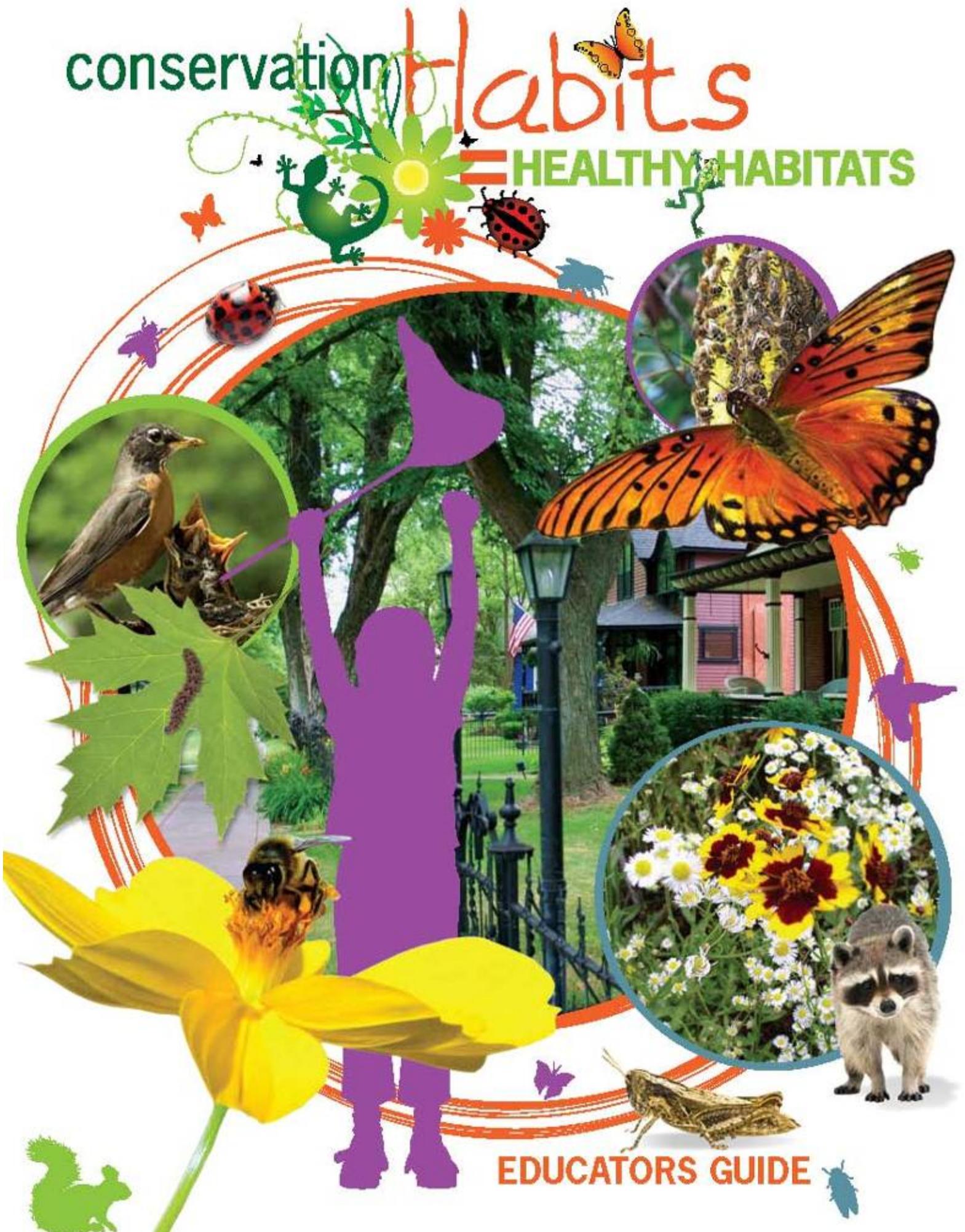


conservation **H**abits = HEALTHY HABITATS



EDUCATORS GUIDE

NACD Stewardship and Education Committee 2009

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Alaska	Mr. Ken Marsh
Alaska	Mr. Chris Rainwater
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Colorado	Mr. Harley Ernst
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Oklahoma	
	Anne Dubey, USDA-Natural Resources Conservation Service
Washington, DC	
<u>Staff</u>	
Indiana	Susan Schultz, NACD Stewardship & Education

Special thanks to:

- ◀ Gina DeMarco, District Manager, Northern Rhode Island Conservation District, RI
- ◀ Bill Bohnert, Jr. District Manager/Conservation Education Director, Jackson County Soil and Water Conservation District, MO
- ◀ Dave Fry, District Technician, Jackson County Soil and Water Conservation District, MO
- ◀ And the many educators in the development and review of the materials.

<http://www.nacdnet.org/>

Stewardship program educator's guide online version

You can download this PDF educators guide from the NACD website to your computer. You can access information by using your computer mouse and clicking on the links and it will take you directly to the web page. This format will allow you to save paper and time retyping web addresses. You may also print out a page that you need.

www.nacdnet.org/education/resources/habitat/

This booklet will be updated as needed to bring you the most current information.

Please take the time to attend a workshop and promote programs from our education partners.

You can purchase copies of this guide and additional education material from the NACD Marketplace www.nacdstore.org

Please submit information to share with others on your successful stewardship programs or conservation education activities.
stewardship@nacdn.net

Thank you!



National Association of Conservation Districts (NACD)

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About NACD & Stewardship Week



The National Association of Conservation Districts is the nonprofit organization that represents the nation's 3,000 conservation districts, 17,000 men and women who serve on their governing boards.

Conservation districts are local units of government established under state law to carry out natural resource management programs at the local level. Districts work with more than 2.5 million cooperating landowners and operators to help them manage and protect land and water resources on nearly 98 percent of the private lands in the United States.

NACD's mission is to serve conservation districts by providing national leadership and a unified voice for natural resource conservation. The association was founded on the philosophy that conservation decisions should be made at the local level with technical and funding assistance from federal, state and local governments and the private sector. As the national voice for all conservation districts, NACD supports voluntary, incentive-driven natural resource conservation programs that benefit all citizens.

NACD maintains relationships with organizations and government agencies; publishes information about districts; works with leaders in agriculture, conservation, environment, education, industry, religion and other fields; and provides services to its districts. NACD is financed primarily through the voluntary contributions of its member districts and state associations.

The association's philosophy is that conservation decisions should be made by local people with technical and funding assistance from federal, state and local governments and the private sector. The association's programs and activities aim to advance the resource conservation cause of local districts and the millions of cooperating landowners and land managers they serve.

Visit www.nacdnet.org for additional information.
To find your local district contact information, go to
www.nacdnet.org/about/districts/directory/index.phtml

STEWARDSHIP WEEK INFORMATION

NACD has sponsored Stewardship Week since 1955. 2010 marks the 55th year to celebrate NACD Stewardship Week.

Education is a critical element of the conservation effort at the local, state and national levels. Educating youth ensures that the next generation will be wise stewards of America's natural resources. Helping today's adults understand the need for effective conservation practices builds on the conservation legacy. Through NACD's Stewardship and Education efforts, we help districts and communities extend the reach of their education programs.

Working with Schools & Community

Ideas for schools:



- 1) Purchase NACD Conservation Habits = Healthy Habitats student booklets (www.nacdstore.org) NACD Marketplace
- 2) Utilize activities provided for school programs, field days or in-service workshops with teachers, scouts, 4-H, after school programs, boys and girls clubs.
- 3) Become involved in reading programs at the schools and local libraries. Donate books to schools and local library.
 - A. See page 14 for a list of children's books.
- 4) Assist in your local science fair by sharing ideas on conservation topics.

Ideas for community:

- 1) Exhibit at your local library, county fair, community trade fairs and other opportunities.
- 2) See the Stewardship Success stories on www.nacdnet.org/stewardship/
- 3) If you are working with local faith based groups—offer the activities and student booklets for summer programs and other youth projects.
- 4) Start a speakers bureau for local service clubs, organizations and faith based organizations.

Check NACD education website link for additions to the Conservation Habits = Healthy Habitats program from educators and conservation districts. www.nacdnet.org/stewardship/
Send your additions to: stewardship@nacdn.net

Workshops:

- 1) Host a habitat workshop for local teachers, scout or 4-H leaders, after school program leaders, citizens and others.
- 2) Host a "How to" make a rain barrel or rain garden workshop.



NACD/Auxiliary POSTER CONTEST

2010 Poster
Contest Theme is
**Conservation
Habits = Healthy Habitats**

You can find all the forms and rules online and ideas for the 2010 theme at:

www.nacdnet.org/education/contests/poster/



NACD/Auxiliary PHOTOGRAPHY CONTEST

Entries are due December 1st of each year
Photo entry contest form and rules can be found online at:

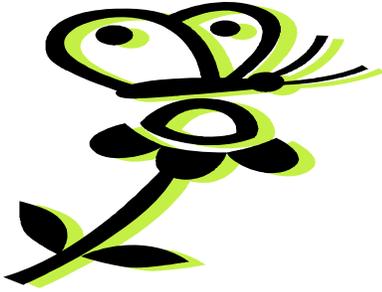
www.nacdnet.org/education/contests/

NACD Habitat 2010

Conservation Habits = Healthy Habitats

Beginner Designed for grade K-1

Student booklet available at www.nacdstore.org



Beginner booklet objectives

Students will:

- ◀ Create sets of objects.
- ◀ Recognize numbers and count objects.
- ◀ Distinguish word families.
- ◀ Identify color words.
- ◀ Grasp the connection between their habits and their environment.

Vocabulary Words:

Caterpillar - the larva of a butterfly or moth, with a long soft body, many short legs, and often brightly colored or spiny skin.

Chrysalide - describes the stage between larva and adult in an insect and the protective covering formed at this time.

Habitat - an environment where humans, animals and/or plants grow and live.

Metamorphosis - a complete or marked change of physical form, structure, or substance.

Native - originating, produced, growing, or living naturally in a place.

Pupa - an insect at the stage between a larva and an adult in complete metamorphosis, during which the insect is in a cocoon or case, stops feeding, and undergoes internal changes.

Science Standards

Life Science

The characteristics of organisms
organisms have basic needs such as air, water, food and shelter.

Each plant or animal has different structures that serve different functions in growth.

Plants and animals have life cycles.

Organisms and Their Environments

All animals depend on plants.

Humans change environments.

Science in Personal and Social Perspectives

Personal Health

Nutrition is essential to health.

Types of Resources

Resources are things we get from the environment to meet the needs of a population.

Some resources are basic materials such as air, water and soil.

Changes in Environments

Environments are the space, conditions and factors that affect survival and quality of life.

From a Creepy Crawly to a Winged Beauty

Observe and care for a caterpillar as it undergoes metamorphosis into a butterfly.

Activity

Objectives

- Students will observe and care for a caterpillar.
- Students will discover plants and butterflies native to their community.
- Students will monitor the metamorphosis of a caterpillar into a butterfly.



Materials

For each group of 2-4 students:

- One clear 2-Liter bottle with top cut off
- 6x6 inch square of cheese cloth
- stick
- 2-4 butterfly caterpillars (see page 19 for list of suppliers)
- a source of native plants eaten by the caterpillars
- rubber band
- paper towels

Student Worksheet page 20

Discussion

- ◀ What kinds of butterflies are native to our community?
(ask a specialist at a local park /nature center or consult a field guide or the internet)
- ◀ What colors are the butterflies in our area?
- ◀ How do butterflies grow?
(life cycle; egg...caterpillar...pupa/chrysalide...butterfly)
- ◀ What do butterfly caterpillars eat?
(Consult a field guide or the internet, caterpillars are picky eaters – each species will only eat certain plants. Caterpillars will starve to death rather than eat the wrong plant!)

Instructions

1. Make a decision on which species of caterpillar your students will raise based on butterflies native to your community and the availability of their preferred food plant.
2. Distribute container materials to each group. The cheese cloth is to be used as a cover over the top of the bottle and held in place with a rubber band.
3. Direct the students to line the bottom of the bottle with a paper towel and to place a stick in their container. The stick provides a place for the pupa to form.
4. Discuss with students the fact that caterpillars can be very fragile. Students should always wash their hands before (and after) handling the caterpillars as they can be harmed by the bacteria on their hands. Students should handle the caterpillars very GENTLY and never pull them off any surface they are clinging to as it can tear off their legs.
5. Instruct students to feed the caterpillars by placing a few fresh leaves into their container every day and removing any uneaten leaves from the previous day. Students should also replace the paper towel in the bottom of the cage every day. If the bottle appears very dry mist it lightly with a spray of water but avoid condensation in the bottle.
6. Once the caterpillar has formed a chrysalis (pupa stage) it no longer needs food. Keep a humid environment for the pupa by occasionally misting the container with a spray bottle. If the pupa was formed during the spring or summer a butterfly should emerge within a few weeks. If the pupa formed in the fall it will remain in this stage through the winter.
7. When the butterfly emerges make sure there is room for it to hang on the stick and spread its wings so that they can dry.
8. Enjoy the wonder of the beautiful winged butterfly for a few minutes and then set it free!

Extensions

- ◀ Ask each group to predict how many days it will take for the first butterfly to emerge from a chrysalis and make a chart to track the emergence of the butterflies.
- ◀ Have each group name their caterpillar and then make a class list of names in alphabetical order.

Conservation Habits = Healthy Habitats

Intermediate Designed for grade 2-3

Student booklet available at www.nacdstore.org

Booklet Objectives:

Students will:

- ◀ apply deductive reasoning.
- ◀ improve writing skills.
- ◀ become familiar with environmental necessities to support life.
- ◀ recognize interdependence of humans, plants and animals.
- ◀ construct habitat for wildlife.

Science Standards:

Science as Inquiry

Ask a question about objects, organisms and events in the environment.
Use data to construct a reasonable explanation.

Life Science

The characteristics of organisms; organisms have basic needs of air, water and food, each plant or animal has different structures that serve different functions, an organism's characteristics can result from an individual's interactions with the environment.
Organisms and their environments; all animals depend on plants, organism's pattern of behavior are related to the environment, all organisms cause changes in the environment where they live, humans change environments in ways that can be beneficial or detrimental.

Earth and Space Science

Earth materials provide many of the resources that humans use.

Science and Technology

Implement proposed solutions; develop abilities to work individually or collaboratively and to use suitable tools and techniques when appropriate.

Science in Personal and Social Perspectives

Types of resources; obtained from living and non-living environment to meet needs of a population, some resources are basic materials such as air, water and soil, some resources are produced from basic resources, the supply of many resources is limited.
Changes in Environments; environments are the space, conditions and factors that affect a populations survival and quality of life, changes in environments can be natural or influenced by humans.

Vocabulary Words

Climate - the average weather or the regular variations in weather in a region over a period of years.

Erosion - the gradual wearing away of rock or soil by physical breakdown, chemical solution, and transportation of material, as caused by water, wind, ice or human activity.

Habitat - an environment where humans, animals and/or plants grow and live.

Hibernate - to be in a dormant state resembling sleep over the winter while living off reserves of body fat, with a decrease in body temperature and pulse rate and slower metabolism. Animals that hibernate include bears, bats, and many amphibians.

Mammals - a class of warm-blooded vertebrate animals that have, in the female, milk-secreting organs for feeding the young. The class includes human beings, apes, many four-legged animals, whales, dolphins, and bats.

Migrate - to move from one habitat or environment to another in response to seasonal changes and variations in food supply.

Native - born or originating in a particular place.

Oxygen - a colorless odorless gas that is the most abundant element, forms compounds with most others, is essential for plant and animal respiration, and is necessary in most cases for combustion.

Pollinate - to transfer pollen grains from the male structure of a plant anther to the female structure of a plant stigma and fertilize it.

Activity

Eye on the Sky: Watching Birds

Construct simple binoculars and observe birds and their habits in a local habitat.

Objectives

Students will construct simple binoculars using recycled materials.

Students will observe birds in a local habitat.

Students will record data regarding bird characteristics and habits.



Materials

(per student)

-2 empty toilet paper tubes or one paper towel tube cut in half

-2 plastic bottle tops close in diameter to paper tubes (juice bottle lids work well) with a hole drilled in the center of each

-Scrap yarn or ribbon

-Electrical tape

-Student Worksheet page 21

Discussion

-Discuss with students the possibility of observing several species of birds in their own local habitat.

-Stress to students that birds are VERY alert. Students will have to practice at becoming “sneaky observers” to get a good, close look at birds.

-Discuss bird characteristics the students will be watching for;

Size – compare the bird’s size to a common object easily found at home or in the classroom.

Shape – is the bird’s tail long or short, is its bill long and pointed or short and rounded, is its head smooth or crested with feathers?

Color – what is the color of the feathers on the birds head, wings and belly?

Feeding Habits – does the bird walk on the ground looking for food or fly from tree to tree or shrub to shrub?

-Explain to students that while their binoculars will not have magnifying powers they will aid the students in focusing on a particular bird while observing it.

Instructions

1. Distribute the materials for constructing the “Bird Watching Binoculars” and demonstrate the following steps to the students so that they can work along with you.

2. Stand the two tubes side by side and wrap a piece of electrical tape around the center to keep them together.

3. Use electrical tape to secure the bottle tops to the same end of both tubes.

4. Tape a piece of yarn or ribbon or to the outside edge of the binoculars on the same end as the bottle tops so they can be worn around the neck.

5. Distribute copies of the student worksheet and give students a specific period of time such as one week to observe birds in an assigned area such as their own backyard, a nearby park, the school yard, etc.

Extension

-Divide students into groups of 3-5 and assign them a specific area in which to observe birds and follow up with group discussions on their observations.

-Utilize the results of each group to name the birds observed with the aid of a bird watching book.

Additional worksheet on page 21

Conservation Habits = Healthy Habitats

Advanced Designed for grade 4-5

Student booklet available at www.nacdstore.org

Booklet Objectives:

Students will:

- ◀ expand foreign language skills.
- ◀ comprehend the interdependence of ecosystems.
- ◀ investigate butterfly populations in their community.
- ◀ identify the functions of butterfly organs and extremities.
- ◀ recognize affect of their behavior upon local habitats.

Vocabulary Words:

Carbon Dioxide - a heavy colorless odorless atmospheric gas used during photosynthesis.

Caterpillar - the larva of a butterfly or moth, with a long soft body, many short legs, and often brightly colored or spiny skin.

Chrysalis - an insect at the stage of changing from larva to adult, during which it is inactive and encased in a cocoon. Also referred to as pupa.

Ganglion - a structure that contains a dense cluster of nerve cells.

Hemolymph - a clear liquid pumped through a butterfly's body to bathe internal organs and maintain body temperature.

Juvenile Hormone - a substance produced in the body of an insect that regulates various aspects of growth and development such as the change from larva to adult.

Metamorphosis - a complete or marked change of physical form, structure, or substance.

Migrate - to move from one habitat or environment to another in response to seasonal changes and variations in food supply.

Native Species - a plant or animal species that originates from a particular area.

Pheromones - a chemical compound, produced and secreted by an animal, that influences the behavior and development of other members of the same species.

Pollinator - an organism that transfers pollen grains from the male structure of a plant anther to the female structure of a plant stigma and fertilizes it.

Posturing - behavior that is exaggerated or affected, especially as an attempt to impress others.

Species - a subdivision of a genus considered as a basic biological classification and containing individuals that resemble one another and may interbreed.

Thorax - the middle division of the body of an insect.

Ultraviolet - relating to or producing electromagnetic radiation of wavelengths from about 5 to about 400 nanometers, beyond the violet end of the visible light spectrum.

Science Standards:

Science as Inquiry

Abilities necessary to do Scientific Inquiry

-Use appropriate tools and techniques to gather, analyze and interpret data.

Life Science

Structure and Function in Living Systems

-Living systems demonstrate the complementary nature of structure and function.

The Characteristics of Organisms

-Organisms have basic needs such as air, water, food and shelter.

-Plants and animals have different structures that serve different functions in growth and survival.

Life Cycles of Organisms

-Plants and animals have life cycles.

Organisms and Their Environments

-All animals depend on plants.

Reproduction and Heredity

-Reproduction is a characteristic of all living systems.

-The traits of an organism can be inherited or a result of interaction with the environment.

Regulation and Behavior

-All organisms must be able to obtain and use resources.

-Behavior is one kind of response an organism can make to an environmental stimulus.

-An organism's behavior evolves through adaptation to its environment.

Populations and Ecosystems

-All populations living together and the factors with which they interact compose an ecosystem.

-The number of organisms an ecosystem can support depends on the resources available.

Science in Personal and Social Perspectives

Personal Health

-Maintaining environmental health involves monitoring quality standards related to use of soil, water and air.

-Nutrition is essential to health.

Populations, Resources and Environments

-Causes of environmental degradation and resource depletion vary from region to region.

Types of Resources

-Resources are obtained from living and nonliving environments to meet the needs of a population.

-Some resources are basic such as air, water and soil; some are produced from basic resources.

-The supply of many resources is limited.

Changes in Environments

-Environments are the space, conditions and factors that affect ability to survive and quality of life.

-Changes in environments can be natural or influenced by humans.

Natural Hazards

-Human activities can induce hazards through resource acquisition and urban growth.

Metamorphosis: From Eating to Flying

Investigate the life cycle of butterflies and local butterfly populations.

Activity

Objectives:

Students will determine the correct order of the eight stages of the butterfly life cycle.
Students will investigate butterflies in their community and research butterflies worldwide.

Materials:

For each group of 2-4 students
"Metamorphosis: From Eating to Flying" worksheet (page 22)
Local Map
Metric Scale
Access to research materials via library or internet



Discussion:

Discuss with students the stages in the life cycle of a butterfly; (1) mating (2) egg laying (3) emergence of caterpillar (4) caterpillar diet (5) caterpillar appearance and growth (6) formation of chrysalis (7) emergence of butterfly (8) life span of adult butterfly.

Instructions:

1. Divide the class into groups of 2 to 4 students and distribute materials.
2. Instruct students to discuss the butterfly life cycle as a group and complete the life cycle portion of the "Metamorphosis: From Eating to Flying" worksheet.
3. Discuss the different weights and life spans of butterflies with the students. Utilizing metric scales, have each group of students find items that range in weight from .004 grams and 3 grams and compare possible weights and sizes of butterflies.
4. Using a local map assign the students to research different sections of the community to determine what plants are native to the area and what habitats are available for butterflies. Use this information to determine what species of butterflies would be attracted to their community.

Extensions:

1. Follow "Home of the Wild" directions found in the booklet to develop a wildlife habitat at school. Journal the process as well as the resulting wildlife habitation and growth.
2. Ask students to write a description comparing the average two week life span of a butterfly to the activities they are likely to complete during the same time span.

Additional information on page 22

Conservation Habits = Healthy Habitats

Designed for grade 6-Up

Student booklet available at www.nacdstore.org

Booklet Objectives:

Students will:

- ◀ research plant species native to their community.
- ◀ distinguish between flood and drought tolerant plant species.
- ◀ design and develop a rain garden.
- ◀ recognize importance of water conservation.
- ◀ increase their awareness of water contamination in their habitat.
- ◀ construct a rain barrel.
- ◀ realize interdependence of organisms and ecosystems.
- ◀ comprehend the process and importance of pollination.



Concepts:

Vocabulary comprehension
Natural hazards
Populations and ecosystems
Populations, resources and environments
Diversity and adaptations of organisms
Structure and function in living systems

Science Standards

Science as Inquiry

Develop descriptions, explanations, predictions and models using evidence.

Life Science

Regulation and Behavior; all organisms must be able to obtain and use resources.

Populations and Ecosystems; populations of ecosystems can be categorized by the function they serve.

Structure and Function in Living Systems; living systems at all levels of organization demonstrate the complementary nature of structure and function including organisms and ecosystems.

Physical Science

Transfer of Energy; The sun is a major source of energy.

Vocabulary Words:

Drought - a long period of extremely dry weather when there is not enough rain for the successful growing of plants or the replenishment of water supplies.

Habitat - an environment where humans, animals and/or plants grow and live.

Native Species - a plant or animal species that originates from a particular area.

Perennial - describes a plant that lasts for more than two growing seasons, either dying back after each season, as some herbaceous plants do, or growing continuously, as some bushes do.

Pesticide - a chemical substance used to kill pests, especially insects.

Pollinator - an organism that transfers pollen grains from the male structure of a plant anther to the female structure of a plant stigma and fertilizes it.

Pollutant - a substance that pollutes something, e.g. a chemical or waste product contaminating the air, soil, or water.

Pollinating in the Web

Evaluate the interdependence of the food web in a local habitat.

Activity

Objectives:

Students will classify organisms according to their role in food web.

Students will create a food web.

Students will evaluate the effects of removing pollinators from a food web.

Materials

For each group of 2-4 students:

Food Web Handouts page 23

Colored Markers/Pencils or Crayons



Discussion

Identify the role of consumers, decomposers, herbivores, omnivores, producers and photosynthesis in the food chain.

Consumer: organisms that are not capable of making their own food.

Decomposer: organisms that feed on the waste products or dead bodies of other organisms.

Herbivore: organisms that eat plants.

Omnivore: organisms that eat both animals and plants.

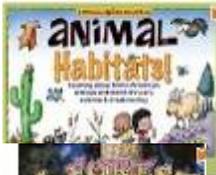
Producer: organisms that have the ability to make their own food through photosynthesis.

Photosynthesis: process by which plants use energy from the sun to make their own food.

Instructions:

- As a class compose a list of all living organisms in a specific ecosystem in your community. Be careful to include specific consumers, decomposers, herbivores and omnivores. Discuss the roles of plants, animals, insects, predators and scavengers in the flow of energy through the web.
- Divide the class into groups of 2-4 and distribute copies of the list on page 23 and colored markers, pencils or crayons.
- Assign each group the task of identifying the role of each organism in the food chain:
 - Underline those organisms that are carnivores in red.
 - Underline those organisms that are decomposers in brown.
 - Underline those organisms that are herbivores in green.
 - Underline those organisms that are omnivores in blue.
 - Underline those organisms that are producers in yellow.
- Beginning with the producers instruct each group to draw a food web, writing the name of each organism in the appropriate color. Use arrows (in black) to show each connection and step in the web.
- Discuss the resulting webs as a class.
- Instruct the students to return to their group and remove the pollinators from the food web and evaluate the effect on the food web and the resulting food supply available for their own consumption.

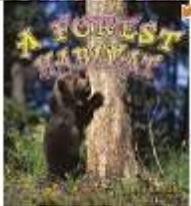
Literature Connections—Ages 4-8



Animal Habitats! (Williamson Little Hands Series)

by Judy Press (Author), Betsy Day (Illustrator)

Reading level: Ages 4-8



A Forest Habitat (Introducing Habitats)

by Bobbie Kalman (Author)

Reading level: Ages 4-8

ISBN-13: 978-0778729792

A Wetland Habitat (Introducing Habitats) (Paperback)

by Molly Aloian (Author), Bobbie Kalman (Author)

Reading level: Ages 4-8

ISBN-13: 978-



A Grassland Habitat (Introducing Habitats) (Paperback)

by Kelley Macaulay (Author), Bobbie Kalman (Author)

Reading level: Ages 4-8

ISBN-13: 978-0778729877



Conservation Habits = Healthy Habitats

BIG BOOK format for Pre-K through grade 3
What do you see in various habitats?

English and Spanish on same page.

Order from:
www.nacdstore.org
1-888-695-2433

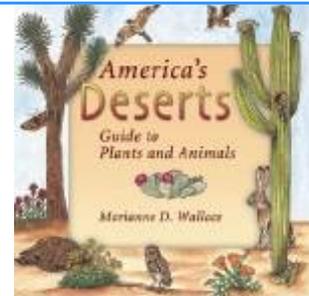
Literature Connections—Ages 9-12

America's Deserts: Guide to Plants and Animals (Paperback)

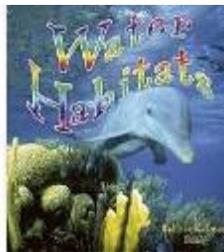
by Marianne D. Wallace (Author)

Reading level: Ages 9-12

ISBN-13: 978-1555912680



Check at your local library for additional titles or at your favorite bookstore



Water Habitats (Introducing Habitats) (Paperback)

By Molly Aloian (Author), Bobbie Kalman (Author)

Reading level: Ages 9-12

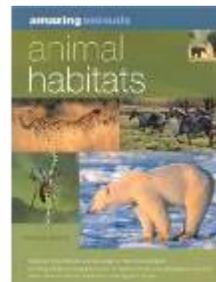
ISBN-13: 978-0778729778

Animal Habitats (Amazing Animals) (Paperback)

By Michael Chinery (Author)

Reading level: Ages 9-12

ISBN-13: 978-1842159903



Student Booklets Answer Key

booklets can be purchased at www.nacdstore.org

Beginner Designed for grade K-1

Snacks in the Back—habitat picture—how many?

Birds 3

Nuts 9 (*one is squirrels paw lower right*)

Flowers 12

Bees 7

PUZZLE:: What did you find? Butterfly

Advanced Designed for grade 4-5

How do You Say Butterfly? –

- ◀ If you live anywhere and use Sign Language, you would **interlock your thumbs and flutter your fingers like wings.**
- ◀ If you live in China and speak Chinese, you would say **hu die.**
- ◀ If you live in France and speak French, you would say **papillon.**
- ◀ If you live in Germany and speak German, you would say **schmetterling.**
- ◀ If you live in Israel and speak Hebrew, you would say **parpar.**
- ◀ If you live in Italy and speak Italian, you would say **farfalla.**
- ◀ If you live in Japan and speak Japanese, you would say **choo.**
- ◀ If you live in Russia and speak Russian, you would say **babochka.**
- ◀ If you live in Sweden and speak Swedish, you would say **fjaril.**
- ◀ If you live in the United States and speak Cherokee, you would say **kamama.**

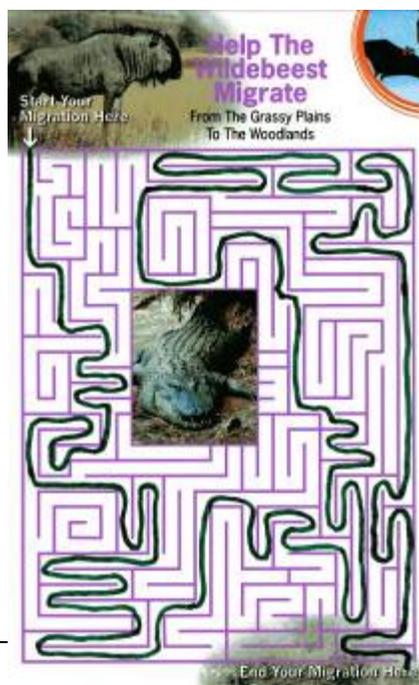
Additional answer keys on page 16

Intermediate Designed for grade 2-3

Crack the Code –
"BE A FRIEND TO YOUR HABITAT"

What Happens Next – varies with students

Help the Wildebeest Migration Maze



Change Your Habits

1. CHANGEYOURHABITS
2. CHANGEYOURHABIT
3. IHANGYOURHABIT
4. IHANEYOURHABIT
5. IHNEYOURHABITA
6. IHPROTECTNEYOURHABITA
7. IHPROTETEYOURHABITA
8. IHPROTEYOURHABITATE
9. IMPROTEYOURHABITATE
10. IMPROTEYOURHABITAT
11. IMPROVEYOURHABITAT
12. IMPROVE YOUR HABITAT

Home of the Wild – varies with students

**Conservation Habits = Healthy Habitats
Designed for grade 6 and up**

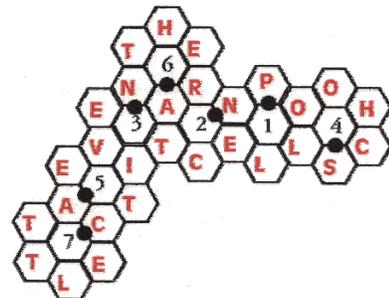
Let it Rain... Words!

F	F	O	N	U	R	O	P	E	B	E	V	I	T	A	N	D
A	B	J	Q	X	C	H	O	T	F	K	P	W	E	E	I	O
L	E	R	R	A	B	I	R	D	C	I	O	X	D	L	A	O
O	C	K	W	R	D	I	E	U	D	L	L	R	F	M	R	L
C	D	E	O	N	E	E	P	V	E	M	A	D	G	N	E	F
A	L	S	R	I	S	P	R	I	N	G	R	R	L	O	T	L
L	B	L	S	A	E	J	L	W	F	R	O	X	E	I	A	O
A	E	M	T	R	P	K	Q	I	G	A	S	O	H	V	W	W
Q	Y	A	R	D	I	L	R	X	O	S	I	Z	D	P	I	E
U	F	N	I	Y	I	K	L	A	T	S	H	E	L	T	E	R
I	G	P	U	Z	C	L	I	M	A	T	E	A	I	P	E	E
F	S	H	A	L	L	O	W	Y	H	P	U	B	L	S	E	T
E	H	O	V	A	F	M	O	Z	A	N	H	A	E	O	V	N
R	E	U	S	I	N	G	N	H	I	O	N	A	J	R	I	I
O	S	E	I	C	E	P	S	A	L	T	R	C	B	S	R	W
O	I	P	W	B	G	N	S	A	J	C	V	D	K	I	H	T
F	D	L	O	H	E	S	U	O	H	A	B	I	T	A	T	U

- bird (4)
- barrel (6) household (9) research (8) snow (4)
- local (5) native (6) well (4) shape (5)
- salt (4) plant (5) drain (5) septic (6)
- habitat (7) flower (6) soil (4) winter (6)
- runoff (6) species (7) grass (5) seed (4)
- habit (5) roof (4) yard (4) aquifer (7)
- rope (4) absorb (6) reusing (7) water (5)
- thrive (6) flood (5) dips (4) shelter (8)
- rain (4) spring (6) river (5) climate (7)
- wildlife (8) garden (7) good (4) shallow (7)



Fuzzy Body—6 sided cell
Answer Key



Answers highlighted in gold, letters that are the first letter in one or more



Conservation Habits = Healthy Habitats Overview

Each of us can be good stewards of our natural resources at our home and in our communities. When we think about protecting and managing our natural resources we can provide healthy habitats for the ecosystems on our planet. Each of us can make a difference by starting in our own backyard, our school or in our community.

What is conservation? Conservation is careful management of the environment and of our natural resources. How can you expand or add habits to develop healthy habitats? A habit is an action or pattern of behavior that is repeated so often that it becomes typical of somebody, although he or she may be unaware of it. Some habits are not good, like throwing litter out our car windows. But working to improve our environment you can develop good habits that will last your entire life and also inspire others around you. Develop conservation habits so that it becomes second nature and increase healthy habitats.

What is a habitat? A habitat is the place where something lives because it is adapted to find food, water, shelter, and space. It could be a plant, animal or other small organism. People, plants and animals all need a place to live and food to eat. A habitat is where people, animals and plants grow and live. Wherever you are you are in a habitat. People, plants and animals all need each other and they all need clean water, air and soil.

Plants need water and soil. Plants get minerals and other things they need to grow from soil like we get it from the food we eat. Plants need creatures like bees and beetles. Bees and beetles, birds and other creatures pollinate plants so that they can make seeds. Your backyard, the playground at school and the grassy area along the street are all habitats. Animals like birds, squirrels, worms and bees find their food in these habitats.

Most of the flowering plants we need and enjoy are pollinated by insects. When these pollinating insects start shrinking in number many plants either produce less seed or no seed at all. When pollinating animals start disappearing –plants start disappearing. We need to protect pollinating insects. Pollinators aren't just annoying insects, they are an important part of the web of life that we all depend upon for our very survival. Over 80% of the world's flowering plants wouldn't survive if it weren't for pollinators. Why do you need those flowering plants? A lot of fruits and vegetables come from flowering plants. Even a glass of milk or hamburger depended on pollinators if they came from cattle raised on alfalfa.

Many medicines come from flowering plants. Animals and birds that are an important part of the ecosystem seek food and shelter in flowering plants and trees. Pollinators are fast disappearing. We need to establish and protect the habitats of pollinators.

Habitats are all across North America, you can find them in forests, grasslands, deserts, wetlands, arctic tundra as well as right outside your backdoor and in your community.

There are many ways you can develop habitat area. Find an area at your home to plant trees or native plants. Design an outdoor classroom at your school or volunteer in your community to develop a habitat area. Plant native plants that bloom at different times to provide a food source for a longer period. Even if you don't have to have a lot of space, any place you can plant at least a few native plants or trees will help. As you design up habitats think about food, water, shelter, and space for the creatures that will live or visit the area.

Contact your local conservation district and see how you can help.
www.nacdnet.org/about/districts/directory/index.phtml

Additional Habitat Resources & Activities

Invite pollinators to your neighborhood:

Plant a pollinator friendly habitat
in your garden

Pollinators are needed for the reproduction of 90 percent of flowering plants and one third of human food crops. Each of us depends on these industrious pollinators in a practical way to provide us with the wide range of foods we eat.

The Pollinator Partnership, has 24 Ecoregional Planting Guides available free of charge at

www.pollinator.org/guides.htm

Download yours today to find native planting information tailored to your region.

Rain barrel - Rain Garden - Guidance

Visit the NACD Habitat page

www.nacdnet.org/education/resources/habitat/



Printable Conservation Habits = Healthy Habitats

information page. 4 total pages

From NACD's winter resource newsletter

www.nacdnet.org/news/publications/resource/



<http://www.nacdnet.org/>

HABITAT ACTIVITIES/ CURRICULUM

Project Learning Tree (PLT) www.plt.org

PLT K-8 Guide (visit website for state coordinator and workshop listings)

Habitat Pen Pals (#7)

Trees as Habitats (#22)

Web of Life (#45)

Are Vacant Lots Vacant (#47)

Watch on Wetlands (#71)

And more

Project WET www.projectwet.org

Project WET guide (visit website for state coordinator and workshop listings)

Water Address (page 122)

Macroinvertebrate Mayhem (page 322)

Stream Sense (page 191)

And more

Project WILD www.projectwild.org

Project WILD Aquatic Guide (visit website for state coordinator and workshop listings)

Alice In Waterland (page 154)

Fashion A Fish (page 56)

Turtle Hurdles (page 158)

Water Plant Art (page 31)

And more

Food Land and People (FLP)

www.foodlandpeople.org

Schoolyard caretakers (page 35)

Buzzy, Buzzy Bee (page 139)

Your School Ground Through New Eyes (page 285)

And more

Ag In the Classroom

www.agclassroom.org

National Resource Directory—curriculum

State Contacts and more

Junior Master Gardner Program

www.jmgkids.us/

Curriculum and more

Additional Resources & Activities

Butterfly Caterpillar Resources



www.carolina.com/

www.educationalscience.com

www.earthsbirthday.org/

Xerces Society

Pollinator Resource Center & teacher resources and more~

www.xerces.org/

Outdoor Classroom Resources

National Wildlife Federation: Certify Your Backyard, Community Habitats, School Habitats

www.nwf.org/gardenforwildlife/

Green Schools - Project Learning Tree

www.pltgreenschools.org/

Outdoor Classrooms - Guidelines and Features

www.in.gov/dnr/nrec/files/OutdoorLabRevised0604.pdf

Blueprint for a Green School

www.ceeonline.org/greenGuide/greenGuide.aspx



Canon Envirothon Competition for Middle and High School students

(depends on state program)

www.envirothon.org

Resources:

www.envirothon.org/resources/119.html

Backyard Woods

US Forest Service, NACD, National Arbor Day Foundation

www.arboday.org/backyardwoods

Backyard Woods provides a guide and tip sheets on how small acreage owners can enhance the scenery in their backyard woods, provide habitat for wildlife and utilize the land as an extra source of income.

Backyard Conservation Resources

Wildlife Habitat Council

www.wildlifehc.org/managementtools/backyard.cfm

The Wildlife Habitat Council is a nonprofit group dedicated to restoring and enhancing wildlife habitat by helping large landowners, particularly corporations, manage their unused lands in a way that benefits wildlife. WHC also works to broaden understanding of wildlife values through environmental education, volunteer participation and community outreach programs.

Education for Conservation

US Fish and Wildlife Service

www.fws.gov/educators/educators.html

The website provides information on birds, fish, wildlife, plants, habitats and more, and includes links to Scout recognition certificates, curriculum resources, community service projects and professional development opportunities.

Backyard Conservation NRCS, NACD, Wildlife Habitat Council

www.nrcs.usda.gov/feature/backyard

Backyard Conservation provides information and booklet tip sheets on how conservation practices used on agricultural land can be adapted for use around individual homes.

People's Garden Initiative US Department of Agriculture

www.usda.gov/peoplesgarden

The People's Garden illustrates how USDA works to provide a sustainable, safe and nutritious food supply while protecting and preserving the landscape. USDA employees are encouraged to look for opportunities to volunteer in this effort at their local offices or community gardens.

Student Worksheet K-1

From a Creepy Crawly to a Winged Beauty

What was the date you put the caterpillar into the bottle? _____

What is your caterpillar's name? _____

What kind of plant does your caterpillar like to eat? _____

When do you predict a butterfly will appear? _____

What colors do you think the butterfly will be? _____

Draw and color a picture of your caterpillar.

Draw and color a picture of the plant your caterpillar likes to eat.

Draw and color a picture of your butterfly.

On what date did your butterfly appear? _____

What kind of butterfly did your caterpillar change into? _____

Student Worksheet 2-3

Eye on the Sky: Watching Birds

Sketch of bird Or use back of paper	Size com- pared to an object	Shape of tail Bill and head	Color of head wings & belly	Eating habits	Name

Student Worksheet 4-5

Metamorphosis: From Eating to Flying

There are eight stages in the life cycle of a butterfly. Read the description of the life cycle stage below each picture. Place a number 1 – 8 under each picture to indicate the correct order of the different stages.

The caterpillar comes out of the egg hungry and begins to eat! Some caterpillars produce a sweet sugary substance that attracts ants. The ants protect the caterpillar!



When the metamorphosis from caterpillar to butterfly is complete the adult butterfly emerges from the chrysalis. Butterflies can be many different beautiful colors and can also vary greatly in size from .004 grams to 3 grams.



Male and female butterflies use colors and hidden ultra-violet patterns on their wings as well as chemical pheromones and posturing to attract each other and mate.



Caterpillars eat and defecate 24 hours a day/7 days a week! Some caterpillars eat poisonous plants and become poisonous butterflies.





Some caterpillars are striped, some have colorful patterns on their skin and some have hairs like spines. All caterpillars shed their skin at least 4 times to keep their bodies covered while they are growing.

Some butterflies remain in the caterpillar stage a few days and others take longer. A scientist at the University of California found a yucca moth that can remain a caterpillar for 30 years!



Adult butterflies have a short life span. The average butterfly only lives as an adult for about 2 weeks. There is a butterfly in Costa Rica that only lives for 2

days! No adult butterfly lives for more than one year but during their short life span they carry out a very important function....pollination!

The female lays tiny round or oval shaped eggs on a plant. Each butterfly species will only lay their eggs on a few certain types of plants that their caterpillars will eat.



When the juvenile hormone in a caterpillars body drops to a low level the caterpillar quits growing and shedding its skin and becomes a chrysalis (pupa). A chrysalis is usually brown or green and inside it the caterpillars tissues are broken down and the adult butterfly is formed.



Student Worksheet 6 & Up

Pollinating in the Web

Draw your community food web in the above **WITHOUT** any pollinators.

Name the pollinators you have identified in your community:

What role do pollinators play in the food web?

How would the lack of pollinators affect local wildlife?

How would the lack of pollinators affect YOUR food supply?

What can YOU do to provide a healthy habitat for pollinators?



Artwork by: A.S.Neal WV 09



NACD Habitat 2010

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NACD Marketplace: www.nacdstore.org