there, what helps it grow, and what lives nearby.
   2. Each pair will sketch their site and color it as accurately as possible.
   3. Teams can report to the class all their observations, their sketch and, at the end, teams suggest ways to improve or help their chosen site.
   4. All teams will place on the board the new vocabulary words they learned while doing this project.

Outside or Community:

A. Observation outside the classroom. Ex.-compare earth's scars from road constructions, abandoned cars, and machinery covered with snow, spring pollution.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: You and the World Around You, Selsam A Small Lot, Keith Membership packet for Children's Club of National Audubon Society, 1130 Fifth Avenue, New York, NY 10028 Big Pile of Dirt, Eleanor Clymer **Audio-Visual:** Film: The Tree House, King Productions Photographs - local news Magazine pictures of areas similar to those observed **Community:**	COGNITIVE OBJECTIVE (Continued) d. Suggested improvements e. How improvements would improve the environment

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 9 - Management

ORIENTATION Urban Environment

Integrated with:

SUBJECT Mathematics, Art

TOPIC/UNIT Geometry, shapes

BEHAVIORAL OBJECTIVES

Cognitive:

Make a 3-D scale model of a downtown street using the basic geometric shapes.

Evaluate the beauty of a given area of man's world and describe the criteria used in the evaluation.

Affective:

Observe objects or areas in man's world and make comments concerning the beauty or lack of it without being asked to do so.

Skills Used:

1. Observation.
2. Making squares, triangles, circles and rectangles.
3. Discussion.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Mathematics
   - A. Discuss basic geometric shapes--squares, triangles, circles, rectangles.
   - B. From a list of four pre-determined downtown streets, one street will be selected by vote for the three-dimentional scene.
   - C. As a class, construct a chalkboard blueprint of the building shapes and their exact location.
   - D. Small groups will volunteer or be assigned to recreate a scale model of buildings shown on the blueprint.
   - E. Using recycled materials like milk cartons, shoe boxes, stones, sand paper, etc. students will assemble this street on table top, floor or on large area.

(Continued)

Outside or Community:

A. Field trip to see the actual selected downtown street.

B. Carpenter, architect, or contractor to show and demonstrate how basic tools are used.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Ecology: The City, ICE RMC, 130 Mc
I Want To Be A Carpenter, Builder, etc., Greene
Everything Changes, Howell
City Lots: Living Things in Vacant Spots, Busch

Audio-Visual:

Films:
Cities are Different and Alike, BAVI
The City, BAVI
Kit:
Environmental Awareness, ICE RMC, KT 16
Eco-Lab, ICE RMC, KT 21

Community:

Carpenter
Chamber of Commerce

CLASSROOM (Continued)

II. Art
- A. Each group will explain specifically, what is beautiful and ugly about their building.
- B. As a conclusion, the entire class can recommend ways to improve this downtown street.

E. S. E. A. Title III — PROJECT I—C—E 59-70 0135 4

Environmental: **Integrated with:**

CONCEPT NO. 9 - Management **SUBJECT** Art

ORIENTATION Nature As An Inspiration For Overall Design **TOPIC/UNIT** Overall Environment Design Printing

BEHAVIORAL OBJECTIVES

Cognitive:

Translates a design of nature into a textile design.

Affective:

Actively participates in creating a textile design.

Skills Used:

1. Basic relief printing techniques.
2. Rhythm in design.
3. Carving.
4. Drawing.

STUDENT—CENTERED LEARNING ACTIVITIES

In-Class:

A. The children can create their own textile design by weaving with straw or hay.
   1. Weave materials in various designs. These may be left as mats or shaped into baskets, bowls, pot holders.

B. Sand design. Sandy soil area or school sandbox or inclass sandbox is needed. Also melted wax.
   1. Each child or group of children can choose an object from nature. (twigs, rocks, shells)
   2. Press the object in the sand and report the pattern.
      a. More than one object can be used. Make sure the designs connect.
   3. When the design is complete, pour the melted wax into the design.

(Continued)

Outside or Community:

A. Get a wallpaper sample book to show overall patterns and designs utilized from nature.

B. Contact tribal council at your local Indian reservation to give a talk on basket weaving.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	CLASSROOM (Continued) C. Observe the different designs of nature that exist in the classroom, school building or home and make a list where they were found and what design was used. (leaves, rocks, flowers)
Audio—Visual: Film: How To Make Potato Prints, BAVI, B.F.A.	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 10 - Economic Planning **SUBJECT** Mathematics

ORIENTATION Water Quality Control **TOPIC/UNIT** Subtraction

BEHAVIORAL OBJECTIVES

Cognitive:

Demonstrate a procedure used to determine the amount of water wasted by one dripping faucet in a given period and compare water wasted in different faucets.

Affective:

Attempt to correct leaking faucets in his home through pressuring parents by identifying such leaks and explaining to parents why these leaks should be corrected.

Skills Used:

1. Observation.
2. Comparison.
3. Subtraction.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Dripping faucets send clean, usable water into the sewers.
   1. If you have a leaky faucet at home or in school, find out the volume of water wasted in 24 hours.
   2. Find the total number of leaky faucets in school and in all homes of the students and the teacher. Together find the total waste of water if each wasted the same volume.

B. Problems to be worked:
   1. Mary's leaky faucets wasted 15 cups of water of day. John's leaky faucets wasted only 6 cups a day. How much less water was wasted in John's home?
   2. After Tom fixed the leaky faucet, it only dripped 1 cup a day. Before it was

(Continued)

Outside or Community:

A. Municipal water worker to explain the importance of conserving water supply and the effects of wasted water.

B. Fire department employee to talk to pupils about the importance of a sufficient water supply for fire needs of the community.

C. Visit local sanitation department to observe purification of water.

SUGGESTED RESOURCES

Publications:

The Magic of Water, Charles Scribner and Sons
The First Book of Water, Let's Go To A Sanitation Department, Cochran

Audio—Visual:

Film:
How Water Helps Us, BAVI
Kit:
Investigations in Ecology, ICE RMC, KT 43

Community:

City water department
City fire department
Homes

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

fixed, it dripped 11 cups a day. How much did he save?

3. During one day, Bob used water five times. The first time he wasted four cups, the next two times he wasted five cups, the fourth time he wasted six cups, the last time he wasted eight cups. How many cups of water did he waste?
4. If Mary uses 30 gallons of water in one day and Barb uses 42 gallons in one day, who uses more water? How much more?
5. If John forgot to shut off the water tap after getting a drink, how much water would he waste in three hours if eight gallons of water came out of the tap every hour?

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 10 - Economic Planning **SUBJECT** Social Studies, Art

ORIENTATION Land Use **TOPIC/UNIT** Community Resources

BEHAVIORAL OBJECTIVES

Cognitive:

Evaluate the appropriateness of the use of a given site and, if found to be not appropriate, give a more appropriate use for the site.

Affective:

Voice an appreciation of the land space used for his neighborhood parks and playground facilities by a report to a parent group or writing a letter to the local government.

Skills Used:

1. Surveying
2. Planting
3. Drawing
4. Discussion
5. Role playing

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   A. The children will make a survey of the different ways the community uses space to earn money or a living. Ex.- farm, bank, various merchants.
      1. Survey should result in students' bulletin board tally of how many places exist for the purpose of earning a profit.
      2. Survey shows also which businesses are the largest, which employ the most people, and which have been here the longest.
      3. Survey shows which businesses depend on land the most.
   B. Student survey of non-profit recreational areas in the community.

(Continued)

Outside or Community:

A. Bring historical pictures of community and how area changed.
B. Visit areas of historical pictures and note comparisons.
C. Visit natural forest, emphasize some trees must be cut down to leave room for the new or young trees and note how seedlings are started. Perhaps a conservationist or consulting forester will lead the tour.
D. Use/Adapt I-C-E field activity guide "Yuru the Guru". Complete lesson follows.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Miguel's Mountain, Bill Binzen
Just Right, Lillian Moore
From Field to Forest, Lawrence Pringle
Ranger Rick magazine, National Wildlife Federation
Once There Was A Tree, World Pub.
The Little House, Virginia Bates
Playground Fun, Hastings
All Around the Town, McGinley
A Tree Is Very Nice, J. Udry
The Tortoise and the Hare, Aesop Fables (Continued)

Audio-Visual:

Films:
The Tree House, Brown County Library
Our Vanishing Lands, McGraw-Hill
The World Around Us, McGraw-Hill
The Environmental School, ICE RMC, Film #350

Kit:
No Time to Waste, ICE RMC, KT 10

Community:

Historical society
Older members of the community
Farmer or extension officer
Local, country or district forester

CLASSROOM (Continued)

B. 1. Numbers
   2. Location - convenience
   3. Size
   4. Types
C. Students recommend changes to be made in the community.
D. Students write letters to the editor of the newspaper. As an option class may vote on the ten best letters to be sent.

II. Art

A. Construct a diorama of their own community showing parks, shopping center, homes, streets, etc.

George Howlett, Jr.
Environmental Education Specialist
Project I-C-E
1927 Main Street
Green Bay, Wisconsin 54301

BEST COPY AVAILABLE

YURU THE GURU STUDIES ECOLOGY

An interdisciplinary field exercise for grades 2 to adult using acclimatization and value orientation approaches based on:

Concept #10 Short-term economic gains may produce long-term environmental losses.

and

Concept #12 Each person must exercise stewardship of the earth for the benefit of mankind.

In India and the Far East, the people have a philosophy or way of thinking which is different from ours. They wish to understand more about life and what it means. They care less about making money and buying things. Some of these people spend their lives as holy men who think of the most important ideas about life. Often these persons are called Gurus or wise men.

Our friendly Guru, whose name is Yuru, has come to America to help us think about important ideas. He heard that we were messing up the environment. He discovered that we care too much about making money, buying things, and worrying about what to wear. He thought he could help us get our heads straightened out.

He found that if we don't stop using up the things of earth so fast, and slow down our way of living, we would run out of things which earth gives us. Today there is a shortage of gas, of oil, of paper, of nice places, of fish, of other food. Land is strip-mined, forests are cut down, marshes are filled, water is polluted. Yuru wants you to think about what this means for you. He wants you to think about what you should do to make the world a good place to live.

BEST COPY AVAILABLE

Supplies needed:

Drawing and/or note paper
Drawing pad
Pencil

What to wear:

Old clothes, old shoes or boots, be ready for the weather

Where to go:

A wild place where man's intrusions are minimal. (A forest, an old field, a lake shore, a marsh.) A pre-event site visitation by the teacher is useful for best use of this instrument.

Disciplinary areas integrated into the unit:

Art, Science, Social Studies, Language Arts, Philosophy and Value orientation

Grouping:

If possible, group size should be 15 or less. The use of aides or especially parents is recommended. Parents and other volunteer help should be pre-trained during a preparation and planning session.

Notation on the use of the exercise:

Students should have previously been exposed to field studies so that the novelty of a first field trip is not a problem. If a period of field activity immediately precedes the activity, this precaution may be disregarded with the teacher's discretion.

Activities:

(Note that a variety of activities are given. The teacher may delete one or more if time does not permit.)

Preparation at site:

Begin activity with directions for full use of the senses: ears, eyes, nose, touch. Caution students to always be aware, to restrict talking.

BEST COPY AVAILABLE

Activity #1

Silent walk.

Walk silently for 5-10 minutes. Each person should observe (without making a sound) the features of the place. Each should try to see as many of the different parts which make up the environment of the site. Walk slowly. Stop often. Unit leader may silently point to some of the features seen but will say nothing. Students should attempt to remember as much of what they saw as possible.

To intensify this experience (not to control talking), wide masking tape may be placed over student mouths if they are easily amenable to this idea.

Activity #2

Art in nature. [10-20 minutes]

Each student moves at least 3 meters (10 feet) apart from each other and within watching distance of the unit leader. The students will make a pencil sketch of specific items as they appear in the immediate view of the student. The unit leader may suggest 3 or 4 specific items as available at the site. Suggested items include a large site feature such as a single tree, a feature of the forest floor like a stump or log. A small feature which is easily hand held such as a leaf or mushroom, and perhaps something very small such as a moss, an insect or a feature able to be seen under a hand lens. Older students may combine these features into an overall sketch of an immediate field of view. Sketching should be done silently.

Activity #3

Correlating to man. [3-5 minutes]

Some particular characteristic of the place will serve as a focal point for writing thought notes on note paper. Students should think of the various uses man makes of the item which is pointed out. Notes should include ideas on how man might get along without that item.

Items might be a stream, a pump, a pond, or other water feature, a tree or the tree portion of the place, green foliage, animals or animal signs, the sun, litter and other intrusions of man, etc. Be sure to relate to conservation and environmental quality concerns when explaining the activity.

BEST COPY AVAILABLE

Activity #4

Nature recycles. [8-12 minutes]

Students should use the senses of sight, feel, and smell to explore old downed trees and logs-stumps. Leaf litter, the soil, the fungi and other plants and animals of decomposition. They should take notes on what they saw, felt, and smelled. They should also spend a few minutes considering man's recycling problems and how his actions compare to natures.

Students may, at this time, carry on meaningful verbal exchange on the subject but should be separated into groups of 2-3. Notes should be recorded.

Activity #5

Meditation break. [about 5 minutes, more for older students]

[A very difficult yet very meaningful activity]

Students should walk to a location where aesthetic quality is high. They should form a single or double line and be spaced about 2-3 meters (6-10 feet) apart. All should face the same direction and sit or lie down on the ground.

All must maintain as complete silence as possible, for the courtesy of others and for the effectiveness of the exercise. Do not use tape at this point.

Each person should spend a few minutes thinking about the life of the place, how the processes of life occur at this site and how important it is for this environment to be conserved if the things encountered will continue.

Midway through the time period introduce the idea of man's effects on wild environments. Have the students consider what man has done to wild places by excess development, by littering, by destructive behavior, by greed.

Activity #6

[10-15 minutes]

Use a natural opening or amphitheather or other gathering place (best if still in the natural area). Develop a discussion on the meanings gained in the various experiences. Let students consult their notes and sketches. Promote student exchange rather than teacher domination of the discussion. Emphasize values, attitudes, responsibilities. Promote future orientation toward the use of resources.

Discussion Checklist - focal ideas

BEST COPY AVAILABLE

- ☐ Wilderness as wilderness
- ☐ Natural areas; "re-creation" places for man
- ☐ Development, what can money buy when this is gone?
- ☐ Forest conservation practices
- ☐ Water: needed for life
- ☐ Recycling our resources
- ☐ Slow down (the use of resources) to live!
- ☐ Animals as canaries to man's survival

A good introductory unit at beginning of school year.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 11 - Individual Acts

SUBJECT Language Arts, Social Studies, Art

ORIENTATION Noise - Solid Waste

TOPIC/UNIT Personal Responsibility

BEHAVIORAL OBJECTIVES

Cognitive:

Write an experience of a child-correcting practice that was detrimental to the visual enjoyment of his environment and its effect on the visual enjoyment by others as a result.

Affective:

Attempt to persuade others that such practices are bad, when observed, and that they should not do things that reduce the visual enjoyment by others.

Skills Used:

1. Logical thinking
2. Proper care of books
3. Dramatizing
4. Cause and effect
5. Committee work
6. Measurement in gallon
7. Discussion
8. Drawing

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts
   A. Teacher takes a prepared composite booklet of blank papers (but gives the illusion to the class that you have a book that they can use in the classroom whenever they wish) and then without words and in front of the class
      1. Looks through the book,
      2. Writes in it,
      3. Bends the corner of the page to mark a place of interest,
      4. Accidentally drops it, and
      5. Throws it on a desk.
   B. 1. What would happen if all our class members did this?
      2. If the entire school did this?
      3. If everyone who went to the library did this?

(Continued)

Outside or Community:

A. Visit to the library. The librarian will stress proper care of books and quietness of library.

B. Bottles, paper or aluminum drive for recycling purposes.

SUGGESTED RESOURCES

Publications:

All About the Sanitation Department
The Honey Boat, Polly Burroughs
Farewell to Shade Glade, Peet
The Wump World, Peet
Fly, Homer, Fly, Peet
The Cheerful Quiet, Horvath

Audio-Visual:

Films:
Litterbug, BAVI, Avis Pub.
The Litterbug, Walt Disney
Garbage, ICE RMC, Film #260
Filmstrip:
What Do You Think About Helping Your Community?, Imperial

Community:

George Howlett, Project I-C-E, slide presentation on solid waste

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

4. Is this taking care of our library environment?
5. What other ways could we keep our place in a book?
6. Environmental bookmarks will be made; use recycled materials.

C. Noise pollution. Have one pupil being reading a story. Next have one more pupil read at same time. Have whole class read at same time. Stop and discuss the noise and problems caused by everyone reading.

II. Social Studies

A. Put into practice in classroom; stewardship-cleaning area of room, even if they are not responsible.

III. Art

A. 1. Discuss and list on the board ways to care for our books.
2. Have children draw posters using the ideas listed.
3. Put up posters in the library and in the hallways.

E. S. E. A. Title III - PROJECT I—C—E 59—70—0135—4

Environmental: **Integrated with:**

CONCEPT NO. 11 - Individual Acts **SUBJECT** Mathematics

ORIENTATION Litter **TOPIC/UNIT** Computation

BEHAVIORAL OBJECTIVES

Cognitive:

Correctly add weights of litter.

Explain the effect of litter which is made greater because of the large number of people, if one person only litters a little.

Affective:

Demonstrate that he shares in the responsibility for the conservation of our resources by picking litter that he sees and depositing it in the proper container.

Skills Used:

1. Keeping records
2. Creative thinking
3. Skills of observing accurately
4. Skill of participating in project work
5. Computing
6. Weighing
7. Observing
8. Measuring

STUDENT—CENTERED LEARNING ACTIVITIES

In-Class:

A. You will try to determine the number of returnable or recyclable containers used at home.
   1. Discuss re-usable containers and containers that must be thrown out.
   2. Count homes who use milk bottles, juice bottles, pop bottles and plastic containers.
   3. Tally the returnable and non-returnable containers.

B. Ask students to pick up cans and litter.
   1. Add these one by one to determine effects.
   2. Calculate total weight.

C. Clean the desk and measure the height of a pile of waste paper.
   1. Individual piles.
   2. Group pile.

D. Discuss what happens when one person litters as compared to 100 persons.

(Continued)

Outside or Community:

A. Take a field trip to a dump area to see how much garbage is piling up.

B. Each child should observe at home how many cans and bottles the family uses and discards in a day, week and month. Bring figures to school. Teacher gives each student who wants to record amount a tally sheet.

Cans	Bottles

C. Have the children find out how much money they will get for each pop bottle that is returned to the store.

SUGGESTED RESOURCES

Publications:

From Field to Forest, Pringle
Patterns of Nature, Baker
Symbiosis, Aruego

Audio-Visual:

Films:
Garbage, ICE RMC, Film #260
Wealth of the Wasteland, BAVI
What's Happening to our Landscape?, BAVI
Paper and I, Southern Pulpwood Conservation Film Service Labs
Litter-ly Speaking, New York State Dept. of Transportation
The Litterbug, Walt Disney
Up To Our Necks, NBC
JunkDump, ICE RMC, Film #310
(Continued)

Community:

Vacant lot
Dump

CONTINUED OR ADDED LEARNING ACTIVITIES

AUDIO-VISUAL (Continued)
Kit:
Investigations in Ecology, KT 43, ICE RMC

CLASSROOM (Continued)

E. Form a committee to find out about things that were formerly considered waste and are now usable and in demand. Ex.-metal, paper. Sawdust was a waste material and is now in demand for sweeping compounds, particle board, debarking, and use of parts for the making of paper.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 11 - Individual Acts

SUBJECT Physical Education

ORIENTATION Environmental Problems

TOPIC/UNIT Rope Jumping

BEHAVIORAL OBJECTIVES

Cognitive:

Correctly match the name of the activity with the procedure to be used. (See In-Class, 1-8 under "A".)

Affective:

Show an enthusiasm for and enjoyment of the environment by wanting to continue the activity past the recess time on their own time.

Demonstrate awareness of their environmental activities by reciting two or more ditties while jumping rope.

Skills Used:

1. Jumping
2. Agility
3. Balance
4. Coordination
5. Perception

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Rope jumping
   1. Individual jumps
   2. Double rope
   3. Snakes--one long rope wiggled horizontally along the floor
   4. Under the bridge--running under it
   5. Cut the bread--raise straight up and down
   6. Cradles--back and forth, not over
   7. Waves--one end held high to make ripple and jump over (ripple vertical)
   8. Peppers--means jumping at double speed

Ditties

Jump rope or marching.
Song: Marching to Pretoria.

I'm with you and you're with me
And so we are all together
So we are all together...

(Continued)

Outside or Community:

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: **Audio–Visual:** Honor Your Partner Albums: Rope Skipping, Ball Bouncing, Vocational Activities, Inc., Freeport, New York Ecology Folk Songs, Grade 4 - High School, Album K9000, record (cassette), guide, $6.95. **Community:**	CLASSROOM (Continued) I'm with you and you're with me And so we are all together As we march along. We are marching for Ecology, Ecology, Ecology We are marching for Ecology, Ecology, Hurrah! - - - - - - - P-O-L-L-U-T-I-O-N Pollution is a dirty word But it's not hard to spell; Just practice with the syllables Until you know it well. Pol - lu - and t i o n. Pollution, pollution - Let's spell it once again. P - O - L - L - U - T - I - O - N. - - - - - - - E-C-O-L-O-G-Y E - C - O - L - O - G - Y You can spell it if you try. You can understand it, too, And then you'll make it work for you. It isn't luck, it isn't fate - It's just that all things must relate. Weather, wildlife, water, woods - When they balance, life is good. - - - - - - - I see paper, I see trash, I see someone's foolishness. - - - - - - - Fire, fire, fire alarm A spark fell into a farmer's yard, How many animals did it harm? - - - - - - - (Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: **Audio–Visual:** **Community:**	CLASSROOM (Continued) Campfire, campfire, burn so bright Campfire, campfire, gives us light Campfire, campfire, what a beautiful night. Holy smoke! The campfire got away tonight How many trees did it burn down? - - - - - - - Papers, bottles, tires and cans Tell me pollution is caused by man Fight, fight, fight, fight, pollution! - - - - - - - JUMP ROPE Individual rope skills: 1. Turn rope forward a. Jump on toes of both feet b. Jump on right foot c. Jump on left foot d. Jump first on right foot, then on left e. On the odd count, ordinary jump, on the even count, cross hands in front of body, making a loop through which the child jumps f. Hold one leg high, knee straight, toes pointed, jump on other foot g. Same as "f" but throw raised leg forward on one jump and backward on the next h. Jump with feet spread sideward i. Jump with feet spread sideward and backward j. Rocker, leap forward on one foot, leap backward or to other foot k. Double jump forward--two jumps to each turn of the rope l. Jump and land with the feet crossed, alternating the position of feet on each jump m. Click heels together while in air n. Move sideward right or left on each jump 2. Turn rope backward doing the above. 3. Click handles of rope together or clap hands each time rope is jumped. (Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: **Audio-Visual:** **Community:**	CLASSROOM (Continued) 4. Cradling--swing the rope forward under the feet. 5. Grasp both ends of rope in one hand, assume deep knee-bend position, and swing rope in a circular path near ground or floor and jump the rope. a. Jump with both feet b. Jump with right or left foot c. Jump, alternating hands or direction 6. To change direction of rope or to permit jumper to make a different type of jump, use the slip--student swings rope to one side maintaining same jumping rhythm. Individual rope - partners jumping: 1. No. 1 turns rope forward, No. 2 runs in, faces his partner, and both jump. 2. Same as one but done backwards. 3. No. 1 turns rope forward, No. 2 runs in, turns his back to partner. 4. No. 1 turns rope forward, No. 2 runs in behind partner. 5. Partners stand side by side, inside hands joined, outside hands turning the ropes. 6. No. 1 turns rope forward, No. 2 runs in, faces No. 1 and executes quarter, half and full turns on each jump.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 11 - Individual Acts **SUBJECT** Art

ORIENTATION Individual Alterations **TOPIC/UNIT** Group Design

BEHAVIORAL OBJECTIVES

Cognitive:

Applies principle of combining individual acts to make a whole by completing a project.

Affective:

Accepts the responsibility of individuals working as a team to develop the whole by working together with others to complete the project.

Skills Used:

1. Construction
2. Observation
3. Discussion
4. Painting
5. Cooperation & group planning
6. Mural construction

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Students will do mural as a group headed "Nature Around Us".
   1. Each child will find a picture of an animal or plant that they like and cut it out.
   2. Each child will, in turn, paste his picture on a huge sheet of paper headed "Nature Around Us".
      a. This can also be done as a bulletin board mural.

Outside or Community:

SUGGESTED RESOURCES

Publications:

"Humanizing the School with Children's Art", Lewis & Clark School, St. Louis, V.T. Mealy, Instructor, 79:55 My '70

"In the Courtyard with An Art Student, Little Boxes-Big Boxes" E. Deutsch, Arts & Activities, 69:40-1 F. '71

"Design Experiments with Natural Materials", R. Moore, il. School Arts, 68:16-17 Mr. '69

"Paint a What? Paint a Bus", B.J. Erdahl, School Arts, N. '71

Audio-Visual: (Continued)

Rag Tapestry (wall hanging)
Film: International Film Foundation

Community:

Community buildings
Art museum to view murals

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

"Textured Mural", L. Olson, Grade Teacher, p. 82-83, Feb. '72.

"Painting City Walls", L. Friedman, School Arts, p. 28-29, Jan. '70.

"School Mural", N. K. Rockwell, School Arts, p. 16-17, Feb. '70.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 12 - Stewardship

SUBJECT Science

ORIENTATION Technology and Growth

TOPIC/UNIT Simple Machines

BEHAVIORAL OBJECTIVES

Cognitive:

List and describe the six kinds of simple machines.
Classify these as to the need for private or public ownership, and the encroachment upon individual rights by their usage.
Explain how man has used the simple machine to harness nature and make a "better" life for himself.

Affective:

Speak up against the misuse of property by property owners or the local government to others in the class.

Skills Used:

1. Identification
2. Discussion
3. Classification

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Identify the six simple machines and find examples at home or at school.
   1. lever - seesaw
   2. inclined plane - ramp or steps
   3. wedge - ax, knife, needle
   4. wheel - bicycle, doorknob, pencil sharpener
   5. screw - jack, screw piano stool
   6. pulley - flag pole, pulley

B. Study how man has harnessed nature by use of windmill, water wheel, turbine to do work for us.

Outside or Community:

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Let's Find Out About Wheels, Martha and Charles Sharp Big Book of Real Building and Wrecking Machines, George Zaffo Doing Work, Glenn Blough How and Why Wonder Book of Machines, Jerome Notkin and Sidney Gulkin Motors and Engines and How They Work, Harvey Weiss Mike Mulligan and His Steam Shovel, Burton (Continued) **Audio-Visual:** Films: Simple Machines, Encyclopedia Britannica How Simple Machines Make Work Easier, Coronet Machines Do Work, McGraw-Hill Moving Things on Land, McGraw-Hill Filmstrips: How We Use Machinery, Herbert E. Budek Co., 1967 How We Use Wheels, Herbert E. Budek Co., 1967 (Continued) **Community:**	PUBLICATIONS (Continued) The Big Book of Real Building and Wrecking Machines, Zaff, 1951, Grosset and Dunlap, Inc. Knew How Books, Ex.- Incas Knew How, Tilley Pine AUDIO-VISUAL (Continued) Filmstrip: Finding Out About Simple Machines, Society for Visual Education

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 12 - Stewardship

SUBJECT Science, Art

ORIENTATION Wildflower Conservation

TOPIC/UNIT Plants

BEHAVIORAL OBJECTIVES

Cognitive:

Identify flowers from pictures.

Explain orally several reasons why wildflowers are not usually found in the city.

Explain several reasons to preserve wildflowers.

Affective:

Demonstrate a sense of respect and guardianship for wildflowers by not picking wildflowers and challenging others that do.

Skills Used:

1. Discovery and identification of wildflowers.
2. Discussion and reading.
3. Drawing posters.
4. Observation.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   - A. Teacher set up library display on books about wildflowers.
   - B. Have in classroom a collection of common roadside flowers and grasses in a container of water. Have cultivated bouquet too.
     1. How alike?
     2. How different?
     3. Where did they grow?
   - C. Questions:
     1. Why do we like to grow flowers around our home?
     2. Why wildflowers?
     3. Where do wildflowers grow?
     4. Why hard to find wildflowers near cities?
        a. Stepped upon
        b. Uprooted
        c. Burned
        d. Covered with buildings & highways
        e. Trees removed.

(Continued)

Outside or Community:

I. Art field trip
   - A. Children will look for place where wildflowers grow.
   - B. Children will observe area carefully for certain flowers.
   - C. May sketch hastily, leaves, indicate colors, flowers, shade of green, bud, seed.
   - D. If wildflower is an annual and not protected by law, flowers may be taken to:
     1. Sketch
     2. Press and preserve
   - E. If biennial -
     1. Recognize leaves and plants.
     2. Learn that it takes two years to produce seeds.
   - F. If bulbs--may grow from seeds, produce bulb and reproduce in two ways.

(Continued)

SUGGESTED RESOURCES

Publications:

Library books and pictures of wildflowers
Teacher's Curriculum Guide to Conservation Education, ICE RMC, 170 Br
Audubon Aids, "Plant Identification", ICE RMC, 170 Na nb5

Audio-Visual:

Films:
We Explore the Field and Meadow, Coronet
Learning About Flowers, EBF
Children in Spring, EBF
Wildflowers of the Field and Meadow, Coronet
Filmstrip:
Environmental Awareness, ICE RMC, KT 16
Posters:
Wildflowers of Eastern North America, National Audubon Society

Community: (Continued)

CONTINUED OR ADDED LEARNING ACTIVITIES

CLASSROOM (Continued)

C. 5. Why protect wildflowers?
   a. Roots hold soil.
   b. Prevent soil pollution of streams.
   c. Shelter for animals.
   d. Seeds, fruit, and berries provide food for animals and people.
   e. Nesting material for birds.

D. Each child find pictures of discussed wildflowers and make posters of wildflowers. Post in hall to encourage prevention of wildflower destruction.

OUTSIDE ACTIVITIES (Continued)

II. Science
   A. Take a walk around school grounds to see if you can find any wildflowers.
   B. Take a trip to woods in spring to see the beauty of wildflowers and identify flowers through use of flower books.
   C. Find library books on wildflowers and locate pictures of many different types.

AUDIO-VISUAL (Continued)

Study Prints:
The Variety of Living Things, ICE RMC, KT 37

E. S. E. A. Title III – PROJECT I-C-E 59-70-0135-4

Environmental: **Integrated with:**

CONCEPT NO. 12 - Stewardship **SUBJECT** Mathematics

ORIENTATION Forests **TOPIC/UNIT** Subtraction

BEHAVIORAL OBJECTIVES

Cognitive:

Describe the effects of his behavior on a forest using examples such as:

a. uprooting or breaking of small trees.
b. planting new trees.
c. cutting older & diseased trees.

Affective:

Offer suggestions as to how a forest can be cared for so that animal life is preserved.

Skills Used:

1. Even and odd numbers.
2. Counting by 5.
3. Subtracting 2 digit numbers.
4. One-to-one correspondence.
5. Interpretation.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. You will simulate a forest.
   1. As a class you will need 99 toothpicks for trees and 99 dots for birds and clay or styrofoam for ground. Put birds into the trees and the trees into the ground.
   2. You sell 31 trees. How many trees are left?
   3. What happens to the birds?
   4. You plant 10 seedlings (broken toothpicks). Can birds live in seedlings?
   5. The next year you sell 50 trees. How many big trees are left standing?
   6. What happens to the birds?
   7. You don't plant any more trees, but sell the rest of the big ones left.

(Continued)

Outside or Community:

A. DNR to speak on the effect of forest use and destruction of animals.
B. Member of the Audubon Society to speak on the environment conducive to bird life.
C. Identify and count the birds that interact with a tree in the school yard.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Examining Your Environment Series, "Birds", ICE RMC, 120 Ma2
Ecology - The Forest, ICE RMC, 130 Mc
Multiple-Use Management, ICE RMC, 170 No

Audio-Visual:

Films:
Nature's Half Acre, ICE RMC, Film #210
Our Natural Resources, BAVI

Community:

DNR
Audubon speaker

CLASSROOM (Continued)

8. What happens to the birds?
9. Discuss what resulted with your decision not to replant trees, but to continue selling.

B. Using the forest again:

1. Make a sheet with numbers from 1 to 100.
2. Put this over the clay base and discuss your new forest again.
3. Count by 5. Sell each tree that is on the number. Example: Tree number 5, 10, 15, etc. How many are left?
4. What should you do with the birds?
5. Now sell all odd numbered trees. How many are left?
6. What happens to the birds?
7. The remainder of the trees are in a fire caused by your campfire you left burning.
8. What happened to the birds?
9. Discuss the effects of your care of the forest. What did you do to the birds?

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 12 - Stewardship

SUBJECT Art

ORIENTATION Stewardship and Rights

TOPIC/UNIT Drawing and Printing

BEHAVIORAL OBJECTIVES

Cognitive:

Include man when he names stewards of the land.
List several animals, birds, etc. that are becoming extinct.
Explain reasons given for the fact that some animals, birds, etc. are becoming extinct.

Affective:

Propose that the selfish attitudes of some people when it comes to private ownership and personal rights are responsible for the low numbers or extinction of certain animals, birds, etc.

Skills Used:

1. Awareness
2. Drawing:
   a. Pencil
   b. Crayon
   c. Sketcho
   d. Ball point
3. Observation of detail

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Student artistic promotion to preserve animals that are becoming extinct because of neglect, e.g. owls, eagle, hawk, buffalo.
   1. Show slides, filmstrips, pictures for motivation to preserve them.
   2. Find pictures of these animals.

Outside or Community:

A. With science department, have children discover how these animals really look. Have them bring in pictures.

SUGGESTED RESOURCES

Publications:

"Monoprints in Color", P. Carruba, Arts & Activities, p. 41, D. '70

"3 Color Cardboard Printmaking", E. Deutsch, Arts & Activities, p. 34-5, Ap. '71

"Papercrafts and Mobiles", R. Perlmutter, Teaching Exceptional Children, p. 134-41, Spring '72

"Print With Egg Cartons", S. Rolle Arts & Activities, p. 35, Sept. '71

(Continued)

Audio-Visual:

Introducing Animal Series, study prints, ICE RMC, KT 19

Conservation 2 Picture Discussion Kit, ICE RMC, KT 18

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

PUBLICATIONS (Continued)

"Making A Cardboard Print", E. Palmatier, Today's Education, p. 66, Nov. '71

"Just Ink and Print With Fruit or Vegetables", Sunset, 147-152, N. '71.

"Printmaking for Primary Grades", R. A Daniel, Arts & Activities, 70:28-9, O. '71.

BEST COPY AVAILABLE

The following appendix contains additional game activities which can be used for various concepts.

Can be used with: Concepts 2 and 3

BIRD CATCHER

Divide the class into four or five kinds of birds. One player is the hawk. The hawk stands in the center between two goals. He tries to guess the kind of birds each group is. When he calls the bird of a group - they must try to run to opposite goal without being tagged. To give hawk hints, the birds may imitate the sound they made.

CROWS AND CRANES

Equal number of players in two straight lines three feet apart. One team is crows, the other cranes. When teacher calls "crows", they run to their goal line and the cranes try to tag them. If he calls "cranes", cranes run to their goal. Any player caught goes to opposite team.

Can be used with: Concept 1, 2, 3 and 5

FIRE IN THE FOREST

Form double circle. Players in front are trees. "It" stands in the center. He calls "Fire in the forest, run, run, run". Players run counterclockwise around circle. "It" claps his hands and runs in front of a tree. Other players must run in front of a tree. The player who did not find a tree becomes "It". The trees now become the runners.

BEST COPY AVAILABLE

Can be used with: Concept 4

IT'S RAINING

Form a double circle. Players facing each other, teacher calls "Go out to play". Players (on outside) skip or run around circle; when teacher calls "It's raining", all players run back to their partner, join hands and sit down. Last couple to sit down is out of the game. Change position of skippers with partners after short intervals.

Can be used with: Concept 6, 7, 9 and 11

MR. MARS

One player is Mr. Mars. All other players stand in a straight line on one goal. In unison, players call "Mr. Mars, Mr. Mars, will you chase us to the stars?" Mr. Mars replies, "Yes, if you're wearing _____." (He calls a color such as red, green, etc.) All players wearing that color run to opposite goal and Mr. Mars tries to tag them. Any player he catches is out of the game. He has three chances, then calls everyone over.

Can be used with: Concepts 7 and 11

TELEPHONE TAG

Form a circle. Count off by five. Each player lives in their own house. Teacher calls a number and all players with that number run counterclockwise around the circle once and back to their own house. Last one to get home was too late to answer the phone. He sits down in his house. Continue game until one player of each number is left.