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ABSTRACT

This is one of a series of units for environmental education developed by the Highline Public Schools. This ecology unit has been designed to be used as an individualized reading program, the duration of which is about three weeks. The purpose is to help intermediate grade elementary school pupils become more aware of their natural world and their responsibility to it. Activities include science, spelling, vocabulary, creative writing, art, drama, and social studies. The materials were tried and evaluated; evaluation data may be obtained from the Highline Public Schools. (RH)

HORTON PAK

MIND-FULL of ECOLOGY

by Sue Horton

An Environmental Learning Experience for 3rd-4th grade with an individualized reading approach. One of many "ELE PAKS" available for all areas.

Project ECOLogy, Title III, ESEA
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NATURE KNOWS BEST

PROJECT ECOLOGY TITLE III

The Kids Who Participated in the Pilot Evaluation Program

Andrea Zumwalt	Doug Lockett	Lynn Garner
Andy Blanchard	Emily Drevecky	Melinda Brown
Bridget Rector	Jeff Hase	Melody Peterson
Camron Lusby	Jeff Howard	Michelle Landis
Colleen Westcott	Jimmy Hacker	Mike Lofgren
Craig Smith	John Harkness	Susan Wills
David Kappenman	Kathy Fields	Terry Hildebrand
David Springs	Kenny Warner	Tim Decker
Dewitt Kirby	Kim Hrisko	Tim Dunham

The Readers Who Studied, Critiqued & Offered Suggestions & Ideas for Improvement

Jeanne Storer, Midway Elementary, Librarian
Jan Tietz, Manhattan Elementary, Grade 6
Nancy O. Millard, Tacoma School District

The Author/Teacher Who Developed This Environmental Learning Experience (ELE)

Sue Horton — Boulevard Park Elementary — Grade 3

Evaluation Results Regarding This ELE May Be Obtained by Including This Page and a Self Addressed Stamped Envelope To

Highline Public Schools, District 401
Instructional Division
Project ECOLogy ESEA Title III
Bill Guise, Director
15675 Ambaum Boulevard S. W.
Seattle, WA 98166

EVERYTHING MUST GO SOME WHERE

PROJECT ECOLOGY TITLE III

THERE IS NO SUCH THING AS A FREE LUNCH

PROJECT ECOLOGY TITLE III

EVERYTHING IS CONNECTED TO EVERYTHING ELSE

PROJECT ECOLOGY TITLE III

MIND-FULL OF ECOLOGY BACKGROUND INFORMATION

PURPOSE: This Ecology unit has been designed to be used as an individualized reading program - the duration of which is about three weeks. (You as a teacher may decide you would rather use this as a science unit rather than a concentrated reading program. Whichever you choose, the students will be afforded an opportunity to work with material on a level they can master:) The purpose is for children to become more aware of their natural world and their responsibility to it.

BOOKS: This pak comes supplied with 30 books and accompanying activity cards. There are 14 activity cards for which there are no books included in the kit - but you will probably find many, if not most, of these titles in your own school library. This manual

LIBRARIAN'S HELP: includes a list of the books used in this unit. This list should be given to your school librarian so that these books can be in use in your classroom while the unit is in progress. Your own library undoubtedly has other useful titles that you would like to have available to your students.

ACTIVITY CARDS: The activity cards are filed alphabetically under the book's title. Each activity card suggests two or three different activities from which the child may choose. At least one of the activities involves a language experience (a creative writing opportunity, vocabulary study, or various uses of factual information.) These suggested activities are in no way to be considered inclusive - as you will want to add some of your own good workable ideas to the ones I have suggested.

CONFERENCE QUESTIONS: You will be spending some of the class time in conferences - listening to the children read and asking questions about the book's content. On the back of each activity card are questions which you can use to discuss the book's material. These are very general questions, but hopefully will be useful to you and save you the trouble of having to acquaint yourself with all of the books.

READING LEVELS: A real attempt has been made to include books which cover a wide range of reading levels. (Admittedly it is not easy to find material for those children reading below grade level.) A list is included to show which of the books have been categorized as EASY, AVERAGE, ADVANCED. There is, of course, some over-lapping in these categories and children may move from one level to the other in their material selection. The activities will match the book difficulty; i.e., an easy book will have easy activities suggested for follow-up use.

RESEARCH SKILLS: Due to the short duration of this unit (three weeks) no attempt has been made to incorporate research into the activities. However, the subject lends itself well to additional research on the part of the student. You may find this is a good time to teach some of the research skills and encourage their use.

READ-ALOUD STORY: Included in the kit is a fiction book you may want to read aloud to your students. It is Big Blue Island by Wilson Gage. This is the story of a boy who moves from the city to a primitive house in the country. He's

unhappy and rebellious about his new situation - unappreciative of the offerings of nature. The Great Blue Heron changed his outlook. You might wish to read aloud to your class Spaceship Earth: Danger, Danger as to tie the class together. (This book is in your Pak as part of the children's readings.)

INCORPORATING "MIND-FULL OF ECOLOGY" INTO YOUR SCHOOL DAY

VOCABULARY: As the children become involved in these Ecology books, they will encounter many new and unfamiliar words. This would be an opportune time to begin a class, a group, or an individual vocabulary study. If a class list is kept, children could add to it as they come upon unfamiliar words. This list should be reviewed frequently as it will provide wider knowledge for the students as they learn the meanings of words others have contributed. In addition to a general group list, words could be listed in specific areas. (For instance, a class word book could be made devoting a page to each of the seven natural resources: sunshine, air, water, minerals, forests, wildlife, and soil. Words will be added to these lists as children find them in their reading.) From these charts and books could come words to be added to the weekly spelling list.

DICTIONARY: These words would also lend themselves to the teaching of dictionary skills - alphabetizing, finding words, reading definitions and diacritical markings

SPELLING: Individual vocabulary lists could also prove useful. If you are using an individual spelling program, these lists will offer a good source of meaningful words, as well as giving the children a sense of accomplishment as they see their list of new words grow.

ART: Several of the activity cards suggest an art project to express some area of ecology. You might expand this into a whole-class activity by choosing an area to depict in a MURAL. The class might break off into committees, each choosing an area where pollution is a problem, and draw LARGE PICTURES for the bulletin board. (Air pollution is effectively shown when a picture is colored and then a FINGERPAINTING print is picked up over the picture.) POSTERS are fun to design. If a kiln and POTTERY is available to you, the children can roll clay into flat shapes and make their own "fossil" with an object from nature. BADGES or NECKLACES can be made from various media stressing the care of our world. MOBILES, COLLAGES, and your own creative ideas.

DRAMA: Is CREATIVE DRAMATICS your thing? Ecology would be a great subject to work into a play or skit to present to other rooms. PUPPETS could effectively get across an anti-littering or anti-polluting message.

CLASS NEWSPAPER: Do you have a particularly ambitious group? Would some of the students like to write an Ecology NEWSPAPER? This, too, would be something great to share with other classes.

LOCAL NEWSPAPER: The local newspaper could be used effectively throughout the teaching of this Pak. The children could clip weather maps, weather forecasts, and all articles dealing with ecology.

COMMUNITY ACTION: The class can compile a list of suggestions of ways that we can all help ease environmental problems. (The book which is included in the kit, Spaceship Earth: Danger! Danger! has good workable suggestions on pages 28, 29 and 30). The ideas that your class comes up with could be dittoed and distributed throughout the school or neighborhood. Information on pickup points is included.

BEFORE YOU BEGIN MIND-FULL OF ECOLOGY

1. Order any visual aids you will want to use.

2. Give the "Librarian's List of Mind-Full of Ecology Books" to your school librarian so that these books can be in your room. Bring to the room any other books you plan to incorporate into this study.

3. Decide what type of book you would like for the children to have as their own record of daily progress. A simple, but workable book would need:
   a) a tagboard or construction paper cover
   b) a daily progress record (number of pages read, activity worked on, etc.)
   c) a page for children to record the books they have read
   d) vocabulary pages.

4. Organize the Materials Center. On the following page is a list of the materials that will be needed for the various activities. You will find it expedient to have these materials readily available to the children. You will probably want to have someone in charge of this center to see that it is kept in order and that the supplies are not misused.

5. Decide upon a convenient location in the room to keep the books you will be using for this unit.

HAVE FUN!

MATERIALS NEEDED FOR THE SUGGESTED ACTIVITIES

Drawing paper

Construction paper

Writing paper

Crayons

Watercolors or poster paints

Scissors

Glue

Booklet-making materials (cover, lined paper, stapler)

Old magazines

Dowels or hanger (for mobiles)

String

Modeling clay

Tape or Cassettes and Recorder

Ditto master

Overhead Projector

Transparencies

LIBRARIAN'S LIST OF MIND-FULL OF ECOLOGY BOOKS

ABC'S of Ecology
Isaac Asimov
Walker and Co.

About Insects that Help Plants
Gertrude Gibson
Melmont Pub.

About the Land, the Rain, and Us
Terry Shannon
Melmont Publishers

Animals that Live Together
Glenn O. Blough
Harper & Row

Ants, Questions and Answers
Millicent E. Salsom
Scholastic

Ants and Bees
Ronald E. Rood
Wonder Books

Bees, Bugs & Beetles
Ronald Rood
Scholastic

Birds - A Golden Exploring Book
Clara Hussong
Golden Press

Birth of a Forest
Millicent E. Selsam
Harper & Row

Blaze and the Forest Fire
C. W. Anderson
Collier Books

Earthworms
Dorothy Childs Hogner
Thomas Crowell Co.

Ecology
Shelby & Mary Louise Grossman
Grosset & Dunlap

Everyday Is Earth Day
Illa Podendorf
Children's Press

Forest Folk
Mary & Conrad Buff
Viking Press

Giant Snakes & Other Amazing Reptiles
William Wise
G. P. Putnam's Sons

How Animals Get Food
Bertha Morris Parker
Harper & Row

Let's Go Outdoors
Harriet E. Huntington
Doubleday & Co.

Little People of the Night
Laura Bannon
Houghton Mifflin

Mark Trail's Book of Animals
Ed Dodd
Scholastic

Mark Trail's 2nd Book of Animals
Ed Dodd
Scholastic

Nature's Lumberjack
Willis Peterson & Jeffrey Church
Follett Pub. Co.

One Bright Monday Morning
Joseph Baum
Pinwheel Books

Plants, Animals & Us
Bertha Morris Parker
Golden Press

Pond Life
Alexander L. Crosby
Garrard Pub. Co.

Sea Creatures
John Mardon
Holt, Rhinehart, Winston

See Through the Forest
Millicent Selsam
Harper & Row

Six Great Mammals
Kenneth & Josephine Sopis
Holt, Rhinehart, Winston

Soil, A Field Trip Guide
Helen Ross Russell
Little, Brown & Co.

Spaceship Earth: Danger! Danger! Danger?
Kenneth & Josephine Sopis
Holt, Rhinehart & Winston

Swamp Spring
Carol & Donald Carrick
Macmillan Co.

The Air Around Us
Margaret Friskey
Children's Press

The Only Earth We Have
Laurence Pringle
Collier Books

The True Book of Spiders
Illa Podendorf
Children's Press

Through a Magic Glass
Solveig Paulsen Russell
Ginn & Co.

Too Much Noise
Ann McGovern
Scholastic Book Services

Up Above & Down Below
Irma E. Webber
Wm. R. Scott, Inc.

Useful Plants & Animals
Glenn Bough
Row, Peterson

What do Animals Eat?
Ruth Belov Gross
Scholastic Book Services

What is a Frog?
Gene Darby
Scholastic Book Services

What is a Tree?
Gene Darby
Benefic Press

Where Does the Butterfly Go When It Rains?
Mary Garelick
Scholastic

Who Lives in this Meadow?
Glenn O. Glaugh
Whittlesey House

MIND-FULL OF ECOLOGY BOOKS
ARRANGED BY LEVELS OF DIFFICULTY

EASY

Blaze and the Forest Fire
C. W. Anderson

Everyday is Earth Day
Illa Podendorf

Little People of the Night
Laura Bannon

One Bright Monday Morning
Joseph Baum

Swamp Spring
Carol & Donald Carrick

The True Book of Spiders
Illa Podendorf

Too Much Noise
Ann McGovern

Up Above and Down Below
Irma E. Webber

You and the World Around You
Millicent Selsam

What is a Frog?
Gene Darby

What is a Tree?
Gene Darby

Where Does the Butterfly go When it Rains?
May Garelick

AVERAGE

About the Land, the Rain and Us
Terry Shannon

Animals that Live Together
Glenn O. Blough

Ants: Questions and Answers
Millicent E. Selsam

Ants & Bees
Ronald E. Rood

Birds - A Golden Exploring Book
Clara Hussong

Earthworms
Dorothy Childs Hogner

Forest Folk
Mary and Conrad Buff

Giant Snakes & Other Reptiles
William Wise

How Animals Get Food
Bertha Morris Parker

Let's Go Outdoors
Harriet E. Huntington

Little Creek, Big River
Dwight W. Follett

Mark Trails Book of Animals
Ed Dodd

Mark Trails 2nd Book of Animals
Ed Dodd

Pond Life
Alexander L. Crosby

Sea Creatures
John Wardon

The Air Around Us
Margaret Friskey

Through a Magic Glass
Solveig Paulson Russell

Useful Plants and Animals
Glenn Blough

What do Animals Eat?
Ruth Beloy Gross

Who Lives in this Meadow?
Glenn O. Blough

ADVANCED

ABC's of Ecology
Isaac Asimov

About Insects That Help Plants
Gertrude Gibson

Bees, Bugs, & Beetles
Ronald Rood

Birth of a Forest
Millicent E. Selsam

Ecology
Shelly & Mary Louise Grossman

Natures Lumberjack
Willis Peterson and Jeffrey Church

Plants, Animals, and Us
Bertha Morris Parker

See Through the Forest
Millicent Selsam

Six Great Mammals
Kenneth & Josephine Sopis

Soil, a Field Trip Guide
Helen Ross Russell

Spaceship Earth: Danger! Danger! Danger?
Kenneth and Josephine Sopis

The Only Earth We Have
Laurence Pringle

This information was compiled by a 7th grade Camp Fire Girls group, "Tanki Da Kanya", from Pacific Junior High School, Mrs. John Benedict, Advisor, TR 8-7569, and under the further assistance of Cliff Maudslien, Highline Public Schools, 433-2453.

THE DAILY REFUSE LOAD OF YOUR FAMILY IS OVER 6 POUNDS!

HELP LIGHTEN THE LOAD BY RECYCLING!

GENERAL RECYCLING STATIONS

Burien
Rob's Texaco - 136th & Ambaum Rd., 246-1535
Buys - All recyclable beer bottles - 40¢ case
Aluminum cans - 10¢ a pound
Newspapers - 4¢ for 10 lbs., $8.00 a ton
Hours open - 10:00-6:00 Mon.-Sat., 10:00-5:00 Sun.

Des Moines (and White Center, CH 4-2233)
Northwest Reclamation Co., S. 223rd & Marine View Drive, TR 8-2431
Buys - All recyclable beer bottles - 40¢ case
Aluminum cans - 10¢ pound
Newspapers 4¢ for 10 lbs., $8.00 a ton
Will accept all glass food containers - no pay.
Hours open - 10:00-6:00 Monday-Saturday
They donate 10% of their proceeds to Children's Orthopedic Hospital.

Seattle
South Transfer Station, 2nd Ave. So. & So. Kenyon St. Will accept all glass food containers (no window glass), newsprint and metal. No pay. Open 24 hours a day. Closed only from 5:00 p.m. on Saturday to 9:00 a.m. on Sunday. This station is run by the City of Seattle. It has an unlisted phone number. For further information call Seattle Solid Waste, 583-2780.

Midway
Cascade Recycling, 23898 Pacific Highway So.

Rainier, Olympia and Lucky - 40¢ case
Heidelberg, Reinlander and Blitz - 25¢ case
Also, aluminum cans - 1¢ for 2 cans
Open Monday-Friday, 10:00-7:00, Saturday and Sunday 9:00-6:00. (Call for group rates).

GLASS

General Instructions: Glass should be clean, sorted as to color (white, brown, or green) and lids and metal rings should be removed. No window glass please!

Northwestern Glass, 5801 E. Marginal Way, RO 2-0660. Recycles any beverage glass 1¢ a pound. Open Tues. & Thurs., 9:00-2:00, Sat. 8:00-4:30.

Rainier Brewing Co., 3100 Airport Way So., MA 2-2600. Recycles Rainier beer bottles, 50¢ per case. Open 9:00-6:00 Monday-Friday. Also buys aluminum cans 10¢ a pound.

Glaser Beverage, 2300 26th So., EA 3-2932. Will recycle all kinds of glass or glass containers. Pays 1¢ per pound. Open Monday, Wednesday and Friday 10:00-2:00.

GLASS FOR BOY SCOUTS

The following places are collecting glass for Boy Scouts. They accept all glass containers and are open any time. For further information call PA 5-5200.

A & P, Rainier So. & Empire Way So.
Govmart Bazaar, 501 S. W. 148th
Thrifty Drugs, So. 120th & Des Moines Way So.
Westwood Village, 2500 S. W. Barton St.

RECYCLING FOR RAINBOW

Herb & Leona Miller, 2051 So. 223rd, Des Moines, TA 4-2308. Will accept all glass containers (no medicine bottles). Also newspapers and old telephone books.

> The average person uses 1 bottle per day. The average family of four uses an excess of 1,600 bottles yearly. Do you throw yours away? Why?

OIL IS YUCKY!

Crank case oil causes pollution when it is poured into sewers or is burned. The following service stations will accept used crank case oil for a fee of 25¢ for 2 gallons and 10¢ per gallon for additional amounts.

Chevron - 2555 15th Ave. W.
Dale Yust - 2437 California S. W.
Enco - 9255 16th Ave. S. W.
Rocket - 6217 Rainier Ave. So.

The oil is re-refined at Superior Refineries, Inc., Woodinville.

PAPER

General Instructions: Paper should not include magazines or slick paper. Preferably have paper tied in 1 foot bundles.

Independent Paper Stock Co., 66 S. Hanford, MA 3-3228. Takes many grades of paper - prices varies to grade. 500 pound minimum for low-grade paper. Open Monday-Friday 8:00-3:30.

Wash. Excelsior Co., 531 So. Portland St., Seattle, RO 7-4388. Newsprint only. Tie in 30 lb. bundles. Pay $9.00 per ton. Open Monday-Friday 8:00-5:00, Saturday 9:00-12:00. (Hard to find - call for directions).

Highline Sportsman Club, 11220 26th S. W., CH 4-7258. Newsprint only. Call for pickup. No pay.

Mormon Church (church of the Latter Day Saints), S. W. 142nd & Ambaum Blvd. S. W. Leave newsprint only at home of Mr. Sims, 14608 18th S. W., CH 4-3539 or by garage at 13717 6th Ave. S. W. Proceeds used for needy church members. Call CH 2-3405 or CH 2-9979 for information.

Old magazines are needed at old folks homes. Following are some that want them. They prefer ones with bright pictures.

Olympia Crest, 21428 Pacific Highway So., TR 8-2042. Open 8:00-4:00

Seatoma Convalescent Center, 2804 S. 224th, Kent, TA 4-0600. Open 11:00-3:00.

Federal Way Convalescent, 1045 So. 308th, Federal Way, VE 9-2400. Open anytime.

RECYCLE CLOTHES

Take useable clothes to the Highline PTSA clothing depot, a small portable directly behind the Highline School District's former Administration building at 253 So. 152nd, Monday 9:00-12:00 and Thursday 9:00-2:00. Call Mary Delehoy, TR 8-8056 or Bea Lemmel (Highline Association of Educational Secretaries Welfare Committee) 439-2523. These clothes will be redistributed in the Highline area. Thanx!

VALUE VILLAGE

The Value Village at 16033 1st Ave. So. needs your extra paper bags and coat hangers. Also needs donations of clothes, furniture, household items, etc. Proceeds go to the Northwest Center for the Retarded.

METALS

General Instructions: Cans should be cleaned, labels removed, ends removed and cans flattened.

American Can Co., 2601 Elliott Ave., MA 3-8100. Buys all types of food containers (steel, aluminum and combinations). Open 8:00-4:30 Mon.-Fri.

Cascade Recycling, 23898 Pacific Highway So. Buys aluminum cans, 1¢ for 2 cans.

Lang Distributors, Inc., 2415 Airport Way So., 622-3630. Buys aluminum cans - 10¢ per pound. Open 10:00-2:00 Monday-Friday.

Pacific Iron & Metal, 2230 4th Ave. So., MA 3-7236. Buys all non-ferrous metals (no iron). Takes brass, aluminum, copper, lead and zinc. Open 8:00-4:30 Monday-Friday, 7:00-12:00 Saturday.

Puget Sound Salvage, 2960 4th Ave. So., MA 2-0359. Buys copper, lead, zinc and brass. Open 8:00-5:00 Monday-Friday, 8:00-12:00 Saturday.

Rainier Brewing Co., 3100 Airport Way So., MA 2-2600. Buys aluminum cans - 10¢ per pound. Open 9:00-6:00 Monday-Friday.

Reynolds Reclamation Center, 923 So. Bayview, 622-0433. Buys aluminum cans - 10¢ per pound. Open 9:00-4:30 Tuesday-Saturday.

Sid Eland, Inc., 1022 E. Marginal Way So., RO 2-2211. Buys aluminum cans - 10¢ per pound. Open 1:00-5:00 Monday-Friday.

Sternoff Metals - Seattle Plant, 7201 E. Marginal Way So., RO 2-8100. Buys all non-ferrous metals (no iron or steel). Open 8:00-4:30 Monday-Friday.

Sternoff Metals - Renton Plant, 7430 So. 180th, BA 6-7400. Buys iron and steel. Takes old car bodies: remove gas tank, seats, floormats, and tires. Must have clear title. Pays between $8.00 and $15.00 according to weight.

Prices on all metals but aluminum vary as to type and grade. Call for prices.

NEIGHBORS IN NEED

While recycling don't forget Neighbors in Need. Many items including food, clothing, furniture, bedding and toys are needed - especially for babies and small children. For further information call Helen Gilmore at TR 8-8406.

Des Moines Food Bank at Des Moines United Methodist Church, 22225 9th So., TR 8-8301.

Glendale Lutheran Church, 13455 2nd S. W., CH 4-9400.

ur convenience the films used in this ELE are listed on this tear out sheet. Simply add the dates
ed and mail to the Instructional Material Center, ERAC.

Project ECOLogy

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INSTRUCTIONAL MATERIALS - HIGHLINE PUBLIC SCHOOLS

Symbols for materials not booked:
NA - not available
Sub - substitution
WD - withdrawn

olace orders
ANCE in DUPLICATE

ORIGINAL

TEACHER _____ GRADE _____ DATE _____

FILMSTRIPS – TITLE	DATE WANTED	NOT WANTED AFTER	DATE CONFIRMED
Pollution			
eness in Forest & Field			
rs in Nature			
ng Things Need Food			
e, the Latest Pollution			
s, Pesticides and People			
rs Must Not Die			
e Book of Insects			
e Book of Plants			
e Book of Trees			
d of Living Things			

FILMS	DATE WANTED	NOT WANTED AFTER	DATE CONFIRMED
Air Pollution: A First Film			
American Bald Eagle			
Ants: Backyard Science			
Harmony of Nature and Man			
Insects That Help Us			
Let's Find Life			
Noise			
Recycling Waste			
Time For Rain			
Time for Sun			
Trouble With Trash			
Water Pollution			
What Do They Eat?			

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Book of Plants			
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d of Living Things			

FILMS	DATE WANTED	NOT WANTED AFTER	DATE CONFIRMED
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Harmony of Nature and Man			
Insects That Help Us			
Let's Find Life			
Noise			
Recycling Waste			
Time For Rain			
Time for Sun			
Trouble With Trash			
Water Pollution			
What Do They Eat?			

you are a fruit grower and own
rchards of trees. Tell which
you would like to have living
trees and why.

"insect encyclopedia". Illus-
ach insect. Write a sentence
ach insect under its picture.
er, subjects in an encyclopedia
alphabetical order.)

Title of Book: About Insects That Help Plants

Author: Gertrude Gibson

Publisher: Melmont Publishers

ACTIVITIES:

1. Make your own Ecology letter book by using the letters in your name. Can you think of ecology words which are different from the ones the author used? (Paper folded in half and stapled together will make a good book.)

2. Choose 5 of the ABC words in the dictionary. Write the page number where you found each word. Read the definition, then use the word in an ecology sentence.

Title of Book: ABC's of Ecology

Author: Isaac Asimov

Publisher: Walker and Co.

TITLE OF BOOK: ABC's of Ecology AUTHOR: Isaac Asimov

For each letter of the alphabet two ecology-relating words are named and explained. They range from known words as garbage and weather to the difficult as biome and quagmire.

There were many difficult words in this book. Tell about some of the new words you learned from it.

Possibilities include: algae - simple water plants
biome - a part of the earth that has the same climate
carbon monoxide - gas produced by autos
drought - a period without rain
food chain - one life form eating another
herbivore - plant eating animal
etc.

TITLE OF BOOK: About Insects that Help Plants AUTHOR: Gertrude Gibson

It is easy to think of insects as harmful. However many are beneficial to plant growth by loosening soil, putting food into the soil, eating harmful insects, and carrying pollen.

1. *Tell how insects can help plants.*

   Ants loosen soil; termites help wood decay; springtails and grubs break leaves into small bits to make soil; dragonflies, ladybirds, lacewings eat harmful insects; bees and wasps carry pollen.

2. *Explain how termites are both helpful and harmful.*

   A termite chews on dead wood. In a forest this becomes food for plants. The children should be able to reason that this process is damaging to wooden buildings.

3. *Explain how and why an insectuary operates.*

   An insectuary is an insect farm where beneficial insects are raised. They are then shipped to farmers and gardeners who will use them to rid their crops of aphids.

nd you are a beekeeper.
ibe to someone the things
go on inside the hives.
may want to tell another
mate.)

h this story:
eavers were looking for a
ome. They found a lake
a few trees around it.
went on because _____

five questions about ants.
hese questions to someone
who has read this book. (Be
you have written the answers
ur questions.)

Title of Book: Animals that Live Together
Author: Glenn O. Blough
Publisher: Harper & Row

ACTIVITIES

1. Draw a picture of one of nature's cycles.

2. Cut out several pictures of food from a magazine. Explain how each one depended on the soil.

3. Write a T.V. commercial telling people of one way to take care of the soil. Act out your commercial to the class.

Title of Book: About the Land, the Rain, and Us
Author: Terry Shannon
Publisher: Melmont Publishers

TITLE OF BOOK: About the Land, the Rain, and Us AUTHOR: Terry Shannon

Nature has a delicate balance. Soil is the starting point of the food chain and must be conserved. Nature's soil cycle adds material to the soil to enrich it (plants of all kinds, animal droppings, dead animals). Sod keeps soil from blowing or washing away.

Another cycle is the rain cycle: evaporation, cloud formation, condensation and over again.

1. *Why is soil very important to all living things?*
   It is the beginning of the food chain.

2. *Why is water important to all living things?*
   Plants and animals both depend on an ample supply.

3. *Explain the rain cycle.*
   Water evaporates from the earth and clouds are formed. As the air cools, the water condenses and returns to earth.

4. *What is nature's balance?*
   All living things depend on other living things.

TITLE OF BOOK: Animals That Live Together AUTHOR: Glenn O. Blough

Some animals live together in groups and they all work to help each other. In a beehive there are workers, drones and a queen - each with special jobs. Beavers cooperatively build and repair dams and gather food. Ants live in a nest with a queen. A king and queen termite start a new colony of workers and soldiers.

1. *Describe how ants, beavers, bees, or termites work together.*

   Bees: Workers gather food, keep the hive clean, guard it, make wax. Drones mate with queen who lays eggs.

   Ants: Workers build tunnels and rooms in the nest, find food, keep the nest clean. The queen lays eggs.

   Termites: King and queen have a family of workers and soldiers (guards).

   Beavers: Cooperative effort in dam-building and food-gathering. They signal danger to each other.

2. *What would happen if some refused to do their job?*

   The community wouldn't function properly. Some would die.

se one of the insects you
d interesting. Make a
let about this insect.
your booklet where others
read it.

ou were an entomologist, a
ntist who studies insects,
h insect would you choose
o special research on?
why this insect is interesting
ou.

a large diagram of one or
insects. Label the parts
he insect's body.

Title of Book: Ants and Bees
Author: Ronald E. Road
Publisher: Wonder Books

ACTIVITIES:

1. Draw a large diagram of an ant. Label each part of its body. You will have to read pages 6 and 7 very carefully to be sure you label them correctly.

2. Read carefully how the author tells you to keep ants. Make a simple ant nest at home tonight. Bring it to school. Tell the class what you are going to do to keep the ants alive.

3. Fold a large piece of paper into 4 parts. In each section draw a stage in an ants life as he changes from an egg to an adult. Label each picture.

Title of Book: Ants: Questions & Answers
Author: Millicent E. Selsam
Publisher: Scholastic

TITLE OF BOOK: Ants: Questions and Answers AUTHOR: Millicent E. Selsam

A factual book about ants and how they live. The "food trail", life in the colony, stages of life are interestingly and simply described. Throughout the book are many diagrams.

1. *What are some of the things ants eat?*
   Ants eat juice from flowers, seeds, juice from plant lice, dead insects, etc.

2. *What is the work of ants? Describe what goes on in an ant colony.*
   Each colony has a queen. The males are drones which die after mating. The queen lays eggs and a colony is started. Worker ants get food, dig tunnels, clean the nest and care for the baby ants.

TITLE OF BOOK: Ants and Bees AUTHOR: Ronald E. Rood

This book deals with several insects: bees, wasps, ants and termites. The student may have chosen to read about only one or two of them. Try to establish if the reader understands the part these insects play in the balance of nature.

Bees: *Collect pollen on their hind legs and carry it from plant to plant make seed production possible.*

Wasps: *Feed on certain plant-destroying insects.*

Ants: *Sometimes used by farmers to help clean out harmful insects. (Hunter ants)*

oose one of the birds you see your yard. Make a booklet out this bird. Include a cture you have drawn of it. ll what you learned about is bird.

aw a large diagram of a bird's dy. Label each part. Display ur diagram.

etend you have seen someone your neighborhood shooting rds with a BB gun. What uld you say to this person. w would you convince him at this is unwise?

Title of Book: Birds - A Golden Exploring Book
Author: Clara Hussong
Publisher: Golden Press

ACTIVITIES:

1. Make a chart showing the orders of insects. Page 32 will help you. Put your chart where your classmates can see it.

2. Pretend you are an entomologist, a scientist who studies insects. You are going to do some special research on an insect. Write a paragraph telling which insect you would study and why. What do you want to learn about this insect?

3. A friend of yours feel all insects should be destroyed. Write a letter to your friend telling him what you think of his idea and why you feel that way.

Title of Book: Bees, Bugs, and Beetles
Author: Ronald Rood
Publisher: Scholastic Book Service

TITLE OF BOOK: Bees, Bugs and Beetles AUTHOR: Ronald Rood

Insects are everywhere - almost a million different kinds have been named. They are the only creatures with six legs and a jointed body. It's skeleton is on the outside and most insects have an amazing number of small eyes. Insects have interesting ways of protecting themselves - their predators are many. Stages of life are larva, pupa, adult. They range in size from the Altas Moth with a wingspread of 12 inches to tiny no-"see-ums". Some insects - like the bees and ants - live in colonies. Insects have caused much damage by destroying crops and carrying diseases. Other insects are helpful as pollen spreaders and insect controllers.

1. *Tell what insects are like.*

   Six legs, compound eyes, jointed bodies, stages of life, etc.

2. *Do insects help us at all? How?*

   Yes. Bees give us honey. Insects spread pollen. They eat other insects. Some "clean-up" rubbish.

3. *Tell some of the things you learned about insects.*

   Answers will vary.

TITLE OF BOOK: Birds - A Golden Exploring Book AUTHOR: Clara Hussong

This book deals chiefly with individual birds from the various habitats of the home ground, orchards, fields, woods, ponds and big bodies of water. Nesting habits, type of food eaten and any individualistic characteristics are noted. The parts of the body are illustrated along with the types of beaks, feathers and feet. The chain of life - how every living thing is of value to some other living thing - is touched upon briefly.

1. *Choose a bird (robin, woodpecker, owl, crow, etc.) to tell what you have learned about it.*

2. *Tell about the chain of life in a wildlife community.*

   Every living thing contributes to other living things. Plants are eaten or are used to build homes in. Some animals eat smaller animals which, in turn, eat other smaller animals.

e a poster for the hall
ling ways to prevent forest
es.

tend you are a forest ranger.
te or make on tape a speech
would give to people camping
the forest about why they
t be careful with fire.

w two pictures of a forest.
e one picture of a forest
fore a fire. In the second
cture show how the same
est looks after a fire.

Title of Book: Blaze and the Forest Fire
Author: C. W. Anderson
Publisher: Collier Books

ACTIVITIES:

1. Draw a series of pictures showing how a forest is born - beginning with a pond. Use these pictures for a bulletin board display or use tape to attach the pictures together to make your own "filmstrip." Be ready to explain to the class what changes have taken place in each picture.

2. Draw pictures on a transparency to show how a forest is born. Show your transparency on an overhead projector. Tell the class about each picture.

3. We all have a responsibility to take care of our forests. Make a poster to put in your classroom or the hallway telling others of ways to take care of forests. (preventing fires, not littering, etc.)

Title of Book: Birth of a Forest
Author: Millicent E. Selsam
Publisher: Harper & Row

TITLE OF BOOK: Birth of a Forest AUTHOR: Millicent E. Selsam

Our earth is changing all the time. A pond becomes a marsh. The marsh fills in and trees begin to grow - now it is a swamp forest. The type of forest which grows from a filling pond depends on the different kinds of plants and the climate.

1. *Tell some of the ways seeds may reach new locations.*
   Wind
   Birds carry seeds on their feet and feathers, others pass through their digestive tracts.
   Animals' fur.

2. *Explain how a pond changes into a forest.*
   A pond begins to fill in with vegetation. It becomes a marsh. Trees begin to grow. Finally it becomes stable and is a forest.

TITLE OF BOOK: Blaze and the Forest Fire AUTHOR: C. W. Anderson

Billy and Blaze are out riding when they discover a fire. They are able to get help in time to save the forest.

1. *How did the fire start?*
   Someone had built a fire in dry brush.

2. *What part did Billy and Blaze play in getting it out?*
   They were able to quickly get help from farmers.

3. *How did the people show their appreciation?*
   The farmers got Blaze a new bridle; Billy, boots and breeches.

4. *Why is a forest fire a thing we try very hard to prevent?*
   The children should be able to tell of the destruction wrought by a forest fire to animals, their homes, etc.

Title of Book: Earthworms

Author: Dorothy Childs Hogner

Publisher: Thomas Crowell Co.

ACTIVITIES:

1. Draw a large diagram of an earthworm. Label the parts.

2. On page 18 you are told how you can watch an earthworm at work. Copy the directions so that you can make this experiment at home. Bring it to school to share with the rest of the class. Be prepared to explain how an earthworm is a gardener's friend.

3. Pretend you own an earthworm farm. Tell how you would do your work and who would be your customers.

Title of Book: Ecology

Author: Shelly and Mary Louise Grossman

Publisher: Grosset & Dunlap

aw an example of the chain
life. Label each picture.

aw examples of several
fferent kinds of habitats
ow the plant and animal life
u would find in each.

is book contained much infor-
tion about ecology. Jot down
ne of the things you learned
om reading this book. Share
ur newly-gained information
th your classmates.

TITLE OF BOOK: Earthworms AUTHOR: Dorothy Childs Hogner

Although the earthworm is a simple creature it is very important. An earthworm cannot tolerate the sun. Air is taken in through its skin. It reacts to the waves of light. Earthworms actually eat and digest soil. Castings, or earthworm manure, can be seen on top of the ground.

The earthworm is hatched from an egg which is encased in a cocoon with several other eggs. They can live, barring accidents, twelve years. Earthworm's enemies are frogs, birds, moles, centipedes, and man.

1. *Why are earthworms important to us?*
   They enrich the soil upon which we depend for food.

2. *Explain why an earthworm is called nature's plow.*
   As millions of worms dig through the ground, they make holes. Air and water can enter the holes. Everything the earthworm eats is being turned into manure to enrich the soil.

3. *Explain how an earthworm has adapted to its underground environment.*
   It has no eyes or ears but reacts to light waves. It takes air through its skin.

4. *What does an earthworm eat?*
   It eats soil that contains bits of dead plants.

TITLE OF BOOK: Ecology AUTHOR: Shelly and Mary Louise Grossman

All things in nature are tied together as in a chain. One cannot eliminate one link of this chain without affecting the whole. Likewise, habitats are connected: If something happens to one species habitat, and consequently that species, other species and their habitat are affected.

Different areas with different plant and animal life are called biomes. Ecology shows us how habitats of biomes fit together. This book takes us through the biomes of the forest, grasslands, deserts, mountains, and coastlines.

The insecticides have caused problems by upsetting nature's balance. Scientists are seeking a biological control. We are seeing that man is part of the life chain and must cooperate in keeping his world in balance.

1. *Explain a food chain or chain of life.*
   An example of food chain:
   a) Butterfly eats flower nectar
   b) Dragonfly eats butterfly
   c) Frog catches dragon fly
   d) Snake eats frog
   e) Hawk catches and eats snake
2. *Explain the balance of nature.*
   All living things depend on each other. If one is affected or eliminated, other life is affected.
3. *What are some of the problems brought about by DDT? What are alternatives?*
   Problems: Kills life other than insects. Animal life that lives on plants sprayed with DDT are affected, other animals eat affected animals, etc. (Eggshells become thin and easily broken. Seals are born dead.)
   Alternatives: Biological control - special cultivation practices, predators and parasites to control insects.

e a list of the animals which
r book mentions. Underline
h animal that you have seen
n you have been visiting in
forest.

te a paragraph telling how we
help take care of forests so
t the animals will have homes
bitat) to live in.

tend you are a forest ranger
spends a lot of time in the
est. Write a letter to a
end telling about your job.

Title of Book: Forest Folk
Author: Mary and Conrad Buff
Publisher: The Viking Press

ACTIVITIES:

1. Draw a picture showing one type of pollution. Be ready to tell others in your group how it could have been prevented.

2. Fold a large piece of paper into four sections. In each section draw a picture of something that pollutes our land.

3. Make a poster to be put in the hall urging people to stop polluting.

Title of Book: Everyday Is Earth Day
Author: Illa Podendorf
Publisher: Children's Press

TITLE OF BOOK: Everyday is Earth Day AUTHOR: Illa Podendorf

The children in the story discover how air and water can become polluted. They see what happens when too much junk is put on the land. Every day must become Earth Day so that we can find ways to clean up our world. Children can help.

1. *What is pollution?*
   The dirt and gases that are getting into our air and water and making them unclean.

2. *What is it doing?*
   It is destroying part of our earth.

3. *Name three things you can do to help stop pollution.*
   1) Tell others about pollution.
   2) Learn about it.
   3) Put up posters.
   4) Be sure to make every day Earth Day and remind others to do so.

4. *What is Earth Day?*
   A special day set aside to clean up our earth.

TITLE OF BOOK: Forest Folk AUTHOR: Mary and Conrad Buff

Life in the forest is described by seasons - beginning with winter. The animals are given descriptive names such as Scoop, the woodpecker, and Grump-Grump, the bear. Their change of activities with the seasons is shown.

1. *Choose several forest animals - describe how they live in the forest.*

   Woodpecker: digs in bark for food
   Chipmunk: sleeps much of the time in winter and eats stored seeds
   Porcupine: eats bark
   Bears: coughs to cubs to indicate danger.....
   etc.

2. *What changes take place in the forest as the seasons change?*

   Winter finds the forest covered with ice and snow and many animals asleep. In spring the birds return and wild flowers bloom. Many baby animals are born. In the summer other flowers and plants grow - the babies are growing and learning. In autumn leaves and seeds drop. The animals are storing food in preparation for winter.

two lists on your paper.
one list of animals that
plants. Make another list
nimals that eat other
als.

se one of the animals from
book. Write the story this
al might tell you (if it
d talk) about how it gets
food.

a clay model of an animal
ing its food.

Title of Book: How Animals Get Food
Author: Bertha Morris Parker
Publisher: Harper & Row

ACTIVITIES:

1. Make your own Reptile Information Sheet. Write the names of several kinds of reptiles (page 62 has a good list). After each name write a sentence telling something about that reptile. Put your information sheet on the bulletin board so others can learn about reptiles too.

2. Pretend you are an ophiologist, a scientist who studies snakes. Write an article explaining to people what would happen if all the snakes were killed.

3. Make a REPTILE chart showing a snake, a lizard, a turtle, and an alligator. List the ways these reptiles are alike.

Title of Book: Giant Snakes and Other Amazing Reptiles
Author: William Wise
Publisher: G. P. Putnam's Sons

TITLE OF BOOK: Giant Snakes and Other Amazing Reptiles AUTHOR: William Wise

Reptiles are a very old family. Only four kinds are left: snakes, lizards, turtles, crocodiles. They are cold-blooded animals and consequently not found in very cold regions. All animals play a part in nature's plan - reptiles are an important part of the plan.

1. *Explain how reptiles are all alike.*
   Cold blooded, body covered with scales, important to nature's plan, etc.
2. *How are snakes useful?*
   They eat rats and other pests.
3. *Tell some of the facts you learned about individual reptiles.*
   Coral snakes: poisonous
   King Cobra: largest of poisonous snakes
   Anaconda: biggest snake
   Gila Monster: only poisonous lizard
   Gicho: loses his tail to a predator
   Chameleon: changes color
   Monitors: largest lizard
   Galapagos turtle: very large - can live 200 years
   Crocodiles: very dangerous
   Alligator: loud voice
4. *What happened after people killed many alligators? Why?*
   Poisonous snakes grew in number because alligators were predators to them.
5. *Do you think it's wise to kill all of any animal? Why?*
   Nature's balance is destroyed.

TITLE OF BOOK: How Animals Get Food AUTHOR: Bertha Morris Parker

All animals must have food and some are plant eaters and some eat other animals. People feed some in homes, farms and zoos. Wild animals find their own food

1. *What are some animals that eat plants? Insects? Other animals?*
   Plants: porcupine, butterfly, hummingbird, chipmunk
   Other animals: mole, starfish, owl, tiger, walrus, lobster and crab, raccoon, lion, sailfish, polar bear.
   Insects: turtle, bat, chameleon, praying mantis, spider.

2. *What are some special characteristics animals have to help them get their food supply?*
   Giraffes: long necks
   Lions: sharp claws
   Walrus: long tusks for digging,
   etc.

a footprint chart. Label animal's prints. Display chart for others to see.

e animal riddles to ask of your classmates. Be you tell enough about the al so others can guess who s. Tell where the animal s, what he eats, how large , and what his home is like.

a clay model of one of the als in your book. Write a graph giving information t this animal.

Title of Book: Little People of the Night

Author: Laura Bannon

Publisher: Houghton Mifflin

ACTIVITIES:

1. Draw a night picture showing the things Joe saw in the night.

2. Write a story about a time when you went out in the night. What are some of nature's sounds you heard? What did you see?

3. Make a list of the animals you would be more apt to see at night.

Title of Book: Mark Trail's Book of Animals

Author: Ed Dodd

Publisher: Scholastic

TITLE OF BOOK: Little People of the Night AUTHOR: Laura Bannon

Joe woke up in the middle of the night to hear sounds coming from the meadow. He and his cat investigated and found the sounds that belonged to the night were those of flying squirrels, raccoons, skunks and an owl. Joe would like to belong to the night but he just can't stay awake.

1. *Who was making the noises Joe heard?*
   Squirrels, raccoons, skunks, and an owl.

2. *What did Joe see when he took a walk with the cat?*
   The above animals - along with a sleeping cow, calf, and hen.

3. *Why were the skunks and raccoons afraid of the owl?*
   The owl is an enemy of these animals.

4. *How did Joe feel about the little people of the night?*
   He would like to be one of them if he didn't get so sleepy!

TITLE OF BOOK: Mark Trail's Book of Animals AUTHOR: Ed Dodd

This book gives a description of the life of nineteen mammals. Included are tales of how they have been hunted by man.

1. *Name some animals which eat other animals. What did the animals which were eaten eat? Can you trace it back to a plant-eating animal?*

   Possible answers are: lynx, cougar, wolf, coyote, fox, wolverine, badger, raccoon.

   Tracing back to dependency on plants: wolf rabbit plants.

2. *How does a fox help the farmers?*

   He eats many rats and mice which are crop-destroying.

3. *Can you think of other helpful animals?*

   Children might mention badger (rodent eater), fox, coyote. (They may have the understanding of the balance that predators play.)

a picture of Barnaby in his
ral home. Under the picture
how he built his home.

end you are a beaver. Write
ory about a day in the life
beaver. (Did you have any
ow escapes? What did you
) Make your story exciting.

Title of Book: Nature's Lumberjack
Author: Willis Peterson and Jeffrey Church
Publisher: Follett Publishing Co.

ACTIVITIES:

1. Make a chart of animal footprints. Label the prints.

2. Make two lists on a piece of writing paper.

Plant eaters	Animal eaters

Put these headings on your paper. Write the names of animals which belong in each list.

3. Make a clay model of one of the animals you read about. Write a paragraph telling what you learned about this animal.

Title of Book: Mark Trail's 2nd Book of Animals
Author: Ed Dodd
Publisher: Scholastic Book Service

TITLE OF BOOK: Mark Trail's 2nd Book of Animals AUTHOR: Ed Dodd

Facts about twenty mammals are told under separate headings

1. *Name some plant-eating animals. Animal eaters.*

Plant eaters	Animal eaters
caribou	Arctic fox
deer	otter (fish)
mountain sheep	bobcat
porcupine	ring-tailed cat
	armadillo (insects)

2. *What are some of the ways animals protect themselves?*

Odors, keen senses, protective colorings, speed, etc.

TITLE OF BOOK: Nature's Lumberjack AUTHOR: Willis Peterson and Jeffrey Church

The activities of Barnaby are followed beginning with his life as a young beaver. Three main adventures are told: repair of a damaged dam, Barnaby's capture and removal to another pond where a dam is needed, and the building of a dam in the new location. Many details of a beaver's life can be learned.

1. *Describe the type of habitat a beaver would choose.*

Stream with small trees around it for dam building.

2. *How does a beaver build a dam?*

Mud, stones, sticks are laid across a stream. Larger material is laid on this. Branches are interlaced for strength. Mud and grasses are used to plaster places where water flows through. Several passages for the water are made.

3. *Why did the men capture Barnaby and take him to a new location? How did he and the other beavers help?*

The water in this particular stream ran down so quickly that it didn't soak into the soil. The dam would make the land fertile.

a chart showing the various
s of animals. Put names of
als under each heading.

Birds	Fish	Reptiles	Insects

e are many kinds of plants.
as many pictures of different
s of plants as you can. Paste
on a piece of construction
r. Did you make an attractive
age?

end you are a doctor who is
g to come to the classroom to
the children how to take care
heir bodies. Think carefully
you are going to say. Go to
let spot in the classroom and
a tape to be played to some
our classmates.

Title of Book: Plants, Animals and Us
Author: Bertha Morris Parker
Publisher: Golden Press

ACTIVITIES:

1. Draw a picture showing some of the beautiful things from nature that you saw on your way to school this morning.

2. Which is your favorite season: spring, summer, fall, or winter? Write a short story telling why it is your favorite season.

3. Divide a large sheet of drawing paper into four parts. Show how the same tree would look in the four seasons.

Title of Book: One Bright Monday Morning
Author: Joseph Baum
Publisher: Pinwheel Books

TITLE OF BOOK: One Bright Monday Morning AUTHOR: Joseph Baum

This is a very easy book which tells what a child saw during the week: grass, flowers, trees, birds, bees, worms, and an ant.

You may feel reading it through to you would be adequate. Or questions such as "What was seen?" "Why did he see all these things?", etc. could cover the content.

TITLE OF BOOK: Plants, Animals, and Us AUTHOR: Bertha Morris Parker

There are a million kinds of animals in the world and hundreds of thousands of different kinds of plants. People, though, are built very much alike with the respiratory and digestive systems, muscles, skeleton, and circulatory systems. Our bodies must have proper food and rest. All living things depend upon soil, water, and air.

1. *In what ways do people have the same needs as animals?*
   They must have food, water and air.

2. *Give some examples to show that we eat different parts of plants: seeds, leaves, roots, stalks.*
   Seeds: corn, beans, etc.
   Leaves: cabbage, lettuce
   Roots: carrots, beets
   Stalks: celery

3. *What are some of the ways we can take good care of our bodies?*
   Proper food, rest, fresh air, etc.

4. *Which are some of the insects that are our friends? How do they help us?*
   Honeybees carry pollen. Beetles are cleaners. Praying mantis and ladybugs eat harmful insects.

raw a picture of an underwater
cene on a paper towel. (It
as a ripply surface like water.)
fter you've drawn your under-
ater plants and animals, color
ver them with the side of a
lue crayon. Does your picture
ook like a real underwater
cene?

retend you are a deep sea diver
nd you are going to offer
iving lessons to others. Write
n article for a newspaper try-
ng to convince others they
hould take your lessons.

ould you lik to be a diver?
rite a paragraph telling why.

Title of Book: Sea Creatures

Author: John Mardon

Publisher: Holt, Rhinehart, Winston

ACTIVITIES:

1. Make your own pond dictionary. Write the words in alphabetical order. Then write the definition beside them. (You may want to draw small diagrams by some of the words.) Use these words: plankton, photosynthesis, chlorophyll, algae, protozoans, rotifers, heron, kingfisher, muskrat.

2. Make a collage of life in a pond.

Title of Book: Pond Life

Author: Alexander L. Crosby

Publisher: Garrard Pub. Co.

TITLE OF BOOK: Pond Life AUTHOR: Alexander L. Crosby

Ponds are made in many ways. All have many plants and animals living in and on it which depend on each other for life. All of the life depends on the sun, the soil, and the water.

The author takes us to his pond where we meet the creatures who live there - frogs, salamanders, insects, reptiles, birds, and muskrats.

1. *Tell how the plants and animals of the pond depend on each other.*
   The food chain is at work here - starting with plankton and algae and all the little creatures that feed upon them.

2. *How does sunlight help a pond?*
   The plants use sunlight to make food. Without it, plants would die and many creatures would starve.

TITLE OF BOOK: Sea Creatures AUTHOR: John Mardon

An underwater swimmer describes his gear, technique, and sights in the sea.

1. *Describe some of the things that can be seen underwater.*
   Animals such as stingrays, polyps, coral, parrot fish, starfish, sea urchins, octopus, crabs, barracudas, wolf fish, etc. are mentioned. (Perhaps the students have seen several of these in an aquarium.)

2. *Could the beautiful things under the sea be ruined? How?*
   Although not specifically mentioned in book, the child should be able to understand the hazards of water pollution to all forms of sea life.

a scientific chart showing
you have learned about these
mammals?

Order	Family	Food	Habitat

you add other mammals?

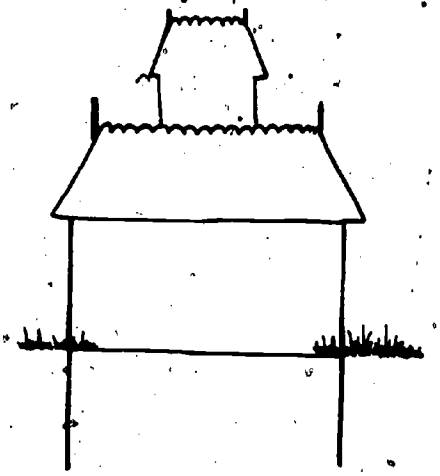
a mammal encyclopedia. On a
rate sheet of paper for each
al, draw a picture of the
al and tell something about
Remember to put your pages
phabetical order.

ect pictures from magazines
ll the mammals you can find.
e them into a collage.

Title of Book: Six Great Mammals
Author: Kenneth and Josephine Sopis
Publisher: Holt, Rhinehart and Winston

ACTIVITIES:

1. The author has compared the forest to a tall building. On a large piece of paper draw a tall building and divide it into 4 stories. In each part of the building draw pictures of things you would find in similar spots in the forest. Start with the basement and end with the very top floor.



2. Pretend you are an animal living in the forest. Write a diary page telling what happens to you in one day. Don't forget about the other animals you would see or the plants you might eat or use in some other way.

Title of Book: See Through the Forest
Author: Milligent Selsam
Publisher: Harper & Row

TITLE OF BOOK: See Through the Forest AUTHOR: Millicent Selsam

The forest is compared to a tall building. The basement contains underground animals and decaying materials. The ground floor (forest floor) grows many plants and provides a home for most animals. The top floor is home to birds, insects and climbing animals.

1. *What would you find in the "basement" of a forest? Ground floor? Top story?*

   Basement: dead leaves, worms, mold, seeds, moles, hibernating animals, etc.
   Ground Floor: ferns and wild flowers, reptiles, deer, skunks, etc.
   Top Story: birds, climbing animals, insects.

2. *Explain how plants and animals in the forest are linked together to form a community.*

   Birds eat insects and caterpillars which would otherwise multiply and destroy the forest. (The woodpecker, scarlet tanager, and ladybird beetle were used as examples.)

TITLE OF BOOK: Six Great Mammals AUTHOR: Kenneth and Josephine Sopis

This book explains how the animals fit into the animal world: kingdom, phylum, and class. Lions, zebras, rhinoceroses, elephants, hippopotamuses, and giraffes are described - their habitat, eating habits and adaptability.

1. *The mammals you read about are in danger of becoming extinct. Why? What is being done to protect them?*
   Lions: Indian government is protecting from hunters.
   Zebras: Many natural enemies. Natural protection from enemies is speed.
   Elephants: Killed for ivory tusks
   Rhinoceroses: Hunted for their horns which are believed to have magic powers.

2. *Which of these mammals did you find most fascinating? Tell what you learned about them.*

3. *Which of these mammals eat plants? Which other animals?*
   Animals: lions
   Plants: zebras, rhinos, elephants, hippos, giraffes.

e a poster for the hall or
ssroom showing the things that
lute our water, air, and land-
pe. Use words on your poster
ing people to stop polluting.

ign badges telling people not
pollute. Wear one of the
ges and pass the others out
other people to wear. (Would
principal or librarian like
wear one?)

e a list of ways we can help
pollution problem. Put your
gestions on a ditto and have
eral copies made. Pass these
to people in your neighborhood.

Title of Book: Spaceship Earth: Danger! Danger! Danger?

Author: Kenneth and Josephone Sopis

Publisher: Holt, Rhinehart & Winston

ACTIVITIES:

1. Aluminum foil, glass, and plastic do not decay. Go out on the playground near your classroom and see if you can find some of these materials.

2. Divide a piece of paper into 2 sections. On one section write "Things that will make soil" and on the other, "Things that will not decay". Find examples to place on each side. (You may want to use glue to hold them in place.)

3. Pretend you are a big rock. Write a story telling what could happen to you to make you into soil.

Title of Book: SOIL, A Field Trip Guide

Author: Helen Ross Russell

Publisher: Little, Brown & Co.

TITLE OF BOOK: SOIL: A Field Trip Guide AUTHOR: Helen Ross Russell

The children are encouraged to find out about soil by taking a field trip. Changes have come about in soil through temperature, water, plants and animal action and decay, etc. The interaction of plants and soil is explained.

1. *Name some ways rock is made into soil.*

   Broken by freezing, rubbing against other rocks, moving water, etc.

2. *Name several things that help build soil.*

   Decaying plants and animals. The action of earthworms and insects.

3. *Define: decay, organic, soil*

   decay - plants and animals decomposing
   soil - earth made up of broken rocks and organic matter
   organic - plants and animals and their waste products

TITLE OF BOOK: Spaceship Earth: Danger! Danger! Danger? AUTHOR: Kenneth and Josephine Sopis

Our earth is compared to a spaceship - but one that is in danger because of the problems man has created. The biosphere (where life is found) is carefully balanced. Pollution has upset this balance.

1. *How is water self-cleaning?*
   Plants in water give off oxygen which is used by bacteria. Bacteria turn waste back into useful chemical.
2. *How do we pollute water?*
   Sewage, chemicals, warm water which kills plants, etc.
3. *What did you learn about our drinking water?*
   Water for drinking comes from where we put our wastes. It must be cleaned first by adding chemicals.
4. *What is landscape pollution?*
   Garbage, litter, trash, etc.
5. *How do we pollute air?*
   The wastes we pump into it: auto exhaust, burning of all kinds, factories, etc.
6. *What are some things you and I can do to help the pollution problem?*
   a) You can plan projects to inform others, and better inform yourself.
   b) Recycle
   c) Think about non-polluting recreation.
   d) Save fuel and electricity whenever you can.
   e) Help keep your community clean
   etc.

e your own wea[illegible]
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the book is a good place to
your weather words.)
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tionary are in alphabetical
er.

out weather maps from the
spaper for a few days. Put
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ers can see them. Be sure
change them every day.

e you ever lain outside and
ched the clouds? What shapes
you see? Could you see
mals, or people, or castles?
r out of white paper some
ud shapes you have seen and
te them on a piece of blue
er.

Title of Book: The Air Around Us
Author: Margaret Friskey
Publisher: Children's Press

ACTIVITIES

1. The authors of this book must have thought a swamp is beautiful. Draw or paint a swamp scene. Show in your picture something that you think is beautiful in a swamp.

2. Write a poem about a swamp. Choose as many "beautiful" words as you can.

3. Fold a piece of writing paper in half to make two columns. At the top of one column write PLANTS and at the top of the other write WILDLIFE. Under each heading list the plants and wildlife you would find in a swamp.

Title of Book: Swamp Spring
Author: Carol and Donald Carrick
Publisher: Macmillan Co.

TITLE OF BOOK: Swamp Spring AUTHOR: Carol and Donald Carrick

The authors have attempted to develop an appreciation for the swamp as a part of nature's contribution. The children could be tested in an attitudinal manner to see if they understand how a swamp can be "appreciated".

1. *What might you see in a swamp?*

   Blackbirds, ducks, snakes, frogs, beavers, raccoons, etc.

2. *Do you think we should take care of swamps?*

3. *Who depends on swamps?*

   The above mentioned animals make their home there eating swamp plants or other animals.

TITLE OF BOOK: The Air Around Us AUTHOR: Margaret Friskey

Air makes a band around the earth. This air spreads sunlight throughout the earth and protects us from the sun's burning rays. It is made up of gases. Wind is moving air - warm air rising and cool air moving in to take its place.

Cumulus, cirrus, and stratus are types of clouds. Lightning is electricity moving through air. Fog is an earth cloud, heavy with water vapor.

1. *Describe some of the wonders in the air around us.*
   Colors in the light, sunsets, band of air, etc.

2. *What is wind?*
   Moving air: warm air moves up and cool air comes in to take its place.
   Hurricane: a storm of heavy wind that forms over water.

3. *What is lightning?*
   Electricity which builds up in a cloud. When a cloud gets too full of electricity, a path is found to earth or to another cloud.

your own jacket for this

s can't talk, but if they
what might a spider say
itself? Write a story
g what you think it would

d that Mr. Ames, a scientist,
vented a spray to kill all
earth's spiders. Write
letter telling him what
ink of his idea.

Title of Book: The True Book of Spiders
Author: Illa Podendorf
Publisher: Children's Press

ACTIVITIES:

1. Write a letter to Mr. Pringle, the author, telling him what you think of this Earth and what you are doing to help take care of it.

2. Interview two adults. Ask them what they feel should be done to solve the pollution problem. Write down what they tell you.

3. Several cycles are shown in your book (pages 8, 51, 62). Study these cycles. On a large piece of paper draw a diagram showing the cycle. Explain to your classmates how the cycle operates.

4. Design a book jacket for this book.

Title of Book: The Only Earth We Have
Author: Laurence Pringle
Publisher: Collier Books

TITLE OF BOOK: The Only Earth We Have AUTHOR: Laurence Pringle

Spaceship Earth is threatened by technology and over-population. The soil's minerals are being used up. The chemicals which pollute our air affect humans and plants. The car is our greatest polluter. Detergents and sewage have created problems in our lakes and streams. Many of our throw-aways are non-decomposing - recycling, hence, is a necessity. Many pesticides are biocides, affecting many forms of life. Man has caused many animal species to be in danger of extinction. Consequently we must concentrate on conservation to preserve this beautiful earth - the only one we have.

This book deals with problems in our earth that could destroy our environment. Since it covers complex subjects, it would probably be best to have the reader share his newly gained insights with you.

TITLE OF BOOK: The True Book of Spiders AUTHOR: Illa Podendorf

Spiders differ from insects in that they have eight legs rather than six, two body parts rather than three, and have no feelers. Most have eight eyes. Spiders eat other animals - insects mainly, but some catch and eat tadpoles and birds. Spiders travel in several ways: some jump, run, walk or are blown through the air. Spiders protect themselves by running fast, biting, protective coloration, playing dead, or catching an enemy in a web. Most spiders are helpful to us because they eat harmful insects. Sometimes, however, they can be harmful as a few are poisonous. Spiders skilly build several kinds of webs. The silk is used for web making, traveling, egg cases.

The chapter titles in this book are written as questions, therefore the table of contents, pages 4 and 5, provides a good source for questioning.

e pollution is a problem.
a picture showing things
make too much noise.

quietly for a few minutes
listen to the sounds around
Make a list of everything
hear. Draw a line under
things you thought made
much noise

Title of Book: Too Much Noise
Author: Ann McGovern
Publisher: Scholastic Book Services

Title of Book: Through a Magic Glass
Author: Solveig Paulson Russell
Publisher: Ginn and Company

ACTIVITIES:

1. Cut out a magic-glass shape out of construction paper. Draw the roots of the tree in the magic glass. On the back of the magic glass tell what roots do for a tree.

2. Pretend you are a tree. Write a "Day-in-the-Life-of-a-Tree" story.

3. Fold a large piece of paper into 4 parts. Show how the same tree will look in Spring, Summer, Winter, Fall.

TITLE OF BOOK: Through a Magic Glass AUTHOR: Solveig Paulson Russell

If we had a magic glass we could better examine a tree. We would be able to look underground and see the network of roots. We could look into the bark and see how water rises up the tree. We could see how leaves make food and how they change color.

1. *Why do trees have roots?*
   To take up food and water.

2. *Tell why root hairs are the most important part of the root system.*
   They twist around bits of earth and soak up the water.

3. *Define chlorophyll.*
   This is the green-colored material in leaves which makes plant sugar (tree food.)

TITLE OF BOOK: Too Much Noise AUTHOR: Ann McGovern

Peter is an old man who was annoyed by the everyday noises around him. (Bed creaking, floor squeaking, etc.) A wise judge had him fill his home with noisy animals. Only then did he appreciate the relative quiet of his former life.

1. *Why did the wise man tell Peter to get all those animals? Did it solve his problem?*

2. *What things do you hear in a day that make too much noise?*

e a list of all the things
have used today which
e of wood. This will help
w how very useful trees
us.

e a poster showing several
s animals help us. Make a
le for your poster

Title of Book: Useful Plants and Animals
Author: Glenn Blough
Publisher: Row, Peterson

ACTIVITIES:

1. Fold a large piece of drawing paper into eight parts. Draw a plant in each square showing how a plant is "up above and down below". Label each picture with the name of the plant.

2. From an old magazine find as many pictures of different kinds of plants as you can. Paste them on a piece of paper to make a collage. Try to learn the names of the plants you find.

3. Make a list of the plants you have in your yard at home.

Title of Book: Up Above and Down Below
Author: Irma E. Webber
Publisher: Wm. R. Scott, Inc.

TITLE OF BOOK: Up Above and Down Below AUTHOR: Irma E. Webber

This book deals with the idea that plants have part of their bodies above and part below the ground. Plants use the sunlight above the ground and water and minerals below the ground to grow. Animals get their food from eating plants or plant-eating animals.

Explain how all animals depend on plants. (You may have to do extra questioning for children to understand the "chain" idea.)

TITLE OF BOOK: Useful Plants and Animals AUTHOR: Glenn Blough

Animals work for man, give him food, provide clothing (wool and leather.) Birds eat harmful insects, weed seeds, and other animals such as mice.

Plants provide us with paper products, rubber, materials (cotton and linen) and give us food.

1. How do plants and animals give us clothing? Food?
Clothing: wool, cotton, linen
Food: meat, vegetables and fruits

2. In what ways are Birds helpful?
They destroy harmful insects and animals. Others are seed eaters and help control weed growth.

Title of Book: Let's Go Outdoors

Author: Harriet E. Huntington

Publisher: Doubleday and Co.

ACTIVITIES:

1. Make a collage showing useful creatures which live outdoors.

2. If you were a gardener, which creatures would you like to have live in your garden? Why? Design a "pretend" invitation inviting them to come. Make a list of the creatures who would get one of your invitations.

3. Model from clay a "useful creatures" display. Share your display with your classmates and explain how each one is useful.

Title of Book: What do Animals Eat?

Author: Ruth Belov Gross

Publisher: Scholastic Book Services

ide a large piece of paper
o 4 parts. In each part
w an animal and show what
t animal eats.

tend you own a restaurant
animals. List the items
would have on your menu.

you were a farmer or gardener
re are some animals you would
e to have live in your garden
. Design an invitation that
would send inviting certain
mals to make their home on
r land. On the back of the
itation list the animals you
ld send it to.

TITLE OF BOOK: Let's Go Outdoors AUTHOR: Harriet E. Huntington

This book is about the small creatures that are found outdoors. There are pictures and writings about frogs, ants, butterflies, etc. telling how they look, where they live, and what they eat.

1. *Although gardeners do not like to have snails in their garden, they are helpful. How?*
   They help clean the garden by eating old leaves.

2. *How do worms help plants?*
   They loosen the soil and roots of plants can grow better.

3. *How does a sow bug help to clean the garden?*
   They eat old, dead leaves.

4. *Why are bees useful?*
   They carry pollen from one flower to another.

5. *What do spiders eat? Is that helpful?*
   They eat insects.

6. *What do butterflies do to help plants?*
   They carry pollen.

TITLE OF BOOK: What do Animals Eat? AUTHOR: Ruth Belov Gross

This book describes 25 animals (including humans) and what they eat and how the food is obtained. (For instance, the giraffe eats leaves from trees because his long neck does not bend easily. He must spread his legs wide apart in order to eat.) The books table of contents lists each animal whose eating habits are described.

1. *What are some of the things different animals eat?*
   Giraffes: leaves
   Gibbons: fruit, leaves, flowers, insects, eggs
   Elephant: plants
   Lions: other animals
   Earthworms: bits of plants in the soil
2. *Which animal has the most appealing menu to you? The least appealing?*
   The child will probably choose the "people" menu or perhaps a plant-eating animal as the most appealing. Some may choose the mosquitoes diet as the least appealing as it is made up of our blood.
3. *How are some of the things animals eat helpful to us?*
   Some animals eat harmful insects. Others keep nature in balance.

ke a tree booklet. Cut out a
ver that is the shape of a tree.
e your cover to trace the shape
several pieces of lined paper.
aple the cover and papers to-
ther. Now write in your book-
t some of the things you learned
out trees.

aw a tree on a piece of paper.
ke lines coming from the tree.
the ends of these lines write
ings you see in your classroom
at are made from wood.

etend you are a carpenter. Tell
at would happen to a tree before
u could use it to build a house.

Title of Book: What is a Tree?
Author: Gene Darby
Publisher: Benefic Press

Title of Book: What is a Frog?
Author: Gene Darby
Publisher: Scholastic Book Services

ACTIVITIES:

1. Draw a picture to show the three stages of a frog's life.

2. If you were a frog and knew how to write, what would you write about yourself? Write a story telling others interesting things about you, the frog.

3. Make a clay model of a frog. Be ready to tell your classmates what you have learned about frogs.

TITLE OF BOOK: What is a Frog? AUTHOR: Gene Darby

A frog is described: its skin, legs and feet, eyes, ears, size and diet. The changes from egg to tadpole to frog are shown. The book tells how a frog uses its tongue to eat, and how a new skin is acquired, and the winter sleep. (Molt and hibernation are not used). The smallest to largest frogs are shown.

1. *What are the stages in a frog's life?*

   egg - tadpole - frog. (The children should be able to tell about the shortening of tail and growth of legs in the tadpole stage.)

2. *Tell how a tadpole lives. A frog.*

   Tadpole: In water breathing with gills.
   Frog: on land breathing with lungs.

3. *Tell about the smallest frog. The largest.*

   Smallest: Spring peeper the size of a penny
   Largest: Bullfrog

4. *Why do we like to have frogs around?*

   They eat harmful insects.

TITLE OF BOOK: What is a Tree? AUTHOR: Gene Darby

A tree is the world's largest plant being made up of a crown, a trunk and roots. Trees grow from seeds which are scattered in many ways. Sap is carried up to the leaves where food is made to feed the tree. When sap no longer reaches the leaves the green coloring leaves and other colors appear. Evergreen trees have needle shaped leaves which stay green all year. Trees are helpers as we get many products from them.

1. *Name several things that are made from a tree.*
   Lumber, paper, cork, rubber, paint, syrup, chocolate, fruits, spices, nuts, camphor.

2. *Tell why a tree is a helper.*
   A tree is a helper because of all the things we can make or use from it. (see above) Birds and animals make their homes in trees. A tree is a soil saver, etc.

3. *Tell about the three parts of a tree.*
   Crown: branches and leaves
   Roots
   Trunk: Brings crown and roots together. Trunks are covered with bark.

4. *How does a tree grow and get its food?*
   Water (sap) is taken in by the roots and travels up tubes to the leaves where food is made. The food travels down tubes to feed the tree.

tend you have just taken a
g walk through a meadow.
te a letter to a friend
scribing what you saw on
r walk.

you could interview an
vironmentalist (a scientist
o studies the environment)
at questions would you ask
n about a meadow environ-
nt and the animals which
ve there?

Title of Book: Who Lives in this Meadow?
Author: Glenn O. Blough
Publisher: Whittlesey House

ACTIVITIES:

1. Where do you think a butterfly goes when it rains? Write a story about it. Draw a picture to go with your story.

2. Draw a picture of yourself in the rain. Let us see by your face whether you are happy or unhappy about being in the rain.

3. Write a poem about rain.

itle of Book: Where Does the Butterfly go When it Rains?
uthor: May Garelick
ublisher: Scholastic

TITLE OF BOOK: Where Does the Butterfly go When it Rains? AUTHOR: May Garelick

Most animals have someplace to go when it rains: moles to holes, bees to hives, birds can put their head under their wings. A cat goes under the porch, a grasshopper to tall grass, a rabbit into a bush. Some animals don't mind rain - but the author wonders, "Where does a butterfly go when it rains?"

1. *Tell where some animals go when it rains.*

2. *Do you think rain is necessary? Why?*

TITLE OF BOOK: Who Lives in this Meadow? AUTHOR: Glenn O. Blough

We are guided through the meadow by a child who is familiar with its animal life. We are shown animal life under the water, on the water, under the ground and in the air. Exploration of a meadow is encouraged.

1. *How is a fish adapted to its environment?*
   Breathes with gills, shape of body, fins, etc.

2. *How are some animals adapted for living on the water?*
   Ducks: "waterproof" feathers, shape of feet.

3. *Describe different birds' beaks and tell how they help the bird get food.*
   Hummingbird: long needle-like beaks for sucking nectar.
   Flycatchers: small flat
   Owls and Hawks: Sharp curved beaks for tearing meat
   Seedeaters (flinches): short beaks which are strong enough to break open seeds.