Our Natural World

Teacher's Guide

MESS®
Marvelous Explorations through Science and Stories

This Teacher's Guide was developed by the
Center for Informal Science Education at the
Florida Museum of Natural History/University of Florida under
Innovation and Improvement Project Grant #90YD0206 from the
U.S. Department of Health and Human Services,
Administration for Children and Families, Office of Head Start.

This document is in the public domain and may be freely reproduced.

Our Natural World

Table of Contents

		Page
Teacher Background Information		1
Materials List		6
Experiences		
1	What Is Nature?	10
2	Colors in Nature	12
3	Sounds of Our Natural World	14
4	What is Alive?	16
5	Using Tools to Explore Nature	18
6	Exploring Soil	20
7	Worm Study	22
8	Teeny Tiny Hike	24
9	Exploring Rocks	26
10	Litter Hunt	28
11	Reduce, Reuse, Recycle	30
12	Water in Our Natural World	32
13	What Is a Habitat?	34
14	Exploring Trees	36
15	Looking at Leaves	38
16	Exploring Wind	40
Take-Home Kit Information/Experience Card		42
Recommended Books		43
Head Start Domains and Indicators		62

Our Natural World

Teacher Background Information

What is the focus of this guide?

The focus of this guide is the natural world around us. The aim of the guide is to foster children's understanding and appreciation of the environment right outside their doors.

What science concepts are covered in this guide?

- The natural world includes plants and animals, soil, rocks, water, and air.
- Things can be described, compared, and classified on the basis of their characteristics.
- Nature includes living and nonliving things.
- Living things need food, water, air, and shelter, and can move, grow, and reproduce.
- People need to respect the environment they share with plants and other animals.
- Animals live in a variety of habitats.

Why focus on nature?

There are a variety of reasons why it is valuable to expose children to the natural world during their early years. Nature offers many opportunities for children to use their senses, ask questions, and describe, compare, and classify the things they encounter. Learning about nature during the early years also lays a foundation for a lifelong appreciation of and respect for the environment. In addition, research shows that direct experience observing and caring for plants and animals helps children understand the needs of living things and the difference between living and nonliving.

Why is it important to distinguish between living and nonliving things?

Knowing the difference between living and nonliving things is key to understanding the world around us. Young children often are confused about what is living and what is not. We can understand their confusion if we review the characteristics of a living thing: something that needs food, water, and air, and can move, grow, and reproduce. While children may readily understand that animals need food, water, and air, they may not believe the same to be true about plants. In addition, there are nonliving things, such as clouds and cars, that

seemingly move on their own, whereas careful observation is required in order to notice movement among plants.

Another challenge is that you are likely to encounter things that were once living, such as insects, but are now dead. Although talking about death can be uncomfortable for some adults, the potential for death is a key distinction between living and nonliving things. Explaining that something that is dead was once living helps deepen children's understanding of living and nonliving. In addition, awareness that a living thing can die is critical in fostering a respect for nature.

What are some other important concepts addressed in this guide?

Biodiversity

One aim of this guide is to foster an appreciation of the extraordinary variety of plants and animals on Earth. Wherever you live, you are just one of many different living things. Scientists have already identified about 1.5 million species. They estimate that between 2 and 100 million species are yet to be discovered. Look closely at the natural world around you and you may find yourself very surprised by the diversity of living things you encounter!

Habitat

Living things are found in many different types of **habitats.** A habitat provides all the **resources** a living thing needs in order to survive and flourish. A habitat can be large or small. We usually think of oceans, forests, and deserts as habitats, but a single tree or even a decaying log can function as a habitat, too. Animals and plants are adapted to live in certain habitats.

Interdependence

The plants and animals that live in any habitat are linked together by a complex web of interactions. Monarch butterflies, for example, lay their eggs on milkweed, a type of flowering plant. When caterpillars hatch from the eggs, they feed on the leaves of the milkweed. Later, the adult butterfly may drink nectar from the milkweed flower and in the process pollinate the plant, leading to the development of seeds and, ultimately, more milkweed plants.

Complex relationships also exist among different animals. Have you ever wondered, for instance, why birds are sometimes found among large grazing animals such as cattle, buffalo, and elephants? The birds feed on the insects the grazing animals stir up as they eat. In turn, the birds help control the insect population. In the wild, the birds also provide an early alert system and warn the larger animals of potential danger.

The web of relationships between plants and animals, among animals, and even among plants is called **interdependence**. The interdependence among living things and the natural resources in the environment (e.g., soil, air, and water) is a complex system that cannot be understood in its entirety by young children. One effective way to introduce the concept, however, is to focus on one feature of the system that often fascinates young children—predator-prey relationships. **Predators** are animals that eat other animals. **Prey** are the animals that are eaten.

"Be Green"

Because of the interconnectedness of all living things, behaviors that impact one part of the system, whether a plant, animal, or resource such as water, can have unintended effects elsewhere. Thus, it is important to instill in children a sense of responsibility toward the environment. The early years are the time to begin promoting healthy attitudes, values, and patterns of behavior toward nature. Even young children can engage in behaviors that are environmentally friendly: they can treat other living things with care, put trash in its proper place, reuse or recycle materials, and conserve resources.

What steps can I take to ensure that our explorations of nature are productive and safe?

Before you begin exploring nature with your children, it is important to talk with families to learn about their values and children's prior experiences with nature. While some children have had many positive encounters with the natural world, others may have had little direct exposure to nature. In addition, in some families or cultural communities, children are taught at a young age to either fear or revere certain animals. It is important to be sensitive to potential fears; talking in advance with parents will help you be prepared. Parents also can inform you about allergies and other health concerns.

Our Natural World

It is helpful to look carefully at your outdoor area before you begin exploring the space with your children. This will give you some idea of what your children may encounter and where, so you can guide the explorations more effectively.

Of course, nature does pose some hazards to people. To prevent accidents, it is critical to supervise children at all times. It also is important to establish rules for children to follow when exploring nature both indoors and out. Some suggested rules include: ask before touching, treat living things with care, and be curious.

Whether indoors or outside, it is always important that children wash their hands after exploring nature! We include this reminder ⚠ to bring attention to situations where you might overlook the importance of handwashing.

It is important to reflect on your own attitudes toward nature before you begin exploring nature with children. Not everyone is equally fond of frogs, spiders, or snakes—just to name a few of the things you might encounter outdoors. Children readily pick up the attitudes of adults around them. Try not to let your likes and dislikes influence theirs. If you are very uncomfortable around specific animals, help children learn to appreciate them from a safe distance. Just remember that the most important thing you can do is instill curiosity and appreciation of the nature that surrounds us.

Teacher Vocabulary

biodiversity – the variety of life on Earth

habitat – the natural area where something lives; it provides for all of the living thing's needs (e.g., food, shelter, air, water)

interdependence – the complex web of interactions among living things

predator – an animal that eats another animal

prey – an animal that is eaten by another animal

resource – material that provides support or sustains a system (e.g., food, air, water, gas, wood, etc.)

MESS® Materials for Core and Center Experiences

Materials	Books
Experience 1: What Is Nature?	
collection of natural items such as rocks, leaves, pinecones, feathers, and small animals (e.g., lizard, fish, or insect) natural site to explore clipboard, paper and pencil camera magnifying tools	*What's Up, What's Down?* by Lola Schaefer *A Closer Look* by Mary McCarthy *In the Tall, Tall Grass* by Denise Fleming *A Fawn in the Grass* by Joanne Ryder *I Took a Walk* by Henry Cole *Counting on the Woods* by Geroge Ella Lyon
Experience. 2: Colors in Nature	
color chips camera specimen viewers petri dishes paper bags	*Tell Me a Season* by Mary McKenna Siddals *Growing Colors* by Bruce McMillan *What Color Is Nature?* by Stephen R. Swinburne *Nature's Paintbrush* by Susan Stockdale *Pie in the Sky* by Lois Ehlert
Experience 3: Sounds of Our Natural World	
recordings of nature sounds tape- or CD-player or computer photos or illustrations to correspond with sounds	*Quiet Night* by Marilyn Singer *Crocodile Listens* by April Pulley Sayre *The Very Noisy Night* by Diana Hendry *Feathers for Lunch* by Lois Ehlert *Listen to the Rain* by Bill Martin, Jr. and John Archambault *Marsh Music* by Marianne Berkes *A Good Night Walk* by Elisha Cooper *Wind Says Goodnight* by Katy Rydell
Experience 4: What is Alive?	
live animal (either an animal you can observe in the natural environment, a classroom visitor, or permanent class pet) live plant rock clipboard, paper, and pencil camera magnifying tools photos of living and nonliving things	*Is It Alive?* by Marcia Freeman *A Good Night Walk* by Elisha Cooper

Materials	Books
Experience 5: Using Tools to Explore Nature	
small animal or plant specimen viewers petri dishes items to explore using magnifying tools magnifying tools	*A Closer Look* by Natalie Lunis *Tadpoles* by Betsy James *Bug Safari* by Bob Barner *What Is a Scientist?* by Barbara Lehn *What Is Science?* by Rebecca Kai Dotlich
Experience 6: Exploring Soil	
several types of soil and sand colander garden shovel or trowel test tubes or other containers petri dishes handheld magnifying lenses tabletop magnifier	*A Closer Look* by Natalie Lunis *A Log's Life* by Wendy Pfeffer *What Is a Scientist?* by Barbara Lehn
Experience 7: Worm Study	
shovels and clear plastic containers for collecting worms earthworms magnifying tools moist paper towels spray bottle with water soil leaves or lettuce used coffee grounds clear container with ventilated cover	*Wonderful Worms* by Linda Glaser *An Earthworm's Life* by John Himmelman *Diary of a Worm* by Doreen Cronin *Toil in the Soil* by Michelle Myers Lackner
Experience 8: Teeny Tiny Hike	
handheld magnifying lenses specimen viewers petri dishes plastic bags small paint brushes camera	*A Closer Look* by Natalie Lunis *My Father's Hands* by Joanne Ryder *UGH! A Bug* by Mary Bono *Snail Trail* by Ruth Brown *A Ladybug's Life* by John Himmelman *Ladybugs: Red, Fiery, and Bright* by Mia Posada *Insects Are My Life* by Megan McDonald

Materials	Books
Experience 9: Exploring Rocks nature collection collection of rocks handheld magnifying tools pan balance	*If You Find a Rock* by Peggy Christian *Rocks: Hard, Soft, Smooth, and Rough* by Natalie M. Rosinsky
Experience 10: Litter Hunt assortment of common types of litter such as paper, aluminum cans, and plastic bottles and bags garbage bag for collecting litter litter tongs waste basket gloves (optional)	*Trashy Town* by Andrea Zimmerman and David Clemesha *The Great Trash Bash* by Loreen Leedy *The Wartville Wizard* by Don Madden *No More Garbage* by Gail Gilkey *I Stink!* by Kate and Jim McMullan
Experience 11: Reduce, Reuse, Recycle waste basket recyclable materials made of paper, metal, and plastic recycling symbol card labels for paper, metal, and plastic	*Joseph Had a Little Overcoat* by Simms Taback *Red Racer* by Audrey Wood *The Great Trash Bash* by Loreen Leedy *Garbage Collectors* by Paulette Bourgeois *A House Is a House for Me* by Mary Ann Hoberman *Regards to the Man in the Moon* by Ezra Jack Keats
Experience 12: Water in Our Natural World photos of bodies of water such as lakes, rivers, and streams photos of water associated with weather such as clouds, fog, rain, puddles, mud, snow, and ice	*The Water Hole* by Graeme Base *Round the Garden* by Omri Glaser *Precious Water* by Brigitte Weninger and Anne Möller *I Am Water* by Jean Marzollo *Rain* by Peter Spier *This Is the Rain* by Lola M. Schaefer

Materials	Books
Experience 13: What Is a Habitat?	
local habitat camera clipboard, paper, and pencil pictures of animals and their habitats	*A Log's Life* by Wendy Pfeffer *Whose House?* by Barbara Seuling *Whose House is This?* by Elizabeth Gregoire *In the Small, Small Pond* by Denise Fleming *When Rain Falls* by Melissa Stewart *Around the Pond: Who's Been Here?* by Lindsay Barrett George *Around One Cactus* by Anthony D. Fredericks
Experience 14: Exploring Trees	
tree magnifying tools items such as dead twigs, fallen leaves, and seeds (e.g., acorns) collected from your tree	*A Tree Is Nice* by Janice May Udry *Pie in the Sky* by Lois Ehlert *A Grand Old Tree* by Mary Newell DePalma *The Apple PieTree* by Zoe Hall *ABCedar* by George Ella Lyon *Have You Seen Trees?* by Joanne Oppenheim *This Is the Tree* by Miriam Moss
Experience 15: Looking at Leaves	
several leaf samples bags or other container to hold leaves magnifying tools table or light table	*Leaves! Leaves! Leaves!* by Nancy Elizabeth Wallace *Leaves* by David Ezra Stein *Red Leaf, Yellow Leaf* by Lois Ehlert *Autumn Leaves* by Ken Robbins *ABCedar* by George Ella Lyon *Leaf Man* by Lois Ehlert
Experience 16: Exploring Wind	
materials to test the wind such as scarves or sheer fabric, flags, sticks with ribbon streamers attached, or long feathers attached to string	*Gilberto and the Wind* by Marie Hall Ets *The Wind Blew* by Pat Hutchins *While You Were Chasing a Hat* by Lilian Moore *The Wind* by Craig Hammersmith *Like a Windy Day* by Frank Asch *Wind Says Goodnight* by Katy Rydell

Experience

What Is Nature?

Science Concept
The natural world includes plants and animals, soil, rocks, water, and air.

Aim
Children will observe some of the elements of the natural world.

Materials
collection of natural items such as rocks, leaves pinecones, feathers, and small animals (e.g., lizard, fish, or insect)
natural site to explore
clipboard, paper & pencil
camera
magnifying tools

Books
What's Up, What's Down? by Lola Schaefer
A Closer Look by Mary McCarthy
In the Tall, Tall Grass by Denise Fleming
A Fawn in the Grass by Joanne Ryder
I Took a Walk by Henry Cole
Counting on the Woods by Geroge Ella Lyon

Vocabulary
animal
cloud
down
explore
look
insect
nature
observe
plant
soil
up

Approach
In advance, locate a spot on a playground or a nearby area where children can view the ground and sky, a variety of plants, and animals such as insects, lizards, birds, and squirrels. Make a collection of things from nature to use in your introduction. Establish a list of "nature rules" to guide children's explorations outdoors.

Begin by showing the children one of the items or animals from the nature collection. Encourage the children to share what they know about the item: *Have you ever seen one of these before? Where did you see it? What is it?* Offer some details about the item/animal you selected such as where you found it and why you think it is interesting. Focus the children's attention on important details.

Continue the discussion with several of the other things in your collection. Help the children recognize that the items/animals in the collection are things they might find outdoors.

Explain that you are going to explore the outdoors. Encourage the children to think about what they may find outdoors other than the items or animals shown as examples: *What do you think we will see outside? Do you think we will see any birds? Where might we see birds? What other things might we see?* If children name manufactured items such as cars and toys, acknowledge their suggestions and then

Science Center

Place natural items in the Center along with magnifying tools for further exploration. Encourage children to continue to find items to add to your nature collection.

Integrated Experiences

Literacy 1: Have the children take their journals and crayons outdoors to draw one thing they see. Or, bring natural items inside for them to draw later.

Literacy 2: Use the list of what you found outside to create a large chart or display listing the things in your natural environment.

help them think of other natural things through examples: *I wonder if I will see a worm?*

- Review with the children how to explore the outdoors safely and respectfully.
- Once outdoors, watch to see what attracts the children's attention. As children explore, write down what they find. Help the children find small animals around bushes and trees and under rocks and logs. Engage the children in conversation about their observations, commenting on what you find interesting. Make comparisons among different plants or animals. Have the children look to the sky to notice clouds and birds.
- Encourage all children to find and describe at least one thing outdoors that interests them. If appropriate, allow them to take the item inside or lake photos to refer to later.
- When you return to the classroom, review what each child found outside: *What did you find? Where did you find it? Tell me why you think it is neat?*
- Review the names of the objects and animals you found outside. Talk about how all of these items are part of nature.

Experience 2

Colors in Nature

Science Concept
Things can be described, compared, and classified on the basis of their characteristics.

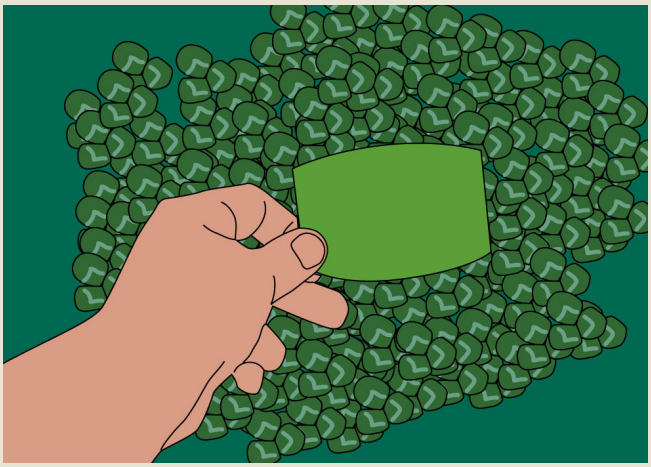
Aim
Children will describe and compare natural items by color.

Materials
color chips
camera
specimen viewers
petri dishes
paper bags

Books
Tell Me a Season by Mary McKenna Siddals
Growing Colors by Bruce McMillan
What Color Is Nature? by Stephen R. Swinburne
Nature's Paintbrush by Susan Stockdale
Pie in the Sky by Lois Ehlert

Vocabulary
names of colors (e.g., green, brown)
dark
light

Approach
- In advance, survey your school grounds so you know what colors you are likely to find and where.
- Show the children the color chips and help them identify the colors.
- Explain that you are going to go on a nature walk outdoors to look for things that match the colors on the chips. Review your nature rules. Go outdoors and distribute one color chip to each child. Have the children search for plants, animals, and other items that match the color on their chip.



- Collect items in paper bags, specimen viewers, and petri dishes as appropriate. Photograph items that are out of reach or best left undisturbed.

Extension

Make “chips” or samples of shapes or patterns (e.g., stripes, spots, diamond shapes). Have the children search and sort patterns in nature.

Science Center

Place an assortment of natural objects in the Center along with the color chips. Have the children sort the objects according to color.

Integrated Experiences

Literacy 1: Have the children describe the color hunt in their journals, including drawings of the item or items they found.

Literacy 2: Have the children help you create a display using photographs taken during the nature walk. Label the objects and colors in the photos.

Math: Graph the number of items found of each color.

Creative Arts (Art): Make a “Colors of Nature Gallery” by gluing one item of each color on a sheet of construction paper.

When you return to the classroom, review the items that were collected, matching each with the appropriate color chip. Discuss the ways in which items similar in color are the same or different (e.g., the green items are all plants).

Hint!

This experience works best when children can find things that match their color chips. So, you may wish to use several shades of green and brown, along with black, white, yellow, and blue. It can be informative, however, to point out colors that are not found in your natural environment.

Experience 3

Sounds of Our Natural World

Science Concept
Things can be described, compared, and classified on the basis of their characteristics.

Aim
Children will listen for sounds in nature.

Materials
recordings of nature sounds
tape- or CD-player or computer
photos or illustrations to correspond with sounds

Books
Quiet Night by Marilyn Singer
Crocodile Listens by April Pulley Sayre
The Very Noisy Night by Diana Hendry
Feathers for Lunch by Lois Ehlert
Listen to the Rain by Bill Martin, Jr. and John Archambault
Marsh Music by Marianne Berkes
A Good Night Walk by Elisha Cooper
Wind Says Goodnight by Katy Rydell

Vocabulary
hear
listen
sounds

Approach
- In advance, locate a spot in your schoolyard where a group can sit and listen.
- Begin by encouraging the children to think about what they hear when they go outdoors: *We are going to go outside and listen for sounds. What do you think we will hear?*
- Review your nature rules and go outside. Have the children sit on the ground. Help the children listen for sounds by drawing their attention to sounds of nature such as birds calling and leaves rustling as well as artificial sounds such as horns honking. Help the children identify the sounds.
- When you return to the classroom, play some recordings of nature sounds. Ask: *What do you think makes that sound? Have you heard that sound before? Did you hear any of these sounds when we were outside? Why or why not? Show the children pictures associated with each sound.*
- Follow-up on a daily basis by drawing the children's attention to the sounds they hear outside each day.

Extension 1

Go for a walk around the schoolyard or in a natural area to explore a greater variety of sounds.

Science Center

Place the nature recordings, CD/tape player, and photos/illustrations in the Center for further exploration.

Extension 2

Capture an insect or other small animal in a specimen viewer and listen to any sounds it might make. When you are done listening, release the animal where you found it.

Integrated Experiences

Literacy: Make a list of the nature sounds that you hear over the course of a week.

Math: Play an animal-sound counting game by making animal calls from one to four times ('bark," "bark," "bark") and have the children repeat after you.

Social and Emotional: Discuss with the children how human sounds convey different feelings or meanings.

Physical Health and Development (Health): Discuss how some sounds indicate potential danger to people such as a rattlesnake's rattle or a dog's growl.

Hint!

Engage families in children's nature study by asking them to listen for nature sounds in the evenings at home with their children. Have the parents write the sounds down so the children can share them at school. Make a chart listing all the sounds heard.

Experience 4

What Is Alive?

Science Concept
Living things need food, water, air, and shelter, and can move, grow, and reproduce.

Aim
Children will identify living and nonliving things in nature.

Materials
live animal (either an animal you can observe in the natural environment, a classroom visitor, or permanent class pet)
live plant
rock
clipboard, paper, and pencil
camera
magnifying tools
photos of living and nonliving things

Books
Is It Alive? by Marcia Freeman
A Good Night Walk by Elisha Cooper

Vocabulary
alive
living
nature
nonliving

Approach
- Either indoors or outside, have the children observe a live animal. Draw the children's attention to key physical and behavioral features of the animal: *Can it move? How does it move? Where is its mouth? What do you think it eats? Do you think it has babies?*
- As the group observes the animal, introduce the terms "alive" and "living." Explain that living things also need food and water to survive. Talk about the kinds of foods your animal eats. Then explain that all living things can move, grow, and have babies. Observe how your animal moves. Describe how it has changed since it was a baby.
- Show the children the rock. Encourage them to evaluate whether a rock is alive: *Can a rock eat? Can it move on its own? Does a rock have babies?* Explain that rocks are part of nature, but they are not alive.
- Introduce the plant. Encourage the children to think about whether the plant is a living thing: *Do plants die? What would make a plant die?*
- Explain that the plant is a living thing. Talk about how plants need water or they will die. Explain that plants start from seeds and grow larger over time. Tell the

Extension

Add a terrarium, aquarium, or vivarium to your classroom. Have the children help care for the living things.

Science Center

Place photos of living and nonliving things in the Center for the children to sort.

Integrated Experiences

Literacy: Have the children draw a living or nonliving thing in their journals. Help them explain how they know it is a living or nonliving thing.

Math: Create a graph of the living and nonliving things you found.

children that plants even move!

- Explain that you are going to go on a nature walk to look for living and nonliving things. Before you begin your outdoor exploration, review your nature rules.
- Encourage each child to find one living or nonliving thing of interest. As the children find things, ask questions to help them decide if it is living or nonliving: *Can it move? Does it need food and water?*
- Make a list, photograph, or collect some of the living and nonliving things you find. When you return to the classroom, review what each child found outside: *What did you find? Where did you find it? Was it living or nonliving? How did you know?*

Think about this...

You may be wondering about the idea that plants move. Examples of plant movement include:

- *sunflowers track the sun*
- *mimosa (sensitive plants) close up their leaves when touched*
- *prayer plants fold their leaves up at night*

Experience 5

Using Tools to Explore Nature

Science Concept
People need to respect the environment they share with plants and other animals.

Aim
Children will learn how to use tools to safely and respectfully explore nature.

Materials
small animal or plant
specimen viewers
petri dishes
items to explore using magnifying tools
magnifying tools

Books
A Closer Look by Natalie Lunis
Tadpoles by Betsy James
Bug Safari by Bob Barner
What Is a Scientist? by Barbara Lehn
What Is Science? by Rebecca Kai Dotlich

Vocabulary
careful
gentle
harm
hurt
living
magnify
petri dish
specimen viewer

Approach
- In advance, find a live plant, insect, or other small animal to use as an example.
- Begin by reviewing the concepts of living and nonliving. Talk about the importance of handling with care the things we want to look at. Explain that if we do not handle living things gently, we can hurt them.
- Show the children a specimen viewer and petri dish. Explain that these tools help us explore nature without harming it. Model how to use the tools.
- Introduce the magnifying tools. Model how to use these tools. Have the children practice using magnifiers. Observe the children carefully to see if they are using them effectively. Offer guidance if needed.
- Go outdoors and encourage the children to use the specimen viewers and petri dishes to explore nature. Encourage the children to release any living animals when done observing them.

Extension

Obtain a “class pet” such as a hermit crab, fish, or gerbil that can live in the classroom for an extended period of time. Talk with the children about appropriate ways to handle the animal and the things you will need to do to keep the animal alive.

Science Center

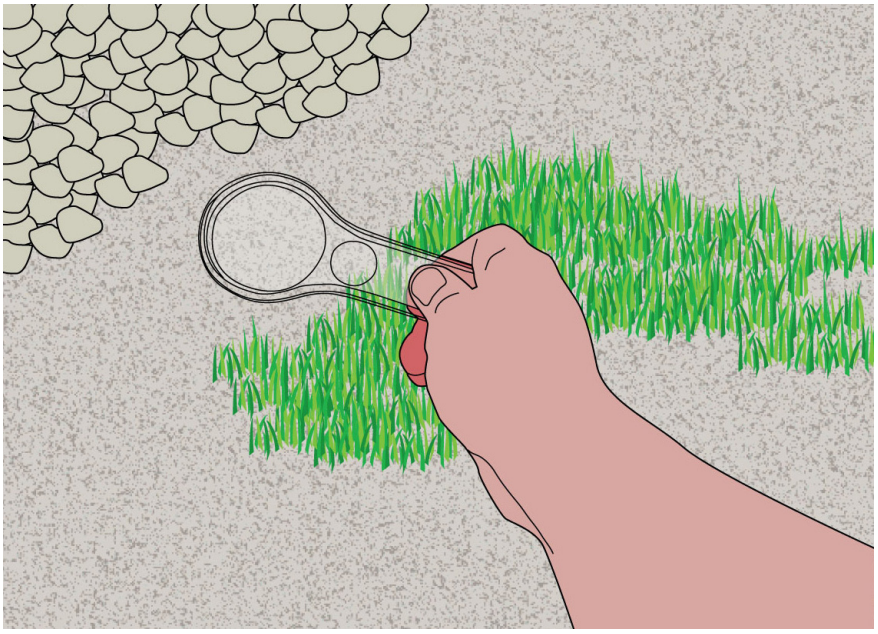
Place a plant, insect, or other small animal in the Center along with magnifying tools for further exploration under adult supervision.

Integrated Experiences

Creative Arts 1 (Art): Make a “monocular” for the children to use on nature walks. Cover a toilet paper tube with fabric and attach a piece of string.

Creative Arts 2 (Dramatic Play): Place backpacks, binoculars, collecting jars, and other props in the dramatic play area to encourage the children to pretend to be naturalists.

Social and Emotional: Invite a naturalist or park ranger to visit the classroom to talk about what they do and the importance of the natural world.



Experience 6

Exploring Soil

Science Concept
The natural world includes plants and animals, soil, rocks, water, and air.

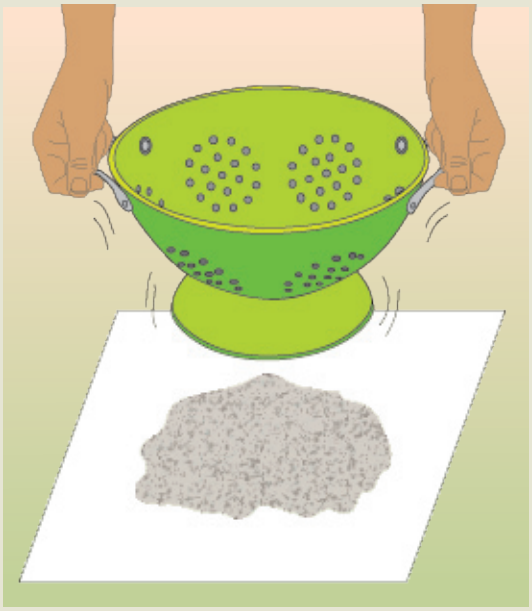
Aim
Children will explore dirt.

Materials
several types of soil and sand
colander
garden shovel or trowel
test tubes or other containers
petri dishes
handheld magnifying lenses
tabletop magnifier

Books
A Closer Look by Natalie Lunis
A Log's Life by Wendy Pfeffer
What Is a Scientist? by Barbara Lehn

Vocabulary
dirt
insects
mud
sand
soil
worms

Approach
- In advance, locate spots on the playground or in a safe area nearby where you can dig up some dirt. ⚠ Soil in urban areas and around old buildings may have high lead content due to vehicle exhaust or old paint. If you are not certain that your dirt is safe, use commercial products.
- Begin by asking the children to share what they already know about dirt: *Where do we find dirt? What color is dirt? What do we do with dirt?*
- Have the children explore dirt indoors, or go outside and dig in the dirt. Encourage the children to describe the dirt: *How does it feel? What does it smell like?*
- Sift the dirt using a colander and examine it carefully for worms, insects, seeds, and other interesting materials. (Save any worms you find for the next experience.) Talk about which of the things you find are living and which are nonliving.
- Put small samples of the materials in petri dishes. Have the children use magnifying tools to get a closer look at the dirt.



Extension
Add water to dirt and explore mud.

Science Center
Place different types of soil and sand in the Center along with magnifying tools for the children to explore further.

Integrated Experiences

Literacy: Make a chart listing children's discoveries about dirt.

Math: Have the children use measuring cups to fill containers of different sizes with dirt and sand.

Creative Arts 1 (Art): Make sand paintings by mixing powdered tempera paint with sand and then sprinkling it over glue on paper.

Creative Arts 2 (Dramatic Play): Place potting soil and related supplies in the Dramatic Play area to support play around a Flower/Garden Shop theme.

Social and Emotional: Visit the groundbreaking at a new construction site to watch people and tools at work.

Physical Health and Development (Health): Discuss the importance of washing hands after exploring dirt.

Experience 7

Worm Study

Science Concept
Living things need food, water, air, and shelter, and can move, grow, and reproduce.

Aim
Children will observe worms.

Materials
shovels and clear plastic containers for collecting worms
earthworms
magnifying tools
moist paper towels
spray bottle with water
soil
leaves or lettuce
used coffee grounds
clear container with ventilated cover

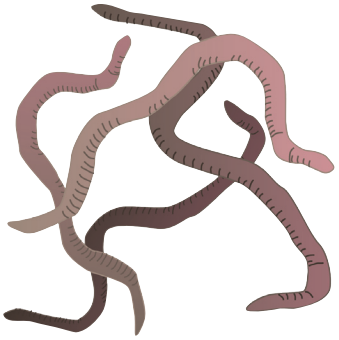
Books
Wonderful Worms by Linda Glaser
An Earthworm's Life by John Himmelman
Diary of a Worm by Doreen Cronin
Toil in the Soil by Michelle Myers Lackner

Vocabulary
dirt
gentle
insects
moist
soil
worms

Approach
- In advance, survey your school grounds for worms. If worms are difficult to find, or you are concerned about the safety of your soil, purchase worms from a bait shop or science supply company.
- Begin by reviewing what children learned in their investigations of dirt. Encourage them to think about animals that live in the dirt: *Are there any animals that live in the dirt? Do any insects live under ground? What other kinds of things live in the soil?*
- Explain that today you are going to learn more about worms. Ask the children to share their ideas about worms: *What color are worms? What do they feel like? Are worms living or nonliving? What makes you think that?*
- Review your nature rules, emphasizing that it is very easy to kill a worm if we are not gentle. Explain that it is also very important that worms stay moist.
- Place ten or so worms on a table. Encourage the children to observe the worms carefully.

Extension

Make a compost pile in a corner of your schoolyard by occasionally adding fruit and vegetable scraps to dry leaves, grass clippings, and soil. Over time, worms and other decomposers will transform the materials into topsoil. Contact local extension agencies or master gardener programs for guidelines for successful composting in your area.



Science Center

Place some worms and magnifying tools in the Center for further observation. House the worms in a clear covered container with holes for ventilation. Be sure to add soil, leaves or lettuce and keep the soil moist.

Integrated Experiences

Literacy 1: Have the children draw a picture of a worm in their journals. Encourage them to describe the worm in words.

Literacy 2: Make a chart listing the children's discoveries about worms.

- Watch to see if any of the worms leave castings. Explain that the castings are "worm poop," and that one reason we like worms so much is that the castings they leave in the soil make it better.
- Distribute handheld magnifying lenses and moist paper towels. When the children are ready, place a worm on each paper towel. Encourage focused observation by asking questions such as: *What is it doing? Does it have any eyes? How can you tell which end is its head?*
- Encourage the children to use the magnifying tools to view the rings on the worms' bodies. Draw their attention to how the worms move. Explain that we know worms are alive because they can move, and that they also eat, grow, have babies, and die.

Hint!

While some children will never want to touch a worm, others will become comfortable holding worms after observing their friends. ⚠ Make sure the children wash their hands before and after handling worms.

Experience 8

Teeny Tiny Hike

Science Concept
Things can be described, compared, and classified on the basis of their characteristics.

Aim
Children will explore some of the smaller things found in nature.

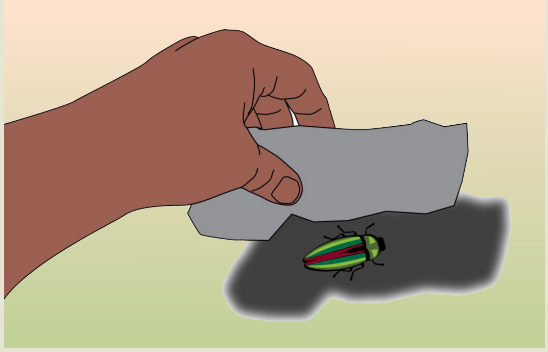
Materials
handheld magnifying lenses
specimen viewers
petri dishes
plastic bags
small paint brushes
camera

Books
A Closer Look by Natalie Lunis
My Father's Hands by Joanne Ryder
UGH! A Bug by Mary Bono
Snail Trail by Ruth Brown
A Ladybug's Life by John Himmelman
Ladybugs: Red, Fiery, and Bright by Mia Posada
Insects Are My Life by Megan McDonald

Vocabulary
bigger
smaller
thumbnail
tiny

Approach
Begin by reviewing the items that the children have added to your nature collection. Talk about some of the things the children have seen on their previous explorations outdoors that have not been added to the collection.

Explain that today you want them to look for only very small, or tiny, things. Have the children make a "thumbs up" signal and focus their attention on their thumbnail. Explain that they will be looking only for objects or animals that are smaller than their thumbnail.



Ask the children to name some of the tiny things they expect to see outside. Encourage the children to consider living things such as plants and animals as well as nonliving things such as rocks.

Before going outdoors, review your nature rules. Once outside, distribute the collecting tools. Show the children how to use the brushes to move fragile things into bags without touching

Extension

Look for small pieces of evidence of animal activity such as tracks, holes in leaves, and opened nuts.

Science Center

Place magnifying lenses and the items that were collected in the Center.

Integrated Experiences

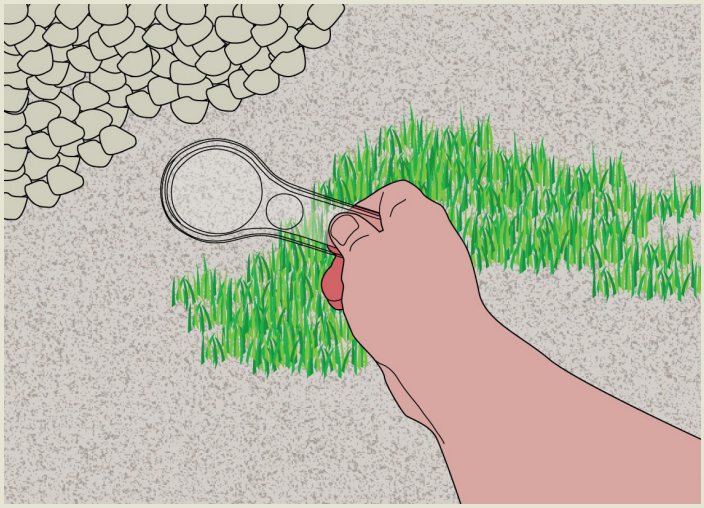
Literacy: Help the children describe the tiny things they found in their journals using words and pictures, or create a class log of your “Teeny Tiny Hike.”

Math: Sort the things that children found into groups of living and nonliving. Graph the results.

Physical Health and Development (Health): Discuss how some insects can bite or sting and that the children should not try to catch them without checking with an adult first.

them. If the children find a small insect, have them point it out and carefully collect it in a specimen viewer. Place some leaves or grass in with the insect as well. Take photos of items better left outdoors.

When you return to the classroom, encourage children to describe and compare what they found. Release any animals before the end of the day.



Experience 9

Exploring Rocks

Science Concepts

The natural world includes plants and animals, soil, rocks, water, and air.

Things can be described, compared, and classified on the basis of their characteristics.

Aim

Children will explore rocks.

Materials

nature collection
collection of rocks
handheld magnifying tools
pan balance

Books

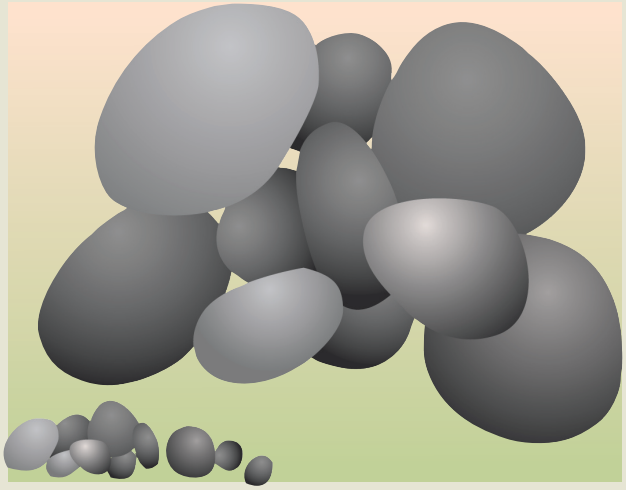
If You Find a Rock by Peggy Christian
Rocks: Hard, Soft, Smooth, and Rough by Natalie M. Rosinsky

Vocabulary

rock
names of the kinds of rock in your collection (e.g., limestone, quartz)

Approach

- Begin by reviewing the items in your growing nature collection. Group the items by type, and encourage the children to describe how items within each group are alike and different.
- Select a rock from the nature collection, or show the children a rock they have not seen before. Encourage the children to share what they know about rocks: *Where do we find rocks? Are rocks alive? What can we do with rocks?*
- Allow each child to select a rock from your rock collection. Distribute handheld magnifying lenses. Model using the tool and describing a rock such as: *I see little spots of black...and something in my rock sparkles!* Encourage the children to carefully study their rock and describe how it looks and feels.
- Draw the children's attention to the ways the rocks are similar and different. Help the children sort them into groups.
- Use the pan balance to weigh the rocks. Re-sort the rocks by weight.
- Using books or the internet, try to find the names of the rocks in your collection.



Extension

Find a natural area with a supply of rocks and go on a rock hunt.

Science Center

Place the rock collection in the Center. Encourage the children to sort the rocks by size, shape, color, and texture. Rotate new rocks into the collection from time to time.

Integrated Experiences

Literacy: Have each child carefully observe a favorite rock and draw a picture of it in their journals. Help them describe the rock's characteristics.

Creative Arts 1 (Dramatic Play): Add gravel to the sand table along with trucks and other props to encourage pretend play about "construction."

Creative Arts 2 (Dramatic Play): Add rocks to the playground for the children to move around in wagons.

Physical Health and Development (Health): Discuss the importance of keeping small stones and pebbles away from the face.

Hint!

Grow your rock collection by asking families to go rock hunting with their children outside of school. Examine as a group each rock the children bring to school, then add them to your rock collection. Make sure to identify treasured rocks so you can send them home at the end of your rock exploration.

Experience 10

Litter Hunt

Science Concept
People need to respect the environment they share with plants and other animals.

Aim
Children will identify “litter” in the natural world.

Materials
assortment of common types of litter such as paper, aluminum cans, and plastic bottles and bags
garbage bag for collecting litter
litter tongs
gloves (optional)
waste basket

Books
Trashy Town by Andrea Zimmerman and David Clemesha
The Great Trash Bash by Loreen Leedy
The Wartville Wizard by Don Madden
No More Garbage by Gail Gilkey
I Stink! by Kate and Jim McMullan

Vocabulary
garbage
litter
nature
tongs
trash
waste

Approach
In advance, collect some common kinds of litter such as paper, soda cans, and plastic bottles and bags. Clean the materials and smooth sharp edges.

Begin by reviewing with the children the kinds of things that are normally found in nature. Encourage the children to share examples discovered on their nature explorations. During the conversation, review the concepts of living and nonliving.

Show the children several examples of litter. Ask the children to share what they know about the items, such as what they are called and used for, and where they are typically found. Encourage the children to think about whether the items are part of the natural world: *Does a can belong in the grass? Should a plastic bag be in a tree? Where should people put these things when they are done with them?*

Explain that when we find things like these in nature, they are called “litter.” Briefly explain that litter can hurt nature (e.g., by making our water dirty, litter may make animals sick).

Extension

Take a field trip to a landfill or waste processing center, or invite a sanitation worker to visit your class.

Integrated Experiences

Math 1: Count the number of items picked up on the litter hunt.

Math 2: Make a graph of the kinds of litter collected.

Creative Arts (Dramatic Play): Put garbage trucks and bins in the block area to encourage pretend play about garbage collection.

- Explain that today they are going to go on a walk outside to look for litter. Review your nature rules, emphasizing that the children should not pick up anything without asking for permission first.
- As you look for litter, review the differences between items that belong in nature and items that can be considered litter.
- Have the children take turns using the tongs to pick up litter and put it in the trash bag.
- Before you throw the litter away, examine what you collected, and save recylables for later. Review the idea that litter can hurt plants and animals. Talk with the children about the importance of picking up litter. Make it a policy to take the litter tongs and garbage bag outside whenever you take a nature walk. Always wash hands after picking up trash.

Hint!

If an area such as a park or picnic area with suitable litter is not available, temporarily "seed" your schoolyard with litter in advance (out of view of the children). Be sure to pick up every bit of litter!

Experience

Reduce, Reuse, Recycle

Science Concept
People need to respect the environment they share with plants and other animals.

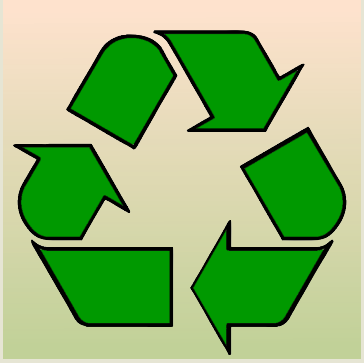
Aim
Children will sort materials for recycling.

Materials
waste basket
recyclable materials made of paper, metal, and plastic
recycling symbol card
labels for paper, metal, and plastic

Books
Joseph Had a Little Overcoat by Simms Taback
Red Racer by Audrey Wood
The Great Trash Bash by Loreen Leedy
Garbage Collectors by Paulette Bourgeois
A House Is a House for Me by Mary Ann Hoberman
Regards to the Man in the Moon by Ezra Jack Keats

Vocabulary
dump
garbage
metal
paper
plastic
recycle
trash

Approach
- In advance, gather enough recyclables so that each child can talk about an item. Clean the items and smooth sharp edges.
- Begin by reviewing what the children have already learned about litter. Show the children the different kinds of recyclable materials. Explain that these materials are a special kind of garbage. Tell the children that these items can be made into new things and used again.
- Select one metal item, one plastic item, and one paper item. Help the children identify what the object is and what it is made of: *What is this? What is the can made from? Is it paper, plastic, or metal?*
- One by one, allow each child to select an item and identify what it is and what it is made of. Then have the child place it with the other item(s) made of the same material. After the items have been sorted, ask the children to share how the items are alike or different.
- Show the children the recycling symbol and help them find it on the items. Explain that recycling can help the environment because it reduces the amount of garbage.



Extension

Organize a class or building-wide recycling drive. Collect recyclable items for one week or longer. See how much material you have collected by the end of the period. Take the recyclables to a recycling center.

Science Center

Make group labels that indicate different materials (e.g., plastic, paper, metal) and have the children sort different recyclable items into their respective groups. Add new items every few days.

Integrated Experiences

Math 1: When sorting the items, count the number in each group and the total number of items.

Math 2: Use the balance scale to compare weights of the paper, metal, and plastic items.

Creative Arts (Art): Make a collage or sculpture out of discarded paper and objects.

Social and Emotional: Invite a quilter or other artisan to demonstrate how scraps of materials can be used to create art and functional objects.

Try this...

Create a culture of re-using and recycling in your classroom. Encourage families to donate items such food containers, scraps of fabric, paper, ribbon, yarn, bottle caps, buttons, wood scraps, metal keys, purses, clothing, magazines, calendars, and old phones and other broken machines to enrich all of your interest areas.

Experience 12

Water in Our Natural World

Science Concepts

Living things need food, water, air, and shelter, and can move, grow, and reproduce.

The natural world includes plants and animals, soil, rocks, water, and air.

Aim

Children will observe water in the natural world.

Materials

photos of bodies of water such as lakes, rivers, and streams

photos of water associated with weather such as clouds, fog, rain, puddles, mud, snow, and ice

Books

The Water Hole by Graeme Base

Round the Garden by Omri Glaser

Precious Water by Brigitte Weninger and Anne Möller.

I Am Water by Jean Marzollo

Rain by Peter Spier

This is the Rain by Lola M. Schaefer

Vocabulary

cloud
dew
drop
lake
ocean
puddle
rain
river
stream

Approach

In advance, survey your schoolyard and nearby areas where you are likely to find examples of water in nature such as puddles, dew, frost, ice, and snow.

Begin by reviewing what all living things need to survive. After talking about water, encourage the children to think about where our water comes from: *We get water from our faucet, but where does that water come from?* Using photographs to illustrate, explain that our water falls as rain or snow from clouds. Talk about how the water fills lakes and rivers, and that is where all the water we use comes from.

Go outdoors and look for clouds in the sky. Talk about whether there are signs it is going to rain.

If there has been a recent storm, explore puddles. When appropriate, look for other examples of water in your world, such as fog, dew, frost, and ice.

Extension

Bring a container of pond water into the classroom. Use magnifying tools to explore the living and nonliving things found in the water.

Science Center

Place an assortment of containers and water tools (e.g., watering can) in the water table to support children's exploration of how water flows.

Integrated Experiences

Literacy: Make a class display showing the types of water bodies common where you live.

Math: During rainy days, place a rain gauge outside to measure the amount of rain.

Social and Emotional: Visit a fire station and have firefighters explain how they use water to contain fire.

Physical Development (Health and Safety): Have water conservation be a regular part of your classroom hygiene routines.

Experience 13

What Is a Habitat?

Science Concepts

Animals live in a variety of habitats.

Living things need food, water, air, and shelter, and can move, grow, and reproduce.

Aim

Children will explore a habitat.

Materials

local habitat
camera
clipboard, paper, and pencil
pictures of animals and their habitats

Books

A Log's Life by Wendy Pfeffer
Whose House? by Barbara Seuling
Whose House is This? by Elizabeth Gregoire
In the Small, Small Pond by Denise Fleming
When Rain Falls by Melissa Stewart
Around the Pond: Who's Been Here? by Lindsay Barrett George
Around One Cactus by Anthony D. Fredericks

Vocabulary

habitat
home
survive

Approach

- In advance, survey your schoolyard and nearby areas for an interesting habitat to explore. The habitat can be small (e.g., a rotting log, piles of leaves, or under a rock) or large (e.g., a meadow, stand of trees).
- Begin by reviewing some of the discoveries the children have made during earlier nature explorations. Talk about some of the animals the children have seen, where they have seen the animals, and what the animals have been doing.
- Select as an example one of the animals the children have observed—such as a squirrel or bird—to use to illustrate the concept of a habitat.
- Encourage the children to share what they know about the habits of the animal. For example: *Where do squirrels live? What do they eat? Where do they find nuts? Where do the nuts come from?*

Extension

Explore a different, or larger habitat.
Or, investigate how the habitat changes during different seasons.

Science Center

Place pictures of animals and habitats in the Center for the children to match and sort.

Integrated Experiences

Literacy: Make a map of the habitat, marking the location of all the important elements.

Social and Emotional: Connect the concept of habitat to the idea of neighborhood.

- Ask if the animal you selected might live in a very different place (e.g., *Could a squirrel live in the ocean? Why not?*) Introduce the term "habitat." Explain that most plants and animals can live some places, but not others. Review what living things need to survive. Explain that squirrels, for example, can only live where they can find the right kind of food as well as water. Talk about how they also need shelter, a place to go to rest.
- Explain that you are going to explore a nearby habitat. Review your nature rules and head outdoors. When you arrive at the habitat, encourage the children to look very carefully at all the elements of the habitat. Write down the names or descriptions of all the animals and plants that you see.
- Focus the children's attention on how the habitat meets the needs of the things that live there.

Experience 14

Exploring Trees

Science Concepts

Animals live in a variety of habitats.

Living things need food, water, air, and shelter, and can move, grow, and reproduce.

Aim

Children will learn about the parts of trees and the animals that live in and around them.

Materials

tree
magnifying tools
items such as dead twigs, fallen leaves, and seeds (e.g., acorns) collected from your tree

Books

A Tree Is Nice by Janice May Udry
Pie in the Sky by Lois Ehlert
A Grand Old Tree by Mary Newell DePalma
The Apple PieTree by Zoe Hall
ABCedar by George Ella Lyon
Have You Seen Trees? by Joanne Oppenheim
This Is the Tree by Miriam Moss

Vocabulary

branch
leaf
leaves
roots
tree
trunk

Approach

- In advance, identify one or more trees in your schoolyard or nearby area that the children can safely observe and touch.
- Begin by reviewing what the children have discovered during their previous explorations outdoors. Explain that today you are going outdoors to look carefully at trees. Ask the children to share their ideas about trees: *Where can we find trees? What colors are trees?*
- Review your nature rules and head outdoors to your tree. Introduce the names for the major parts of the tree such as “trunk,” branch,” “leaves,” “bark,” and “roots.” Help the children look for acorns, pine cones, and other seeds that may be lying on the ground. Encourage the children to touch different parts of the tree and compare the different textures.
- Encourage the children to look for insects, birds, and other animals living in or near the tree. Talk about the many reasons trees are important to people and other animals.

Extension 1

"Adopt" the tree that you explored and revisit it several times over the school year. Compare what the tree looks like and the animals that you find in or near the tree during the different seasons.

Science Center

Place magnifying tools and twigs, leaves, and seeds collected near your tree in the Center for further exploration.

Extension 2

Explore a second type of tree so that you can compare the ways the trees are similar and different.

Integrated Experiences

Literacy 1: Have the children take their journals on a visit to the tree. Have them draw the tree and help them label the parts.

Literacy 2: Have the children create a three-dimensional model of a tree using cardboard tubes, paper, and wire.

Math 1: Using informal tools, measure the circumference of the tree.

Math 2: Graph the number of animals you observed in your tree (e.g., 5 squirrels, 1 spider).

Creative Arts (Art): Make a texture rubbing of the tree bark by laying paper over the bark and rubbing with crayons.

.

Experience 15

Looking at Leaves

Science Concept
Things can be described, compared, and classified on the basis of their characteristics.

Aim
Children will compare different leaves.

Materials
several leaf samples
bags or other container to hold leaves
magnifying tools
table

Books
Leaves! Leaves! Leaves! by Nancy Elizabeth Wallace
Leaves by David Stein
Red Leaf, Yellow Leaf by Lois Ehlert
Autumn Leaves by Ken Robbins
ABCedar by George Ella Lyon
Leaf Man by Lois Ehlert

Vocabulary
leaf
leaves
pattern
pointed
round
stem
veins

Approach
⚠ In advance, check that the leaves the children are going to explore are safe. Even the leaves of some common house plants are toxic.

Begin by encouraging the children to share what they have learned about trees. *What colors are trees? How do trees feel when you touch them? What are the different parts of a tree called?*

Show the children two or more types of leaves. Draw their attention to the ways the leaves differ in size, shape, and color. Explain that you are going to go collect more leaves. Review your nature rules before heading outside.

While collecting, talk with the children about the leaves they find. Encourage them to describe the leaves' colors, shapes, and textures.

Once inside, give each child a moment to talk about a leaf he or she collected.

Spread the leaves on a table. Allow the children to gently touch the leaves. Ask the children to compare how the different leaves feel.

Point out the veins on the leaves and explain that the veins carry water to the leaf.

Encourage the children to examine the samples, looking carefully at the size and

Science Center

Place leaves and magnifying tools in the Center for further exploration. Encourage the children to sort the leaves by size, shape, or color.

Integrated Experiences

Literacy: Have the children record their observations of leaves in their journals. Provide two or more different types of leaves for children to draw and describe.

Creative Arts 1 (Art): Gather a collection of fallen leaves and have the children finger paint on the leaves, then press the leaves on paper to make prints that show the leaf shape and veins.

Physical Health and Development (Health): Talk with the children about poison ivy. Help them learn to identify the plant with pictures and teach them the rhyming warning: “leaves of three, let it be.”

shape of each leaf. Encourage the children to examine the leaves closely using magnifying tools, looking for evidence of insect or animal activity.

Conclude by sorting the leaves by type. Talk about how there are many different kinds of leaves, and that different leaves come from different trees.

Hint!

This experience is valuable even in places that do not experience fall colors. Every region has plants with leaves of different sizes, shapes, and colors. However, because we want to discourage the children from damaging plants by picking off their leaves, flowers, and seeds, this experience works best when it is easy to find leaves on the ground. If you are in a situation where it is difficult or unsafe for the children to pick up leaves, create a leaf collection in advance.

Experience 16

Exploring Wind

Science Concept
The natural world includes plants and animals, soil, rocks, water, and air.

Aim
Children will explore wind.

Materials
materials to test the wind such as scarves or sheer fabric, flags, sticks with ribbon streamers attached, or long feathers attached to string

Books
Gilberto and the Wind by Marie Hall Ets
The Wind Blew by Pat Hutchins
While You Were Chasing a Hat by Lilian Moore
The Wind by Craig Hammersmith
Like a Windy Day by Frank Asch
Wind Says Goodnight by Katy Rydell

Vocabulary
air
blew
wind

Approach
In advance, survey your schoolyard or nearby for an area that would be suitable for exploring wind. Look for flags, poles, power lines, and tree branches that sway in the wind. ⚠ Before you go outdoors on a windy day, check pollen and other allergen levels, and avoid areas with sand or other debris that might blow in the children's eyes.

Begin by reviewing some of the things the children have seen during your nature explorations. Help them recall different plants and animals as well as any interesting events they may have observed. Reinforce the idea that these things are all part of nature.

Explain that you are now going to explore a part of nature that you cannot see—the wind! Encourage the children to share their ideas about wind: *Where is the wind? What does wind do?*

Extension 1

Punch a hole in several plastic lids. Attach yarn, and cover the lid with petroleum jelly or another very sticky substance. Hang the lids in different spots around your schoolyard. Use magnifying tools to study the kinds of things carried in the wind.

Extension 2

Build a wind tube by securing a sheet of acetate around a table fan using a few inexpensive materials. Compare how a variety of common objects behave in the wind tube. See this link for examples:

http://www.exploratorium.edu/pie/downloads/Wind_Tubes.pdf

- Review your nature rules and go outdoors to observe wind. Draw the children's attention to the effects of the wind on items on the ground (e.g., flower petals, fallen leaves) and up high (e.g., flags, tree branches). Encourage the children to look for small things—such as a butterfly struggling to fly in the wind. Talk about how we cannot see wind, but we can see what wind can do.
- Have the children sit down. Encourage them to close their eyes and feel the wind on their faces: *Is the wind soft? Is it warm or cold?*
- Demonstrate the effects of the wind on one of your test items. Distribute the items among the children and encourage them to explore how the objects move in the wind.
- Return to the classroom. Have the children see if their objects move the same way indoors (and away from fans). Explain that the objects cannot move on their own, and that they moved when you were outdoors because of the wind.

Our Natural World

Welcome to the Our Natural World *MESS*® Take-Home Kit. This page suggests ways to further explore what your child has been learning at school.

In this Kit you will find:

- *In the Tall,Tall Grass* by Denise Fleming
Simple, rhyming text describes the activities of animals as day turns into night.
- a specimen viewer

This month, your child is learning:

- about the plants and animals that live in the natural world around us.

How to use this book:

- Point to the words as you read them. This helps children connect printed words to spoken words.
- Read the book more than once and encourage your child to join in. Pause to let them fill in a rhyming word: *stop, go, fireflies* ____.

How to use the object:

- Go outdoors and search for animals. Name the different animals you see.
- Catch some insects, frogs, or other small animals in the specimen viewer. Use the magnifying top of the viewer to help you examine more carefully the things you catch. After examining, return each animal to its home.
- Talk about where the animals live (in the grass, underground, in a tree), what they might eat, and some of their interesting habits.

To further support your child's learning:

- Go outdoors at night to experience different sights and sounds from those you see and hear in the daytime.
- Take a longer hike in a natural area and look for animals you might not find near your home.

Recommended Books

Asch, Frank, and Devin Asch. *Like a Windy Day.* San Diego: Gulliver Books, 2002. A little girl thinks it would be fun to imitate the wind's actions—snapping wet sheets, stealing hats, and shaking dew from a spider's web. Text is minimal with good descriptive words. Two-page colored drawings encourage close observation and easy discussion.

Barner, Bob. *Bug Safari.* New York: Holiday House, 2006. A little boy, with magnifying glass in hand, has an adventurous trip following ants on their way to a backyard picnic. Information is accurate; bold, enlarged pictures add to the mystery. Additional information about the animals encountered is included.

Base, Graeme. *The Water Hole.* New York: Harry N. Abrams, 2001. With beautifully detailed illustrations, this counting book also demonstrates the cycle of seasons, animal diversity, and the dependence of living things on water. Shrinking cutouts of a water hole, animals from around the world, detailed borders of animals within a geographical area, and rich colors invite observation and discussion.

Berkes, Marianne. *Marsh Music*. Minneapolis, MN: Lerner Publishing Group, 2003. This book evokes a warm summer night near the water—with an orchestra conducted by a bullfrog! Rhythmic text tells a simple story of various frogs' songs, complete with sound words like "twang." Beautiful watercolor drawings encourage study of the details of the night and its inhabitants. A glossary of musical terms and frog descriptions are included.

Bono, Mary. *UGH! A Bug*. New York: Walker, 2002. Silly pictures and rhyming text provide a lighthearted introduction to the idea that humans are sharing space with a variety of small animals. The book aims to reassure young children that most of these small creatures will not bother people if left alone. It concludes with the message that "bugs" are happier when not in a jar (though teachers will need to redefine the term "bug" since worms are included).

Bourgeois, Paulette. *Garbage Collectors (In My Neighborhood)*. New York: Kids Can Press, 1998. This amusing and informative book explains recycling, waste reduction, and landfill sites via a fun story about Mabel and Sam and Mrs. Green's false teeth. Story length and quantity of text are substantial for young children, but the story can be read in sections or abbreviated. The recycling section, in particular, can be read separately.

Brown, Ruth. *Snail Trail*. New York: Crown Publishers, 2000. This story, told and illustrated from the perspective of a slimy snail, is a good reminder of how different the world can look when you are small. The short route the snail traveled is shown—from a human perspective—on the last page. Spare text is descriptive, and colors are rich earth tones.

Our Natural World

Christian, Peggy. *If You Find a Rock.* New York: Harcourt Children's Books, 2000. Children of many ages are fascinated by plain old rocks, and this author will add to that enjoyment. Poetic text and tinted black and white photographs support the wonder of rocks large and small, close-up and faraway. The book encourages readers to do more than see rocks from a distance. Instead, readers should get up close, feel their textures, and consider imaginative purposes—skipping, climbing, even wishing.

Cole, Henry. *I Took a Walk*. New York: Greenwillow Books, 1998. This walk in the woods reminds readers how much there is to see if only we "look" closely. Single sentences tell about a casual meander from woods to meadow to stream to pond; then a foldout page at each stop details all the life there. The gentle greens, browns, and spots of color in the illustrations reward the careful observer with all kinds of plants and animals. A key at the end provides specifics that are not necessary to conversation about each scene.

Cooper, Elisha. *A Good Night Walk*. New York: Orchard Books, 2005. A walk in a suburban neighborhood, like this one, is not quite the same as a walk at the beach or in the forest. But let us "see what we can see, before it's time for bed," and perhaps hear and smell, too. The inclusion of both natural and non-natural things supports discussion about the differences between the categories. Watercolor and pencil illustrations provide details that add to the observation and conversation opportunities.

Cronin, Doreen. *Diary of a Worm.* New York: Joanna Cotler Books, 2003. Among the silly writings in this young worm's life is some fair, albeit sometimes subtle, science. Numerous daily entries and the fun illustrations should make for enthusiastic discussion, even if some preschoolers may not understand the humor.

DePalma, Mary Newell. *A Grand Old Tree.* New York: Arthur A. Levine Books, 2005. A tree's life cycle includes flowers, fruit, seeds, leaves, visitors, weather, and dying, all over time. Text is simple and straightforward. Illustrations are cheerful watercolors filled with enough detail to encourage continuing observations. Together they should generate conversation about what makes a tree "grand."

Dotlich, Rebecca Kai. *What Is Science?* New York: Henry Holt, 2006. The author answers her title question by naming many of the subjects science studies. Brightly colored illustrations show a group of enthusiastic children exploring each area, often with appropriate tools like magnifiers and sketch pads in hand.

Our Natural World

Ehlert, Lois. *Feathers for Lunch*. New York: Harcourt Brace, 1990. “Feathers” is not exactly what the cat was hoping to eat for lunch, but his encounters while hunting for lunch make this a fun book about the natural world. The sounds made by the cat and birds are printed on the pages but can be ignored. Bold illustrations add interest. Details about “the lunch that got away” are included at the end.

Ehlert, Lois. *Leaf Man*. New York: Harcourt, 2005. Clever arrangements of different fall leaves show a man—made of leaves, of course—traveling wherever the wind takes him and seeing the sights along the way. The minimal text stimulates careful observation and imagination. 2006 ALA Notable Children’s Book

Ehlert, Lois. *Pie in the Sky.* New York: Harcourt Children’s Books, 2004. Wouldn’t it be something if pies grew on trees? A child watches the changes in the “pie tree” from bud to flower to fruit. Bold paper-cutout collages invite exploration, while two levels of text—one describing obvious changes in the tree and the other providing more detailed observations—increase the discussion opportunities.

Ehlert, Lois. *Red Leaf, Yellow Leaf*. San Diego, CA: Harcourt Brace, 1991. This book examines the life of a sugar maple tree from the perspective of a child. The beautiful collages include details that invite exploration. The large text and clever use of print within the collages (e.g., labels, a license plate) provide great literacy practice. Background information about tree parts and instructions for planting a tree are included. 1992 NSTA Outstanding Science Trade Book for Children

Ets, Marie Hall. *Gilberto and the Wind.* New York: Viking Press, 1963. A little boy hears the wind whispering at the door and takes this as an invitation to play. His inability to control the wind is problematic. Simple black and white drawings on brown paper and appropriately limited text should elicit good discussion about similar situations.

Fleming, Denise. *In the Small, Small Pond*. New York: Henry Holt, 1993. With brightly colored illustrations and rhyming text, the author introduces readers to nature in a watery habitat. Sparse but action-packed words show animal diversity in changing seasons. 1994 Caldecott Honor Book

Fleming, Denise. *In the Tall, Tall Grass*. New York: Henry Holt, 1991. Beginning with a caterpillar crunching and munching its way through the grass, brightly colored collages and rhyming text of active verbs describe the animals found in the grass throughout the day and into night. ALA Notable Children’s Book

Our Natural World

Fredericks, Anthony D. *Around One Cactus.* Nevada City, CA: Dawn Publications, 2003.
—*In One Tidepool. 2002.*
—*Near One Cattail. 2005.*
—*On One Flower. 2006.*
—*Under One Rock. 2001.*
Each of these books details the plants and animals that live in a given habitat. Illustrations are large and richly colored, field notes provide additional information about the plants and animals featured in each book, and references are added for those who want to know more about each ecosystem. For young children, the cumulative, rhyming text becomes long but can be abbreviated to only the new verse each time.

Freeman, Marcia S. *Is It Alive?* Northborough, MA: Newbridge Educational Publishing, 2002. Beautiful large photographs introduce the concepts of living and nonliving things. Age-appropriate text defines "living" as things that grow, reproduce, consume food and water, and move. A glossary, index, and questions to think about are added at the end.

George, Lindsay Barrett. *Around the Pond: Who's Been Here?* New York: Greenwillow Books, 1996.
—*In the Garden: Who's Been Here?* 2006.
—*In the Snow: Who's Been Here?* 1999.
—*In the Woods: Who's Been Here?* 1995.
During their explorations, two children and their dog find clues that other animals are, or have been, there also. Nature concepts such as life cycle, predator/prey, and habitat are illustrated. Large, richly colored illustrations invite close observation and conversation. Additional information about each book's featured animals is provided.

Gilkey, Gail. *No More Garbage*. Barrington, RI: Windy Hill Press, 2003. Two young sisters walking in a nature park near their home find a small mysterious hole in the ground. When they find other children chasing a rabbit with a soda can caught on its foot, they finally figure out what the hole is all about and rescue the rabbit so it can return safely to its hole. Watercolor illustrations add gentle color to the simple story. The value of cleaning up garbage is obvious but nonetheless important.

Glaser, Linda. *Wonderful Worms*. Brookfield, CT: Millbrook Press, 1992.Great side-view, mostly earth-tone illustrations depict worms above and below ground. Text is simple, allowing for good discussion. NSTA Outstanding Science Trade Book for Students K-12

Glaser, Omri. *Round the Garden*. New York: Harry N. Abrams, 1999. The water cycle is quietly demonstrated from a teardrop to a rain cloud that falls on the garden where more onions are growing! Words are very limited, colors are bold, and illustrations are simple but sufficiently detailed to hold interest.

Our Natural World

Gregoire, Elizabeth. *Whose House Is This?* New York: Picture Window Books, 2005. The author introduces the concept of habitat by looking at animal homes—specifically webs, nests, and shells. In an introductory page, safety, storage, shade, and sleeping are all given as reasons for homes. Illustrations are bright and simple, yet encourage readers to look for clues to the title question. Text is appropriately limited, and can be extended by reading the occasional boxes of fun facts about the animals featured.

Hall, Zoe. *The Apple Pie Tree*. New York: Blue Sky Press, 1996. In spite of the apple emphasis in the title, the children's tree has multiple uses in this book about growth and change. But the best part of the tree is the pie that can result in the autumn at picking time! Colorful collage illustrations detail the seasonal changes described in the appropriate text. Animal (including two children) activities add observation interest.

Hammersmith, Craig. *The Wind*. Minneapolis, MN: Compass Point Books, 2003. "What is wind?" "What makes wind?" "Can you see the wind?" This book answers these basic questions and may be enough for preschoolers. However, if teachers want to talk about advantages (energy production) and disadvantages (storms) of wind, some simple information is here also. Text is easily edited and photographs provide opportunities for conversation.

Hendry, Diana. *The Very Noisy Night.* New York: Dutton Children's Books, 1999. Sounds during the night keep Little Mouse awake. Most of the sounds are natural ones—an owl hooting, the wind blowing—but his active imagination creates possibilities that Big Mouse's explanations will not satisfy. In the end, only a cozy snuggle in Big Mouse's bed satisfies. The familiar situation and fun drawings encourage conversation.

Himmelman, John. *An Earthworm's Life*. New York: Children's Press, 2000. The over-arching emphasis in this volume of the Nature Upclose series is an earthworm's life cycle over the seasons, but readers also learn about daily concerns. Text is limited to one short sentence per page which encourages close observation of details in the earth-tone drawings.

Himmelman, John. *A Ladybug's Life.* New York: Children's Press, 1998. Ladybugs are featured in this book from the Nature Upclose series, including ways the little animal's life is impacted by nature—other insects, flowers, birds, changing seasons, and humans. Reproduction and survival are themes for the ladybug in the story, while the detailed illustrations show interdependence.

Hoberman, Mary Ann. *A House Is a House for Me.* New York: Viking Penguin, 1978. A rollicking rhyme describes all kinds of houses from ant hills and bee hives to toasters and tins. The book concludes with an earth-friendly message—"Each creature that's known has a house of its own and the earth is the house of us all." Detailed, gently-colored illustrations add fun and observation practice. Since not all of the examples relate to the natural world, some may wish to read the book selectively. 1983 National Book Award for Young People's Literature

Our Natural World

Hutchins, Pat. *The Wind Blew*. New York: Aladdin Paperbacks, 1974. And look at the consequences! Rhyming text details many things wind can disturb, from snatching a balloon to flying a kite to lifting the judge's wig. Amusing illustrations add to the fun and stimulate laughter and conversation.

James, Betsy. *Tadpoles.* New York: Dutton Children's Books, 1999. Molly spends her summer watching frog eggs grow into tadpoles and then frogs as her little brother learns to walk. She ultimately accepts the importance of returning her young frogs to their natural world.

Keats, Ezra Jack. *Regards to the Man in the Moon*. New York, Aladdin Paperbacks, 1981. Wondering what to do with some junk? Louie's father Barney knows that junk, with a little imagination added, "can take you right out of this world." Louie and Susie add the imagination and away they go, pretending that their vehicle takes them to outer space and inspiring all their friends to create their own adventures—all from junk.

Lackner, Michelle Myers. *Toil in the Soil*. Brookfield, CT: Millbrook Press, 2001. The littered landscape in this book requires more than raccoons eating garbage and people planting gardens. It needs the slow but continual decomposing work of worms. Sparse rhythmic text accompanies colorful but cartoonish illustrations that sometimes lack size and time perspectives.

Leedy, Loreen. *The Great Trash Bash*. New York: Holiday House, 1991. Hippo is mayor of a lovely little town with a nagging problem. A banana peel on the sidewalk finally clues him into the answer—too much trash. A town meeting produces a number of answers, but it is only when residents learn to reduce, reuse, and recycle that they clean up their town. The colorful illustrations and the comments from Beaston's animal residents keep this useful lesson on "earth care" from being too preachy.

Lehn, Barbara. *What Is a Scientist?* Brookfield, CT: Millbrook Press, 1998. Simple text and color photographs describe how scientists learn from their senses, observe details, ask questions, communicate their findings, and have fun as they experiment. Children demonstrate each of the processes.

Lunis, Natalie. *A Closer Look*. Northborough, MA: Newbridge Educational Publishing, 1999. Fascinating close-up photographs of nature introduce magnifying glasses, binoculars, and telescopes.

Our Natural World

Lyon, George Ella. *ABCedar; an Alphabet of Trees*. New York: Orchard Books, 1989. Minimal but poetic text and earth-tone illustrations provide alphabetical examples of various tree leaves and fruits/seeds. Human hands holding the leaves allow relative size comparisons. Small black and white people and trees also provide relative size and shape information. An uppercase alphabet runs across each double-page spread. Because the text is so minimal, careful observation and conversation are required.

Lyon, George Ella. *Counting on the Woods*. New York: DK Publishing, 1998. A very simple counting poem and beautiful photographs portray features found during a walk in the forest. The book's text and illustrations encourage close observation. Descriptive words stimulate the senses.

Madden, Don. *The Wartville Wizard.* New York: Aladdin Books, 1993. This is a fun story about one conscientious man and what happens to a town where almost everyone litters and no one picks the litter up. The tale is long, but if edited for young children, the story line and detailed pictures provide a great environmental message and can generate much discussion.

Martin, Bill, Jr., and John Archambault. *Listen to the Rain.* New York: Henry Holt, 1988. Rain is such a common occurrence for most of us that few really listen to it. Slow and soft, splish and splash, roaring and pouring—all these descriptive words in spare rhythmic text, plus richly colored paintings, are used to describe rain.

Marzollo, Jean. *I Am Water/Soy el agua*. New York: Scholastic, 1996. "I am . . . home for the fish, rain for the earth, etc." Simple text and colorful paper-collage illustrations detail many uses for water. Written as an early reader, the book provides opportunities for discussions about water.

McCarthy, Mary. *A Closer Look*. New York: Greenwillow Books, 2007. Bold, collage illustrations and simple, sparse text place an emphasis on observation. An isolated part of an object is shown with encouragement to "look!" The pages following pull back for a second and third look before revealing a ladybug (albeit "a bug"). A flower and hummingbird are treated similarly, until all three are put together on a plant, and eventually in a flower garden.

McDonald, Megan. *Insects Are My Life*. New York: Orchard Books, 1995. Amanda's science is not always perfect, but her reverence for life among small things that crawl and fly is evident when she says "insects are my life!" Her relationships with her classmates are sometimes difficult because of her passion. Her situation improves when she makes an equally dedicated friend.

Our Natural World

McMillan, Bruce. *Growing Colors.* New York: HarperCollins, 1988. Brilliant colors of the natural world are shown in vivid photographs of fruits and vegetables, some familiar to young children and some less known. Text is limited to the color names (all in capital letters of the appropriate color). A fruit/vegetable identification list is included.

McMullan, Kate, and Jim McMullan. *I Stink*! New York: HarperCollins, 2002. Told from the point of view of an enthusiastic city garbage truck, this story describes the truck, how it works, and what happens at the end of the day. Several pages detail the truck's pick-ups alphabetically—apple cores and banana peels to yams and zipped-up ziti. Type variations and bold cartoon-like illustrations support the truck's spirited monologue. Children will love the roars, burps, and whoo-ees. 2003 ALA Notable Children's Book

Moore, Lilian. *While You Were Chasing a Hat*. New York: HarperFestival, 2001. The young girl who gives chase (with her father) when her hat is "whirled" away finds that the wind can make other things move, too. Text is sparse enough to complete just one long sentence over multiple pages of gently colored paintings. The hat is always in evidence, however, and young preschoolers will enjoy following its journey.

Moss, Miriam. *This Is the Tree*. Brooklyn, NY: Kane/Miller, 2000. Africa's baobab tree is a great example of a plant providing shelter and nourishment for numerous animals. Its strange look is attention-getting in reality and within these colorful, detailed illustrations. A final two pages about the tree's parts will provide additional information for teachers. 2001 NSTA Outstanding Science Trade Books for Children

Oppenheim, Joanne. *Have You Seen Trees?* New York: Scholastic, 1995. Brilliant watercolors add to the delight of this rhythmic, rhyming celebration of trees in all seasons. Each scene is worthy of a conversation about the details pictured there, even the silly literal-names page. The concluding facts about 16 different trees may also interest children.

Pfeffer, Wendy. *A Log's Life.* New York: Simon & Schuster, 1997. Watercolored-paper collages help tell this dramatic, yet quiet, story of how a variety of animals use a tree as their home throughout their life cycles. The book is a visual feast of details for attentive and inquisitive eyes.

Posada, Mia. *Ladybugs: Red, Fiery, and Bright*. Minneapolis, MN: Carolrhoda Books, 2002. With colorful illustrations and rhyming text (sometimes a bit forced), this book depicts the life cycle of an insect especially helpful to humans. Interesting details, including the orange liquid oozed from their legs, are provided in a concluding "More about Ladybugs" section. NSTA Outstanding Science Trade Book for Students K-12

Our Natural World

Robbins, Ken. *Autumn Leaves*. New York: Scholastic, 1998. On the premise that leaves are more interesting to look at in autumn, the author first provides some leaf basics: they are connected to a tree by a stem and have veins, most are flat and thin, shape and size vary greatly, and some have rough edges and some smooth. Eventually a dozen specific tree leaves are shown, on and off the tree. The obvious differences in color, size, and shape among leaves invite close observation and interesting comparative conversation.

Rosinsky, Natalie. *Rocks: Hard, Soft, Smooth, and Rough/Las rocas: Duras, blandas, lisas y Ãisperas.* Minneapolis, MN: Picture Window Books, 2004. Close observation with multiple senses is the beginning of learning about rocks in this book. Some of the information will be beyond pre-school interest, but the budding rockhound and teachers will find both facts and illustrations useful.

Rydell, Katy. *Wind Says Goodnight*. New York: Houghton Mifflin, 1994. A young child is trying to sleep but the sounds outside the bedroom are disturbing. In a rhythmic cumulative text, the wind takes charge in trying to quiet the various offenders. Large, gentle colored-pencil pictures of the nighttime are good observation opportunities and each “excuse” will provide a topic for conversation.

Ryder, Joanne. *A Fawn in the Grass*. New York: Henry Holt, 2001. A young child walking in the woods discovers several treasures, including a fawn hidden in the grass. Gentle watercolor illustrations and very sparse rhyming text give a leisurely feeling of wonder at all he sees. The close observer will find that fun details abound—like the ladybug on the child’s sandal.

Ryder, Joanne. *My Father’s Hands.* New York: HarperCollins, 1994. A little girl and her father share the wonders of nature as they gently examine several small creatures in the garden—a pink worm, golden beetle, sliding snail, and praying mantis. Oil paintings are muted and equally gentle.

Sayre, April Pulley. *Crocodile Listens*. New York: Greenwillow Books, 2001. What is this Nile crocodile listening for? Among the sounds of the warthogs, weaverbirds, and frogs, the mother crocodile hears the first cries of her babies as they hatch from their eggs. Realistic-looking, earth-tone drawings illustrate the story of the waiting and then the little crocodiles’ first days.

Schaefer, Lola M. *This Is the Rain*. New York: Greenwillow Books, 2001. A cumulative, rhyming story of the water cycle, the value of water to living things, and the evaporation process. Colorful, mixed-media collages can be perplexing, but provide observation practice.

Our Natural World

Schaefer, Lola M. *What's Up, What's Down?* New York: Greenwillow Books, 2002. This unique book first must be turned sideways and read from bottom to top—mole to moon—and then from top to bottom—moon to ocean floor! Different perspectives among the things in the natural world become clearer as the reader sees what is living above and below another plant/animal. The bright pastel illustrations appropriately support each up and down viewpoint, even adding arrows in case you forget which way you are reading.

Seuling, Barbara. *Whose House?* Orlando, FL: Gulliver Books, 2004. As a young child sits under a tree reading about animals, his imagination places him in each habitat. In the end, the white house with red roof, welcoming parents, cat, and familiar objects turn out to be perfect for a little person. Gentle illustrations, sometimes with silly pictures of the child in the animal home, provide good observation practice.

Siddals, Mary McKenna. *Tell Me a Season.* New York: Houghton Mifflin, 1997. Simple descriptive wording and colorful illustrations in a small-book format introduce readers to the way the natural world changes with the seasons. Details like the bird eating a worm and the children splashing in the wading pool add lots of observation and conversation possibilities.

Singer, Marilyn. *Quiet Night.* New York: Clarion Books, 2002. Initially the night may seem quiet, but with closer "listening," readers can count numerous noisy animals in the bog. From one frog bar-rumming to ten campers yawn-yawning, fun illustrations invite close observation.

Spier, Peter. *Rain*. New York: Delacorte Press, 1982. Wordlessly, two children and their dog go out to explore their rainy world. They experience sandy puddles, spider webs, rain drops, drooping plants, sheltering animals, and the warmth of home. Individual detailed illustrations provide great observation practice and discussion stimulants.

Stewart, Melissa. *When Rain Falls*. Atlanta: Peachtree, 2008. People tend to move or stay indoors when it rains, but what do animals do? The author's spare but descriptive text shows a variety of animals from forest, field, wetland, and desert. Some are like people—they return to their houses: chickadees to their tree holes and foxes to their dens. But squirrels use their bushy tails as umbrellas, ducks have oily feathers so they just continue to float, and caterpillars and spiders usually find a leaf to hide under. The watercolor illustrations are perfect for a wet day and lend themselves to close observation.

Stein, David Ezra. *Leaves*. New York: G. P. Putnam's Sons, 2007. A young bear experiences his first falling leaves and tries—unsuccessfully—to put them back on the tree. Autumn becomes winter, and following his own hibernation, he delights in the little green buds that herald spring. Both watercolor illustrations and simple text add to the sense of change that the little bear discovers.

Our Natural World

Stockdale, Susan. *Nature's Paintbrush: The Patterns and Colors Around You*. New York: Simon & Schuster Books for Young Readers, 1999. Unless colors and patterns are brilliant like a red-eyed tree frog or peacock's tail, many people do not notice the colors and patterns in nature. This book calls attention to features like the spines on a cactus, bumps on a starfish, and eyespots on several fish, and explains each as camouflage, defense, or courtship. Text for each acrylic illustration begins with a question and then provides an appropriate answer. The "have-you-noticed . . . ?" questions and detailed paintings encourage conversation and observation practice.

Swinburne, Stephen. *What Color Is Nature?* Honesdale, PA: Boyd's Mill Press, 2002. Clear, inviting photographs and the title question encourage identification of color, but conversation may be needed to balance identification and nature. The author's suggestion that things can be single or multi-colored encourages observation.

Taback, Simms. *Joseph Had a Little Overcoat.* New York: Viking, 1999. Joseph demonstrates very practical and immediate recycling when he makes his worn overcoat into several increasingly smaller, but still useful, garments. Die-cut holes in appropriate pages keep readers guessing about the next version of each worn-out garment. Mixed-media illustrations have a bright, folk-art style that fits Joseph's practical philosophy. 2000 ALA Notable Children's Book, 2000 Caldecott Medal

Udry, Janice May. *A Tree Is Nice/Un arbol es hermoso.* New York: Harper Trophy, 1987. "Nice" is not a description usually given to trees, but it suggests many of the valuable roles trees can play. This simply and gently written book is illustrated with part black-and-white/part gently colored drawings, all showing why a tree, even if you have only one, is nice. Appropriate cautions about tree climbing can be added for young children. 1957 Caldecott Medal

Wallace, Nancy Elizabeth. *Leaves! Leaves! Leaves!* New York: Marshall Cavendish, 2003. Mama Bear teaches Buddy Bear about leaves as they explore the outdoors during all the seasons. Buddy's magnifying glass and drawing tools are prominent. Cut-paper illustrations and simple, accurate text tell the story.

Weninger, Brigitte, and Anne Möller. *Precious Water.* New York: North-South Books, 2000. A clear glass of water is the introduction to "all things need water." Plants, animals, and people are all examples. Collage pictures and limited text are sufficiently detailed for good discussion.

Wood, Audrey. *Red Racer.* New York: Simon & Schuster, 1996. Nona has her heart set on a new Red Racer bike. Wicked thoughts encourage her plots to "lose" her bike. Eventually her parents show her that the bike can be restored, instead of destroyed, and made beautiful again.

Our Natural World

Zimmerman, Andrea, and David Clemesha. *Trashy Town*. New York: HarperCollins, 1999. With a rhyming refrain, this is the story of Mr. Gilly, who collects the garbage in Trashy Town. Observant eyes may see several situations that never appear in the story but warrant discussion: the mice who appear on each page, the litter that shows around the trash cans, or why Mr. Gilly needs a bath after his day's work. 2000 ALA Notable Children's Book

Other Recommended Books

Banks, Kate. *And If the Moon Could Talk*. New York: Farrar, Straus and Giroux, 1998. Oil paintings of familiar objects in a child's bedroom and simple, poetic text provide both similarities and contrast with the larger outside world where nighttime activities are also happening. In the end, the child is curled up in bed at the same time as the moon murmurs "good night." Details in the illustrations and the descriptive language should make for gentle conversation. 1999 ALA Notable Children's Book

Banks, Kate. *Close Your Eyes*. New York: Frances Foster Books, 2002. Looking for every possible excuse not to go to sleep, the little tiger lists all the sights he will miss if he complies with his mother's request that he close his eyes. She cites all the dreamy advantages of falling asleep. Oil paintings in earthy colors add to the warm, protective feeling imparted by the conversation between mother and baby tiger.

Benson, Laura Lee. *This Is Our Earth.* Watertown, MA: Charlesbridge, 1994. In a gentle rhyming cadence with colorful illustrations throughout the book, a message of care for our earth both begins and ends this book. In between, different environments and their inhabitants are described on two levels of text; one is general and poetic, and the other provides some specific information about that illustrated area. Words and music to the song "This Is Our Earth" are provided.

Brett, Jan. *The Umbrella*. New York: G.P. Putnam's Sons, 2004. Carlos's world is that of a fascinating, lush tropical forest with plants and animals unfamiliar to many young readers. Curious young observers will enjoy both the detail they can see and the fact that Carlos seems oblivious to the drama going on around him.

Brown, Ruth. *Ten Seeds.* New York: Alfred A. Knopf, 2001. This beautifully illustrated counting book demonstrates what happens in the natural world when ten seeds encounter perils from insects to people, and yet go on to thrive and reproduce. What a fun way to learn about the life cycle of a plant!

Bunting, Eve. *Anna's Table.* Chanhassen, MN: North Word Press, 2003. Anna collects natural things, from a hard, dry pomegranate to the backbone of a garter snake. In fact, a table in her bedroom is "filled with the wonders of the earth and sky and sea." This is a good story for a class creating its own nature collection. While the story is too long for one sitting, you can easily read about and discuss a few items at a time.

Our Natural World

Cobb, Vicki. *I Face the Wind.* New York: HarperCollins, 2003. Designed to encourage exploration and interaction in readers and listeners, this book is full of questions and things to do. Activities like blowing up a balloon and the discussion of molecules may need to be edited. Bright cartoon-like illustrations will encourage participation and conversation in those activities that are appropriate.

Cotten, Cynthia. *At the Edge of the Woods: A Counting Book*. New York: Henry Holt, 2002. Who, and how many, live at or visit the edge of the woods? Numerous living things enjoy that natural world—until they must hide. Both number words and numerals are shown.

Cowley, Joy. *Red-Eyed Tree Frog*. New York: Scholastic, 1999. Sparse text and brilliant photographs heighten the natural drama in the tree frog's world: will it both find enough food to eat and avoid being eaten? There is a little tension in the story and yet it is not gruesome—just right for young children. 2000 ALA Notable Children's Book, 2000 NSTA Outstanding Science Trade Book for Children

Falwell, Cathryn. *Turtle Splash! Countdown at the Pond*. New York: Greenwillow Books, 2001. The quiet enjoyed by ten turtles at a pond is disturbed by first one animal and then another, until there are no turtles left on the log. The detailed, colorful collage illustrations and descriptive counting text show where the turtles finally settle for the night. Each of the other animals is described at the end, as is leaf printmaking. 2002 ALA Notable Children's Book

Fleming, Denise. *Time to Sleep*. New York: Henry Holt, 1997. Bear smells winter in the air and knows it is time to hibernate, but first must tell Snail who must tell Skunk and so on. Each of the woods animals report a different sign that winter is coming as they prepare to slow down and fall asleep.

Fleming, Denise. *Where Once There Was a Wood*. New York: Henry Holt, 1996. Fiber illustrations in bold colors depict plants and animals that lived in a wooded area before a housing development arrived. The last few pages encourage readers to welcome wildlife to schoolyards and backyards because natural habitats are disappearing. 1997 ALA Notable Children's Book

Florian, Douglas. *Nature Walk*. New York: Greenwillow Books, 1989. Text of one or two words calls attention to natural things that hikers find along a woodsy trail. Illustrations are in earth-tone crayons with black outlines. Several additional mini-drawings on the last page invite readers to find things within the book. Text is so abbreviated that conversation about the illustrations flows naturally.

Our Natural World

Fox, Paula. *Traces*. Asheville, NC: Front Street, 2008. “Something, someone was just here.” More than footprints, traces are clues to or signs of the presence of several animals, an airplane, and the wind. Great descriptive words like “wriggly, slimy, slippery” also provide clues. Subtle, yet nicely detailed, illustrations in earth tones encourage close observation.

Fraser, Mary Ann. *Where Are the Night Animals?* New York: HarperCollins, 1999. The first half of this book sets a natural nighttime scene with coyotes, skunks, owls, opossums, raccoons, frogs, and bats. Illustrations are rich and detailed and provide examples of food chains and predator/prey situations. Later, the nightly activities of these animals are explained in more detail in text that needs to be read selectively for most young children. At the end, the question is asked: Where do these nocturnal animals go during the day? Answers are brief but interesting.

Frost, Helen. *Keeping Water Clean*. Mankato, MN: Pebble Books, 2000. Simple text and colorful photographs explain why water needs to be clean. Both should generate thought-provoking conversation. Unfortunately the small-book format limits the book’s usefulness to individuals or small groups.

Frost, Helen. *We Need Water.* Mankato: Capstone Press, 2000. Using one or two sentences per two-page spread and colorful photographs, this small-format book describes living things that need water. Both plants and animals are covered, although water use by people is the primary focus.

Frost, Helen. *The Water Cycle*. Mankato, MN: Capstone Press, 2000. Evaporation, condensation, and precipitation are discussed in the context of the water cycle. Text is limited and photos are full-page in a small-book format.

George, Jean Craighead. *Morning, Noon, and Night*. New York: HarperCollins, 1999. This book celebrates the variety of animal activity that occurs as the sun cycles through the day. A brief note identifying the featured animals and their geographical location suggests the author deliberately selected animal representatives from across the country. Text is limited to one or two sentences per double-page while illustrations are dramatic and sufficiently detailed to encourage careful observation and discussion.

George, William T. *Fishing at Long Pond*. New York: Greenwillow Books, 1991. Katie and her grandfather go out on the pond in the rowboat to fish. Realistic-looking paintings and appropriately limited text describe what they see along the way. Katie gets a lesson in nature appreciation, along with her fishing instruction.

Our Natural World

Glaser, Linda. *Stop that Garbage Truck!* Morton Grove, IL: Albert Whitman, 1993. Young children frequently are fascinated by the working of garbage trucks, and Henry is no different. For him, garbage pick-up also becomes the occasion for friendship and growth.

Gonzalez, Maya Christina. *My Colors, My World; Mis colores, mi mundo*. San Francisco: Children's Book Press, 2007. A little girl who lives in the windy desert looks for the colors in her natural world—in both English and Spanish. From the hot pink sunset to her father's black hair, simple text and boldly colored illustrations focus attention on the colors she observes around her. 2008 ALA Notable Children's Book

Greenblat, Rodney A. *Aunt Ippy's Museum of Junk*. New York: HarperCollins, 1991. Aunt Ippy's museum is a wonder to behold, but it is actually the last stop for things she cannot find another use for. First she reuses and recycles, a process she calls "waste management." After that, materials may go to her garage before being displayed in her museum. Bright, detail-filled illustrations and limited text stimulate observation and conversation.

Grobler, Piet. *Hey Frog!* Asheville, NC: Front Street, 2002. On a hot day, a greedy frog drinks water from a puddle, brook, river, and lake until there is no water left. All the other animals are roaring mad, but Frog is stubborn and will not open his mouth to let the water out. The animals try several aggressive ways to get him to give up the water, but are unsuccessful. Finally, Eel comes up with a clever solution in which no one is harmed. This Australian folktale about conflict resolution also can be used to support discussion about the importance of water to all animals and water conservation.

Hopkins, Lee Bennett, ed. *Spectacular Science: A Book of Poems.* New York: Simon & Schuster Books for Young Readers, 1999. Most of the short poems that Hopkins has selected are about natural objects (both living and nonliving) and the wonder of exploration. Large, colorful, exaggerated paintings accompany each of the 15 poems.

Hubbell, Patricia. *Sea, Sand, Me!* New York: HarperCollins, 2001. Many people associate the beach with floppy hats, sunscreen, toys, and beach umbrellas but ignore the plants and animals that live in this habitat. Sand, sea grass, seagulls, seashells, seaweed, and waves illustrate the seashore environment.

Jonas, Ann. *The Quilt.* New York: Greenwillow Books, 1984. One little girl's new quilt (from old, recycled clothes, linens, etc.) becomes a source for nighttime—sometimes scary—exploration. Fortunately Sally, the stuffed blue puppy, is not lost after all.

Our Natural World

Kerley, Barbara. *A Cool Drink of Water*. Washington, DC: National Geographic Society, 2002. All living things need water. But water comes from many sources in many ways for people around the world. Beautiful photographs, and very spare text, can instigate conversation about this valuable natural resource.

Lindbergh, Reeve. *The Circle of Days*. Cambridge, MA: Candlewick Press, 1998. Based on a song from Saint Francis of Assisi, who was known for his devotion to nature, Lindbergh's poem shows wide diversity in the world. The one-line-per-page poem is beautifully illustrated in collage and watercolors, usually one large picture and several smaller ones per double-page spread. Readers who are reluctant to use a creator's name can easily delete those words. Observation opportunities and comparisons abound in each set of pictures.

Lunis, Natalie and Nancy White. *A World of Change*. New York: Newbridge Educational Publishing, 1999. The idea of change is shown with life cycle, water states, weather, camouflage, and some non-natural examples through large, colorful photographs and text containing more questions than statements. Some changes like erosion are beyond the understanding of young children, but all the examples will increase their awareness of change.

Manning, Mick, and Brita Granstrom. *Yum-Yum!* New York: Franklin Watts, 1998. A food chain begins when a tiny plant is eaten by a caterpillar, which is eaten by a cricket, etc. Simple text and cartoon-like illustrations introduce difficult concepts such as food chains and predator/prey relations. Side notes provide additional information about the plants and animals featured.

Martin, Bill, Jr. *Polar Bear, Polar Bear, What Do You Hear?* New York: Henry Holt, 1997. Bright cut-paper illustrations and repetitive text are used to ask different zoo animals what they hear. In the end, the zookeeper is asked what he hears and his reply involves children. But the answers throughout are so contagious that it is doubtful a reader gets that far without everyone imitating the animals!

Mazer, Anne. *The Salamander Room.* New York: Alfred A. Knopf, 1991. A little boy finds a salamander in the woods and tries to convince his mom to let him keep the little orange animal as a pet. She raises concerns about its care, and he supplies answers that would transform his bedroom into a dark, damp, green forest. Their conversation provides impetus for further discussion.

Opperheim, Shulamith Levey. *Fireflies for Nathan*. New York: Tambourine Books, 1994. Nathan's visit to his grandparents is the occasion for an expedition to a grassy field not only to view and catch fireflies, but also to explore the goldfinch, butterfly, and bullfrogs while waiting for it to get dark. Appropriate behavior in catching and releasing insects is shown. Acrylic illustrations add to the warm familial feeling.

Our Natural World

Pike, Norman. *The Peach Tree*. Owings Mills, MD: Stemmer House Publishers, 1983. Nature is out of balance after the Aphis sisters find the Pomeroy family's young peach tree. The balance is restored when ladybugs are added to the mix, saving the wilting tree and making the Pomeroy family happy again because they are looking forward to sweet peaches.

Rockwell, Anne. *Growing Like Me*. Orlando: Harcourt, 2001. Growth is one of the hallmarks of living things. In sparse text and gentle watercolor illustrations, the growth of a variety of woods, pond, and meadow animals and plants is explored, always knowing that people grow, too.

Ryder, Joanne. *Dancers in the Garden.* San Francisco, CA: Sierra Club Books for Children, 1992. A gentle, poetic trip through the garden with a hummingbird should encourage children to look carefully at their own natural areas. Small details within the softly colored illustrations, as well as descriptive words like "chilly morning" and "pale spider webs," will aid in observation and conversation opportunities.

Ryder, Joanne. *Each Living Thing.* New York: Gulliver Books, 2000. Vibrant illustrations show large and small creatures and the natural environments they live in. Sometimes, the brief but highly descriptive text almost implies danger, but it is really a gentle message of respectful awareness and conservation.

Sams, Carl R. II and Jean Stoick. *Lost in the Woods*. Milford, MI: Carl R. Sams II Photography, 2004. In this beautiful photographic essay, a variety of young woodland animals are concerned that a fawn is lost. The concept of camouflage is quietly highlighted, and details encourage careful observation. Young children will identify with the young animals in these woods.

Sayre, April Pulley. *Trout Are Made of Trees*. Watertown, MA: Charlesbridge, 2008. Fascinating mixed-media collages and a limited amount of text explain the improbable-sounding title statement. Illustrations showing the various steps along one food chain provide interesting observation and discussion opportunities. The text needs to be read selectively for young children.

Sayre, April Pulley. *Vulture View*. New York: Henry Holt, 2007. "Poetic" and "beautiful illustrations" are not the usual words one thinks of to describe turkey vultures, but they apply here. Simple, poetic text, enhanced by boldly colored, cut-paper collages, describes the eating patterns of one of nature's cleanup crew. The book ends with two pages of information about vultures and encouragement for young scientists to learn more. 2008 ALA Notable Children's Book, 2008 Geisel Honor Book

Our Natural World

Sensel, Joni. *The Garbage Monster*. Enumclaw, WA: Dream Factory Books, 2000. Young Jo is slow to take the trash out when her mother asks. But then the trash—and imagination—takes over and promises litter all over. Jo responds by discovering that a lot of what they thought was garbage at her house really could be reused or recycled. Thereafter, she is quick to remove the smaller amount right away. The picture, habitat, and habits of the monster are fun to explore.

Seuling, Barbara. *Winter Lullaby* and *Spring Song.* San Diego, CA: Gulliver Books, 1998/2001. Where do animals go as winter approaches in one book and spring arrives in the second? In each book, one spread of pages poses, in simple text and crisp acrylic illustrations, the question for a given climate and animal. The next spread answers the question in equally simple text and illustration. Because the text always is brief and illustrations detailed, both conversation and observation practice can result.

Simmons, Jane. *Little Fern's First Winter*. Boston: Little, Brown, 2001. Young rabbits Fern and Bracken may not know what snow is or how it will change their world, but the other animals do. The birds are migrating and squirrels are gathering nuts in preparation for winter. Eventually mother rabbit calls her children into a cozy burrow. Fuzzy, indistinct paintings express both the enthusiasm of the rabbits' play and the hectic preparation for the coming snowstorm.

Singer, Marilyn. *Good Day, Good Night.* New York: Marshall Cavendish,1998. Some creatures are active in the daytime, some are not. Short rhyming phrases juxtapose pairs of animals that are active and inactive in the day. Gentle earth-tone illustrations detail the activity—or lack thereof. Since the pairings do not seem to be logically related, discussion about the viewers' observations is important, even after the pattern becomes obvious.

Swinburne, Stephen R. *Lots and Lots of Zebra Stripes: Patterns in Nature/Muchas, muchisimas raya's de cebra*. Honesdale, PA: Boyds Mills Press, 1998. "Patterns are lines and shapes that repeat," and nature has them in abundance—if you look. Beautiful photographs and sparse text introduce the variety of patterns found in natural settings.

Tyers, Jenny. *When It Is Night, When It Is Day*. Boston: Houghton Mifflin, 1996. Some animals sleep at night, and some are active. With seeming contradiction, the same can be said for day. The text is sparse but active and almost rhythmical, while illustrations are somber, colored etchings that lack proportional sizes (e g., the wolf and mouse appear the same size).

Van Laan, Nancy. *Round and Round Again*. New York: Hyperion Books for Children, 1994. "Round and round and round again" seemed to be Mama's theme song as she used and reused new and recycled items over and over. She even built a whole house! Bright, busy illustrations show her at work and encourage observation practice. Catchy rhymes detail her work. Her homemade rocket ship, filled with her family, will stimulate conversation.

Our Natural World

Van Laan, Nancy. *When Winter Comes*. New York: Atheneum Books for Young Readers, 2000. What happens to the plants and animals when winter comes with snow and wind? A bundled-up family goes for a walk looking for answers. Poetic text and gentle acrylic paintings give readers the feeling they are there in the winter's first snow.

Wilson, Karma. *A Frog in the Bog*. New York: Margaret K. McElderry Books, 2003. This silly counting tale told in rhyme demonstrates a food chain. The watery illustrations show what happens in the bog when the growing frog's log starts to rise. The descriptive words—like "slink through the sludge"—are great.

Wolff, Ferida. *A Weed Is a Seed.* Boston: Houghton Mifflin, 1996. The author suggests several situations, mostly natural, where perspective matters—like whether a weed is good or bad. The gardener may not like where the weed grew, but the cold country mouse sees the weed as food. Falling autumn leaves mean hard work for the raker but are fun for children playing. The situations should generate lots of discussion.

Head Start Domains and Indicators Associated with Core and Center Experiences

Domain & Indicators	Experience																
Language Development	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T-H
Demonstrates increasing ability to attend to and understand conversations, stories, songs, poems.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Shows progress in understanding and following simple and multi-step directions.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Understands an increasingly complex and varied vocabulary.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
For Non-English speaking children, progresses in listening to and understanding English.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops increasing abilities to understand and use language to communicate information, experiences, ideas, feelings, opinions, needs, questions, and for other varied purposes.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Progresses in abilities to imitate and respond appropriately in conversation and discussions with peers and adults.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Uses an increasingly complex and varied spoken vocabulary.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Progresses in clarity of pronunciation and towards speaking in sentences of increasing length and grammatical complexity.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
For Non-English speaking children, progresses in speaking English.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
LITERACY																	
Shows increasing ability to discriminate and identify sounds in spoken language.																	
Shows growing awareness of the beginning and ending sounds of words.																	
Progresses in recognizing matching sounds and rhymes in familiar words, games, songs, stories and poems.																	
Shows growing ability to hear and discriminate separate syllables in words.																	

Head Start Domains and Indicators Associated with Core and Center Experiences

Domain & Indicators	Experience																
LITERACY CONTINUED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T-H
Associates sounds with written words, such as awareness that different words begin with the same sound.																	
Shows growing interest and involvement in listening to and discussing a variety of fiction and nonfiction books and poetry.																	•
Shows a growing interest in reading-related activities, such as asking to have a favorite book read; choosing to look at books; drawing pictures based on stories; asking to take books home; going to the library; and engaging in pretend-reading with other children.																	•
Demonstrates progress in abilities to retell and dictate stories, to act out stories, and to predict what will happen next in a story.																	•
Progresses in learning how to handle and care for books; knowing to view one page at a time in sequence from front to back; and understanding that a book has a title, author and illustrator.																	•
Shows increasing awareness of print in classroom, home and community settings.											•						•
Develops growing understanding of the different functions of forms or print such as signs, letters, newspapers, lists, messages, and menus.											•						•
Demonstrates increasing awareness of concepts of print, such as that reading in English moves from top to bottom and from left to right, that speech can be written down, and that print conveys a message.											•						•
Shows progress in recognizing the association between spoken and written words by following print as it is read aloud.											•						•
Recognizes a word as a unit of print, or awareness that letters are grouped to form words, and that words are separated by spaces.											•						•
Develops understanding that writing is a way of communicating for a variety of purposes.																	

Head Start Domains and Indicators Associated with Core and Center Experiences

Domain & Indicators	Experience																
LITERACY CONTINUED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T-H
Begins to represent stories and experiences through pictures, dictation, and in play.																	
Experiments with a growing variety of writing tools and materials, such as pencils, crayons, and computers.																	
Progresses from using scribbles, shapes, or pictures to represent ideas, to using letter-like symbols, to copying or writing familiar words such as their own name.																	
Shows progress in associating the names of letters with their shapes and sounds.																	
Increases in ability to notice the beginning letters in familiar words.																	
Identifies at least 10 letters of the alphabet, especially those in their own name.																	
Knows the letters of the alphabet are a special category of visual graphics than can be individually named.																	
MATHEMATICS																	
Demonstrates increasing interest and awareness of numbers and counting as a means of solving problems and determining quantity.							•										
Begins to associate number concepts, vocabulary, quantities, and written numerals in meaningful ways.																	
Develops increasing ability to count in sequence to 10 and beyond.																	
Begins to make use of one-to-one correspondence in counting objects and in matching groups of objects.	•	•					•										
Begins to use language to compare numbers of objects with terms such as more, less, greater than, fewer, equal to.																	
Develops increased abilities to combine, separate and name “how many” concrete objects.																	
Begins to recognize, describe, compare, and name common shapes, their parts and attributes.									•				•				

Head Start Domains and Indicators Associated with Core and Center Experiences

Domain & Indicators	Experience																
MATHEMATICS CONTINUED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T-H
Progresses in ability to put together and take apart shapes.																	
Begins to be able to determine whether or not two shapes are the same size and shape.									•				•				
Shows growth in matching, sorting according to 1 or 2 attributes such as color, shape or size.		•							•				•				
Builds an increasing understanding of directionality, order and positions of objects, and words such as up, down, over, under, top, bottom, inside, outside, in front, and behind.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Enhances abilities to recognize, duplicate and extend simple patterns using a variety of materials.													•				
Shows increasing abilities to match, sort, put in a series, and regroup objects according to one or two attributes such as shape or size.		•							•				•				
Begins to make comparisons between several objects based on a single attribute.		•							•				•				
Shows progress in using standard and non-standard measures for length and area of objects.									•			•					
SCIENCE																	
Begins to use senses and a variety of tools and simple measuring devices to gather information, investigate materials, and observe processes and relationships.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops increased ability to observe and discuss common properties, differences and comparisons among objects and materials.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Begins to participate in simple investigations to test observations, discuss and draw conclusions and form generalizations.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Develops growing abilities to collect, describe and record information through a variety of means, including discussion, drawings, maps and charts		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Begins to describe and discuss predictions, explanations, and generalizations based on past experiences.	•		•	•	•	•	•	•	•			•	•	•	•	•	•
Expands knowledge of and abilities to observe, describe and discuss the natural world, materials, living things, and natural processes.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Head Start Domains and Indicators Associated with Core and Center Experiences

Domain & Indicators	Experience																
SCIENCE CONTINUED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T-H
Begins to describe and discuss predictions, explanations, and generalizations based on past experiences.	•		•	•	•	•	•	•	•			•	•	•	•	•	
Expands knowledge of and abilities to observe, describe and discuss the natural world, materials, living things, and natural processes.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Expands knowledge of and respect for their body and the environment.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops growing awareness of ideas and language related to attributes of time and temperature.																	
Shows increased awareness and beginning understanding of changes in materials and cause-effect relationships.							•		•					•		•	
CREATIVE ARTS																	
Participates with increasing interest and enjoyment in a variety of music activities, including listening, singing, finger plays, games, and performances.																	
Experiments with a variety of musical instruments.																	
Gains ability in using different art media and materials in a variety of ways for creative expression and representation.																	
Progresses in abilities to create drawings, paintings, models, and other art creations that are more detailed, creative or realistic.																	
Develops growing abilities to plan, work independently, and demonstrate care and persistence in a variety of art projects.																	
Begins to understand and share opinions about artistic products and experiences.																	
Expresses through movement and dancing what is felt and heard in various musical tempos and styles.																	
Shows growth in moving in time to different patterns of beat and rhythm in music.																	

Head Start Domains and Indicators Associated with Core and Center Experiences

Domain & Indicators	Experience																
CREATIVE ART CONTINUED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T-H
Participates in a variety of dramatic play activities that become more extended and complex.																	
Shows growing creativity and imagination in using materials and in assuming different roles in dramatic play situations.																	
SOCIAL & EMOTIONAL DEVELOPMENT																	
Begins to develop and express awareness of self in terms of specific abilities, characteristics and preferences.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops growing capacity for independence in a range of activities, routines, and tasks.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Demonstrates growing confidence in a range of abilities and expresses pride in accomplishments.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Shows progress in expressing feelings, needs and opinions in difficult situations and conflicts without harming themselves, others, or property.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops growing understanding of how their actions affects others and begins to accept the consequences of their actions.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Demonstrates increasing capacity to follow rules and routines and use materials purposefully, safely, and respectfully.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Increases abilities to sustain interactions with peers by helping, sharing, and discussion.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Shows increasing abilities to use compromise and discussion in working, playing, and resolving conflicts with peers.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops increasing abilities to give and take in interactions; to take turns, and to interact without being overly submissive or directive.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Demonstrates increasing comfort in talking with and accepting guidance and directions from a range of familiar adults.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Shows progress in developing friendships with peers.																	

Head Start Domains and Indicators Associated with Core and Center Experiences

Domain & Indicators	Experience																
SOCIAL & EMOTIONAL CONTINUED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T-H
Progresses in responding sympathetically to peers who are in need, upset, hurt, or angry; and in expressing empathy or caring for others.																	
Develops ability to identify personal characteristics including gender, and family composition.																	
Progress in understanding similarities and respecting differences among people, such as genders, race, special needs, culture, language, and family structures.																	
Develops growing awareness of jobs and what is required to perform them.																	
Begins to express and understand concepts and language of geography in the contexts of their classroom, home, and community.																	
APPROACHES TO LEARNING																	
Chooses to participate in an increasing variety of tasks and activities.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops increased ability to make independent choices.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Approaches tasks and activities with increased flexibility, imagination, and inventiveness.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Grows in eagerness to learn about and discuss a growing range of topics, ideas and tasks.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Grows in abilities to persist in and complete a variety of tasks, activities, projects, and experiences.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Demonstrates increasing ability to set goals and develop and follow through on plans.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Shows growing capacity to maintain concentration, despite distractions and interruptions.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops increasing ability to find more than one solution to a question, task or problem.		•	•				•	•	•		•		•	•	•	•	
Grows in recognizing and solving problems through active exploration, including trial and error, and interactions and discussions with peers and adults.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Head Start Domains and Indicators Associated with Core and Center Experiences

Domain & Indicators	Experience																
APPROACHES TO LEARNING CONTINUED	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T-H
Develops increasing abilities to classify, compare, and contrast objects, events, and experiences.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Develops growing strength, dexterity, and control needed to use tools such as scissors, paper punch, stapler, and hammer.																	
PHYSICAL HEALTH AND DEVELOPMENT																	
Grows in hand-eye coordination in building with blocks, putting together puzzles, reproducing shapes and patterns, stringing beads and using scissors.																	
Progresses in abilities to use writing, drawing and art tools including pencils, markers, chalk, paint brushes, and various types of technology.																	
Shows increasing levels of proficiency, control and balance in walking, climbing, running, jumping, hopping, skipping, marching and galloping.																	
Demonstrates increasing abilities to coordinate movements in throwing, catching, kicking, bouncing balls, and using the slide and swing.																	
Progresses in physical growth, strength, stamina, and flexibility.																	
Participates actively in games, outdoor play and other forms of exercise that enhance physical fitness.																	
Shows growing independence in hygiene, nutrition and personal care when eating, dressing, washing hands, brushing teeth and tolieting.																	
Builds awareness and ability to follow basic health and safety rules such as fire safety, traffic and pedestrian safety, and responding appropriately to potentially harmful objects, substances and activities.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•