Nature Start
Mentor’s Guide Book

Nature Start helps youth experience “the joy, excitement, and mystery” of the natural world

2011 Version

Penn State
College of Agricultural Sciences
Cooperative Extension
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Introduction and Program Information

What’s Nature Start?

Nature Start is a new grassroots initiative for youth, sponsored by Pennsylvania 4-H. It is different from anything 4-H has ever done before. Nature Start involves locally-based groups for youth ages 5-10. These may be family, neighborhood, or community based, or they may be preexisting groups from schools, child care centers, homeschoolers, after-school programs and others. Nature Start groups will be organized and facilitated by adult volunteers (“Nature Start Mentors”). Youth involved in these groups will participate in monthly “gatherings” to increase their awareness and knowledge of the natural world, gain interest in spending time outside, and demonstrate improved mental and physical health as a result of spending more time outdoors exploring nature. Nature Start is for all youth, regardless of where they live — cities, towns, suburbs, and rural areas. There’s a piece of nature in every Pennsylvania community.

The bottom line: Nature Start youth have FUN while connecting with nature.

Why Nature Start?

A wide body of research indicates that America’s youth are increasingly out of touch with the natural world and lack even the most basic level of environmental literacy. Time spent outside playing and learning is being superseded by time spent indoors using electronic technologies such as computers, smart phones, i-pods, and televisions, and the consequences are serious. They include obesity, loss of fitness, poor social connections, ADHD, and a failure to develop instinctual knowledge about the natural world. It is widely agreed that concerted efforts to reach youth and youth-educators with curricula and learning opportunities for connecting with the natural world are essential. Today’s youth are tomorrow’s landowners, voters, policy makers, and inheritors of the natural resources we depend upon and must pass along to future generations. We need programs like Nature Start to get youth outdoors having fun and while learning about the natural world around them!

What is Nature Start’s Vision?

Nature Start helps youth get outside, recreate, explore, experience, and appreciate the natural world, a world they may have never experienced! Youth develop their imaginations, intuition, instinctual understanding, and creativity in and about natural environments. They improve their health (both physical and mental) and interact with other youth while exploring the natural world.
The Nature Start program is guided by research based information on youth development, children, and nature to reach its goals. The program cultivates awareness and appreciation for nature through activities that are safe, experiential, hands-on, fun, and non-competitive.

**How Will Nature Start Work?**

The format of Nature Start is simple and flexible. It is based on the idea of monthly gatherings (about 8-10 gatherings/year) with an adult volunteer (Nature Start Mentor) facilitating an activity/exploratory time. Nature Start does not require paperwork or projects of the youth participants (Nature Starters), and the activities are field tested and easy for Mentors to organize. Nature Start groups are not traditional “4-H Clubs” as they do not carry out 4-H project work or have any completion projects. However, all Nature Start Mentors are required to undergo the standard 4-H volunteer background screening process, keep simple group data on the 4-H Online enrollment system, and follow 4-H volunteer policies and procedures. Nature Start Mentors are fully covered under Pennsylvania’s 4-H program liability insurance. While it is possible that some youth involved in Nature Start may wish to explore additional 4-H opportunities, such as project clubs and summer camp programs, this is not the main objective of Nature Start.

**What Will Nature Start’s Monthly Gatherings Involve?**

At least once each month, outdoor gatherings will be organized by Nature Start Mentors in parks, greenways, state forests, yards, natural lands, and other areas where youth can explore and connect with nature in safe and meaningful ways. Each gathering will last approximately 2 hours, with a third of the time (40 minutes) spent doing a seasonal, nature awareness activity, another third (40 minutes) spent in “unstructured play” and exploration, and the final third (40 minutes) socializing with a snack, group discussion, and planning of future gatherings. For adequate supervision and youth protection, there will always be at least 1 adult present (including the Nature Start Mentor) for each 8-10 youth participants.

This guide book contains numerous examples of seasonal activities. Mentors may know or find other suitable activities they want to facilitate as well. Nature Start Activities seek to introduce youth to the outdoors and what is happening there. The activities are not intended to teach as much as they are to raise awareness and encourage an appreciation for nature. The unstructured play time is intended to give youth a monthly opportunity to explore nature in their own ways, individually or in small groups. This time will be supervised by the mentors but every effort should be made to let youth experience nature for themselves and have fun in the process.
Parents are strongly encouraged to attend Nature Start Gatherings and participate if requested by the mentors. Younger or older siblings are welcome to attend as long as they are under the supervision of their parent/guardian. Transportation to gatherings is not provided by the Nature Start Program (except where a specific grant may be supporting a local program). Transportation is the responsibility of the participants and their families, however, it may be coordinated by mentors and parents with approved 4-H permission slips being used when youth are traveling with adults other than their parent (See Appendix 4).

**Do Mentors Have to Use The Activities in This Guide Book?**

This Nature Start Mentors Guide Book is a place to begin. The activities are grouped by seasons of the year and designed for mentors to try with their youth participants. More activities will be (coming soon) and available on-line at the Nature Start Web Site and Facebook Page: (url to be announced)

Other recommended activities can be found in the *Nature Explore – Families’ Club Kit* materials developed by Dimensions Education Research Foundation, Nebraska Coop. Extension, and the National Arbor Day Foundation. These materials are free and as downloads at: [http://www.arborday.org/explore/families/](http://www.arborday.org/explore/families/). The Children & Nature Network (CNN) also has a great website of activities at their Nature Rocks site: [http://www.naturerocks.org/](http://www.naturerocks.org/). Lastly, Project Learning Tree (PLT) PLT has published a new curriculum guide and music CD to engage children ages three to six in outdoor exploration and play. Eleven field-tested, hands-on activities showcase over 130 "early childhood experiences" which integrate investigations of nature with art, literature, math, music, and movement. Early childhood educators and caregivers can obtain a copy of PLTs *Environmental Experiences for Early Childhood* curriculum by attending a PLT professional development workshop in their area. You can review this material at [http://www.plt.org/cms/pages/21_21_259.html](http://www.plt.org/cms/pages/21_21_259.html)

Further, there are many great outdoor nature activity books available, and a list of some of these can be found in Appendix 3. Nature Start Mentors are free to experiment and try any activities that meet program guidelines of experiential hands-on exploration, simplicity, non-competitiveness, safety, and fun.

**Is There Training Available for Mentors?**

A short training program is available for individuals interested in becoming a Nature Start Mentor. This is available through your local (county) Penn State Cooperative Extension Office or online as a pre-recorded “webinar.” Check with your county 4-H Educator for more details.
Recommended Nature Start Activities

(Organized by Season: Spring-Summer-Fall-Winter)
SPRING ACTIVITIES

Build a Bird Nest

Age Range: Ages 5-10

Season: Spring

Senses: sight, touch

Time Required: 45 minutes – 1 hour

Location: Any neighborhood or community park – This hike works best in an area that has some brush or trees that provide nesting areas for birds.

Supplies: One 8 inch square of cardboard for each person (or for each pair if you want to work as partners), marker, bucket of mud, nest building materials, paper towels and/or hand wipes, binoculars if available

Background:

Birds build nests primarily to lay their eggs and raise their young. Sometimes the male builds the nest to attract the female bird. Sometimes the female bird builds her nest alone. Some birds work as a pair to build their nest.

Nests look different for each kind of bird. Orioles weave very intricate nests high up in the trees. Pigeon nests look like a few sticks placed on a ledge. Robins make nests out of grasses, small sticks, and mud. Woodpeckers dig out nesting holes in tree trunks.

Description of Activity:

Take a walk and look for bird nests or signs of bird nests. Encourage everyone on the hike to point out nests they see. If you have binoculars, try using them to look at a nest that is far away.

What are some things that birds would look for when deciding where to build their nests? (Location with some cover, away from predators, near food and water, supply of nesting materials) You may see some new nests or some nests from last year. Or you may see birds carrying nesting materials. Do not remove a bird’s nest from the wild, it’s against federal law, and it helps protect the birds.
After the hike, try to make a nest like a robin does. Draw a six-inch circle on your square of cardboard. (a small adult hand is about 6 inches wide.) Collect blades of grass and pine needles to cover the circle. Only carry a few pieces of grass at a time, because this is all a robin can carry. Next, carry mud (from a natural source if available or from a bucket of “home-made” mud) to your nest – only one-fourth teaspoon at a time, because, again, that is all a robin can carry in its beak. If a robin can’t find mud, it will scoop up a beak full of soil and dip it into water to make mud. Mix the mud with the grass and other nesting materials, building the sides up slowly. Smooth the inside of the nest with your hand to make a deep cup. A robin does this by sitting in the nest and turning and twisting until the mud is smooth. Finally, line the nest with soft grasses. Now, do you appreciate all the work a robin does to build its nest? A robin builds its nest in a sturdy shrub, a fork in a tree, or on a ledge. Ask the youth, if they were a robin, where would they build a nest and why?

**Extensions:**
Research other kinds of bird nests and try to recreate another bird nest.

Help a bird build a nest by supplying some nesting materials. Some suggestions include: hair from your hair brush, lint from the dryer, soft grasses, pieces of string or yarn, strips of cloth. Remember the bird needs to carry the pieces, so do not make them too long. You can lay the materials on some branches of a bush, or put them in a mesh bag like onions come in and hang the bag on a tree branch. Maybe on a later hike, you will see a nest made with some of your material.

Build and put up a bird-house in an area near you and observe if birds use it.

**Suggested Books/Youth Literature:**


Olien, Rebecca. 1998. *Walk This Way! Classroom Hikes to Learning*. Heinemann

Wildlife Is All Around Us – Spring & Summer Books, PA 4-H Project Books

Written by Susan Taylor
**Signs of Spring Hike**

**Age Range:** Age 5 – 10

**Season:** Spring (can be adapted to any season)

**Senses:** Sight, hearing, touch, smell

**Time Required:** 30 -40 minutes

**Location:** Any neighborhood or community park

**Supplies:** Small pocket magnifiers, or magnifying glasses for taking a closer look. If you want to record what you see on the hike, take a clipboard, paper and pencil

**Description of Activity:**
Take a walk and observe signs of spring. You will see different things depending on where you are. Periodically stop walking and have everyone stand in a circle.

1. Ask if anyone can smell anything that smells like spring (such as mud, compost, flowers). Give each person a chance to share.

2. Have everyone close their eyes and listen for one minute. Ask if they hear a sound of spring. They may hear the wind in the trees, water moving in a stream, bees, flies, frogs, or song birds. Again, give everyone a chance to share.

3. Now ask everyone to turn around so they are facing outside the circle. Have them look and see what signs of spring they observe. They may see bright green grass, moss, wild flowers, buds or new leaves on trees, tree blossoms, bugs or worms, birds, mud or puddles of water. While still in the circle, ask each person to share one thing they see. As time permits, go to each sign of spring and take a closer look.

At the end of the hike, wrap up the activity by naming all the signs of spring you observed. If you recorded your observations, you can share by looking at that list or drawings.

**Extension:**
Make a collection of signs of spring. On the walk, have the children collect fresh grass, common wild flowers, or young tree leaves. At the end of the walk, arrange these on a picnic table or on a sheet of poster-board. Help them classify their findings in several ways – such as by color, shape, and size. They can press the leaves or flowers and start a collection.
For older children, uses field guides to identify the things they observed or collected.

Stop on the hike and have the children pretend to be photographers. In pairs, one child is the photographer and one child is the camera. The child who is the camera places their hands over their eyes. The photographer positions the camera so it is pointed at a sign of spring. When the photographer says “click”, the camera opens their hands like a shutter and takes the picture. Have the child who played the camera describe the picture taken. Was that what the photographer wanted them to see? Have them change roles so everyone gets a chance to be the photographer and the camera.

**Suggested Books/ Youth Literature:**


Olien, Rebecca. 1998. *Walk This Way! Classroom Hikes to Learning*. Heinemann

Written by Susan Taylor
Bark Outloud

Age Range: 5-12

Season: Spring (Can be used in other seasons as well)

Senses: Touch and Sight

Time required: 30 minutes

Location: Any small area with trees with a variety of bark types

Supplies: A bag with small items of different textures from inside and outside your home, a tree identification key or book

Description of the activity:
This is a simple “hands on” activity that lets kids truly get a feel for nature. Begin the activity by having the youth touch their own skin. Have them explain how it feels to them. Is it smooth, is it rough, is it bumpy, etc. Ask them what their skin does for them. Some answers you may hear could include: it protects what is inside me, or it keeps me together, etc. After this brief discussion introduce the idea that a tree’s bark does many of the same things for trees. Now ask the kids if all tree barks feel the same. This will lead into the second part of the activity.

In a well defined area: a part of a park, or a part of a small wooded location, is where the activity will take place. Try to identify the types of trees in the area. (Be sure to inspect the trees for poison ivy plants/vines. You may want to tell the kids not to pick any trees that have vines growing on them when they do the activity.) You will need a bag of small objects that have different textures, smooth, rough, flakey, bumpy, etc. Be creative and use pieces of cloth, items from outside or inside your home etc. Do not use pieces of bark because part of this activity is for youth to relate different items to bark simply on the basis of how it feels.

Divide the youth into small groups of 2-3. If possible, each group should have individuals that are close in age. Have one person from each group reach into the bag and pick an item. Have the small groups explore the area and find a tree that they think feels most like the item they selected. Once all the small groups have found a tree, have them leave their item by that tree and gather them back into a large group. As one large group, go around to each tree that was selected and have the youth who picked that tree explain (“bark outloud”) to the group how they decided on that particular tree. Depending on the age of your youth you can spend some time talking about that species of trees, what it used for, etc. Once all the trees that the small groups had selected have been identified you can repeat the activity by having the kids change partners and select new items from the bag.
**Extension:**
After the activity, a game or playtime using some of the trees the youth selected is an option. They can play tag using “the big oak tree as the base” or run relays around the “2 birch trees”, etc. Encourage them to have fun and spend more time with the trees they “barked” about.

Written by: Joseph Fuller
Living the Water Cycle

Age Range: 5-10
Season: Spring/Summer
Senses: Hearing, touch
Time required: 30 minutes
Location: Any neighborhood or community park, open space, or green space where slight relief in the landscape exists. An ideal outdoor setting for this activity would be in a grassy area in which there is a depression, slope, or hill.
Supplies: None necessary

Description of Activity:
While youth can easily visualize the precipitation part of the water cycle, understanding the connection between evaporation, condensation, and returning to precipitation is more difficult to grasp. This activity empowers each participant to imagine themselves as a single rain droplet, to experience the “flow” of that droplet upon hitting the ground and to feel where that droplet may be “pulled” to by gravitational flow. The story-telling aspect then invites the participant to role-play evaporation, returning to the atmosphere, and then cycling back to the ground as a renewed raindrop. The story to be read by the mentor is in the italic text below. The terms of the water cycle are included beneath each story segment only for adaptation of the activity for older youth. However, the objective of the activity is not to learn the terms, rather to experience the landscape as a rain droplet might.

The story of “living the water cycle”.

1. The sky has darkened with rain clouds, and it appears that at any second, millions of tiny rain droplets may begin to fall.
   - Have children spread out within vicinity of the storyteller and to ‘pretend’ they are just one of the millions of rain drops getting ready to reach the earth’s surface.
     i. Older youth may already know the term “condensation” in which water vapor in the air gets cold, changes back into liquid, forming the clouds and rain droplets.

2. Suddenly, the rain begins. Some rain droplets hit the ground softly, and others drop on it with a “SPLOSH”
• When the youth hear the word “SPLOSH”, invite them to fall to the ground where their rain drop splashes.
  i. Older youth may know the term “precipitation” when so much water has condensed that the air can no longer hold it. The clouds get heavy and water falls back to the earth.

3. Many of the rain drops that fall on grass are pulled INTO the soil beneath the grass and plants, and the roots of the plants drink the water up. But sometimes during a VERY hard rain, the rain drops begin to roll across the ground, feeling themselves being pulled down to the lowest place, down, down, down until they roll to a stop all-together in a puddle.

• This is the point to invite youth to lay still and then feel which way their bodies are pulled downhill, down slope and to simply allow gravity to roll them in the direction that their bodies would naturally flow. Some youth will find themselves gathered together at a low point. Use this gathering to invite them to explain how they ended up at the same location. This will enable the other youth who were “renegade” raindrops flowing away from natural gravity to understand how the puddle phenomena is a part of the rain fall.
  i. Older youth: “Collection is where the rain water collects after it falls to the earth including the ocean, lake, rivers, streams, and puddles.

4. The sun breaks through from behind the cloud, and warms the ground and the rain droplets. As the rain droplets warm in the sun, they can feel themselves becoming lighter, and lighter, as if they are being sucked up by the warmth of the sun. The rain droplets are suddenly light as air, and reach to the sky, finding themselves floating higher, and higher, no longer are they little rain drops, but they are invisible water droplets.

• As the mentor facilitates this exercise, demonstrate how one might “wake up to the warmth of the sun”, initially stretching from the ground, and then reaching to the sky. As the mentor explains how a rain droplet might warm up to the sun and being pulled back to the sky, reach up to the sky, going to tip toes. Encourage youth to “release” their rain drop to the sky when they are as high as they can get with their arms and tip toes.
  i. Older youth: Evaporation is when the sun heats up water in rivers, lakes, oceans and puddles and turns it into a vapor or stream that can return to the air.

5. Oh how nice to enjoy the sun. But wait, a rain cloud is forming. Look up and see how all of the water droplets that were released are now coming together, darkening the sky, and it looks like it’s about to rain again. Ready? Find your starting place, and let’s tell the story again.

• By repeating the story a second or third time, it allows the participants to experiment on where their rain droplet will fall, and how it will be pulled by gravity to other locations.

Extensions:
Often, this activity brings questions out about what happens to the rain that soaks into the soil. Here is an opportunity to explain that the pull into the soil is very similar to the pull that they feel when their rain droplet rolls down a slope. Discuss how rain droplets in the soil are pulled towards a stream, creek, pond, or other water body.
Invite the participants to imagine if the raincloud were over the sea? The North Pole? A city with many roofs and paved streets? Include other landscapes that may be within the participants’ neighborhoods.

Resources:
Kimball Media. *The Many Adventures of Drippy the Raindrop*,
www.kimballmedia.com/Drippy/About.htm

http://ga.water.usgs.gov/edu/watercycleplacemat.html

Written by: Kristen Saacke Blunk
SUMMER ACTIVITIES

*Follow the "Leafer"

**Age Range:** Ages 5-10

**Season:** Summer (or Early Fall)

**Senses:** Sight and touch

**Time Required:** 30 minutes or less

**Location:** Any neighborhood or community park/green space; this activity requires a diversity of tree species prior to the meeting

**Supplies:** None necessary. Suggested: field guide; dry erase board for adaptation; paper and crayons for adaptation

**Description of Activity:**
Introduce tree identification by selecting the leaves from as many tree species (no more than 10) as there are participants in your group (or pair-up the youth to make the experience less intimidating and to reduce the number of species). Begin by gathering the group in a circle to learn the trees you have selected (mentor shows and tells). Explain that you are going to play a new version of "Follow the Leader," called "Follow the Leafer." Tell the group that they will be following the leader “leafer,” single file as the leafer leads the group on a walk to learn the trees names. During the walk the leafer calls out a tree and the participant (or partners) look at their leaf and see if it is in their possession. If they think so, they jog to the front of the line to show the leafer. If correct, they become the leafer and the old leafer takes a new (any) spot in the line. If incorrect, they jog to the back of the line and become the caboose (a very important job!). Further, explain that when the leafer calls out "deciduous" the participant (or partners) trade leaves with the individual (or partners) behind them and the caboose jogs to the front of the line to swap their leaf, and then return to the caboose spot in line. If the leafer calls out the word “coniferous” the participants trade with the person in front of them. The person at the front of the line will jog back to trade with the caboose, and then return to be the leafer again.

Line the youth up behind you to start the walk on a preselected path or sidewalk. As necessary, demonstrate the game by completing a non-moving practice run with you as the starting leafer. Allow a certain measure of distance or time to pass (such as every 20 feet or 2 minutes) and call out a tree. Repeat the process and continue. As necessary, the leafer can turn the group around, especially where space is limited.
As time allows, you may introduce the ideas of native and non-native species. For younger participants, you might focus on familiar native species and let them offer suggestions on how we can learn more about native species and protect them (such as plant a native tree, find out what wildlife species eat native tree masts, visit a Maple Syrup Farm...). Encourage older youth to think about how native species loss affects people and wildlife (take all answers).

Extensions and Adaptations:

- For Nature Starters with physical limitations:
  - visually impaired - limit the number of leaves and focus on touch, play the game in a circle, if a youth thinks they have the tree called out and they are correct, award them with a tactile or scented sticker; say the person’s name; ensure everyone gets a sticker over the course of the activity.
  - hearing impaired or wheel chair bound - play the game in a circle formation, provide a dry erase board and write the name in large letters and display to the group, award the youth by, with your assistance, allowing them to write the next species on the board and hold it up for the group to see
  - learning disabled - limit the number of leaves and do not include "deciduous" movement

- For younger participants, choose to name the tree by group (genus) only, such as maple, oak...
- Close by providing paper and crayons for making leaf rubbings, label with tree names.

Definitions for Mentors:
Coniferous – cone bearing trees with needles or scale leaves, almost all evergreens

Deciduous – trees and plants that lose their leaves after one growing season

Genus - taxonomic group (or rank) above the level of species

Native - species that occur naturally in an area, and have been there for a long time (contrast with “non-natives” that are species introduced from other places)

Species- base (lowest) rank of biological classification

Suggested Web Sites and Books for Youth and Leaders:


**Predator Pounce**

**Age Range:** Ages 5-10

**Season:** Summer (adaptable to other seasons)

**Senses:** Sight, hearing, (smell, possible with adaptation)

**Skills:** wildlife tracking and observation, habitats

**Time required:** 30 minutes

**Location:** Any neighborhood or community park/green space with an open/field area.

**Supplies:** None necessary. Suggested: blindfolds for the prey; scented oils; cotton balls

**Extension:** tree seed, growing medium and cup

**Description of Activity:**
Introduce predator, prey, herbivore, carnivore and omnivore. Explain that where herbivores go, carnivores follow, as well as omnivores! Provide examples of Pennsylvania wildlife species that fit each description.

Choose an open area in your neighborhood, park or other location. Demonstrate stalking and sneaking up on “prey” by learning to walk softly. The predator must always keep their eyes focused on the prey (never looking down or distracted by something else: the prey might escape!) and gently step forward by placing your right foot on the ground, outer edge of your foot first, while keeping your weight on your left foot and leg. Roll your right foot from outer to inner point and transfer your weight from left foot to right foot. Before you transfer your weight, you want to make certain you are not stepping on a branch, crunchy snow or other item that will startle the prey you are stalking.

Allow the group to practice this technique and then take turns sneaking up on each other: partners stand about 15 feet apart; prey (the one being snuck up on) have their back turned toward the predator (the one doing the sneaking up). The prey need to practice good listening skills. You may also want to have the prey blindfolded.

Encourage them to think about, and answer these questions: What adaptations does a good (successful) predator (hunter) have? What adaptations must a prey species have to detect a predator and escape? Discuss some of the advantages of omnivores.

**Adaptations and Extensions:**
• To increase the sensory experience, have the predators carry scented oil saturated cotton balls (peppermint or garlic may be the strongest) and sneak in from varied directions upon their blindfolded prey while gently wafting the cotton balls in the air (to disseminate the smell). Have the prey determine the direction of the attacking predator by smell. You can also have several predators moving in at one time but only one with a scent. Discuss animals that have a strong or poor sense of smell.

• Try the activity in different settings during the same gathering (wooded areas, snow-covered area in winter, on concrete, grass etc.) and compare ease or difficulty of moving silently through the setting. Discuss how the changing landscape (more houses, mowed lawns, fewer hiding spaces etc.) affects predator and prey.

• Change the meeting time for your group to include twilight observation times in areas where wildlife might forage. Practice patient and silent observation from behind a tree or other blind to observe wildlife.

• Observe and explore predator and prey relationships among insects, observe and discuss possible food chains and webs.

Suggested Books/Youth Literature:


Note – some books may contain animals other than those found in PA; with each field excursion, you may build upon knowledge about PA’s native wildlife

By: Lorraine Jacobs (adapted from Tom Brown Wildlife Tracking and Observation)
Bug Detectives

**Age Range:** Ages 5-10

**Season:** Summer

**Senses:** Sight and touch

**Time Required:** 30-45 minutes

**Location:**
Activity requires an area where participants can walk through a yard, garden, field or forest searching for, observing, and/or collecting various kinds of insects and their relatives. Be sure to do this activity on a day when it is relatively warm out. Insects are cold blooded so they are much more active during warm weather.

**Supplies:** Insect net or a finely meshed minnow net, clear plastic container with a lid, magnifying glass

**Background:**
Insects are the most abundant group of animals. There are many more kinds of insects on earth than any other kind of living creature. Over one million species have been discovered by scientists and they think there may be ten times that many yet to be discovered! Millions of insects can exist on a single acre of land. They are found everywhere from the desert to Antarctica!

Insects are different from other animals in several ways:

- They have 3 body parts: head, thorax, and abdomen
- They have a hard outer covering called an exoskeleton
- They have 6 jointed legs and 2 antennae

If all of these parts are not found then the animal is not an insect. Spiders are not insects because they have 8 legs and have only two body parts.

**Description of Activity:**
In this activity, participants will be bug detectives looking for insects and their relatives (spiders, centipedes, millipedes, and sowbugs). Have them look for insects hiding in places such as on plants and trees, under rocks, in piles of leaves, and under the bark on rotting logs. Be sure rocks, leaves, and bark is placed back where they were found. Participants will want to collect the insects (or insect relative) in a clear plastic container. It can be observed for a few minutes using a magnifying glass before being released, where it was found, unharmed.

Ask the participants if finding insects and their relatives was easy or hard and why? What was the most common insect you found? Where did you look for insects? Did you find any clues of insect activity? If so, what? Are you sure what you found was an insect? How can you tell? Try to figure out what your insect might eat, plants or plant parts or possibly even other insects. How does your insect move? Does it fly, crawl, or hop? Did anyone find insect larvae such as caterpillars or grubs? This may be a great time to explain metamorphosis or how an insect changes from a larva to an adult. A butterfly is a good insect to use as an example.
Extensions:
Insects make their home in many different places called habitats. For the extension have participants explore two different habitats: ex. field and forest. Have them collect insects from each habitat type. Were insects more common in one habitat type than the other? Did they find the same kinds of insects? What kind of insects were the most common in each habitat type? For example, grasshoppers and crickets would be very common in a field of grass, moths and beetles would be more common in the forest.

Suggested Books/Youth Literature:


Written by David Jackson
Stream Critter Discovery

Age Range: Ages 5-10

Season: Summer

Senses: Sight and touch

Time Required: 30-45 minutes

Location:
Activity requires access (public or with landowners permission) to a small stream preferably located in a forested area. For safety reasons, do not explore large streams or rivers and explore only when water levels are low.

Supplies: Water shoes, boots, or waders; large shallow pan or tray (white preferred), magnifying glass

Background:
Forested watersheds are an important source of clean water. It is not always possible to assess the quality of a stream by its appearance. Some streams that look clean may not be clean. One indicator of stream water quality is the diversity and abundance aquatic macroinvertebrates found there. Macroinvertebrates are organisms that lack an internal skeleton and are large enough to see with the unaided eye. They include insects, clams, worms, crayfish, and snails that live in the stream. There is a greater variety and abundance of macro-invertebrates in clean water than dirty water.

Description of Activity:
Once you have located an appropriate stream and obtained access, explain to the participants that they will be looking for and collecting organisms that live in the stream: aquatic macroinvertebrates. At this stage, identification of the organisms is not important. The simple discovery that there is life in the stream is what is important. You may want to take a moment to briefly define the term macroinvertebrate; animals without a backbone that can be seen with the unaided eye. There are three common methods for collecting. They include rock picking, stick picking, and leaf pack sorting. The method you choose will depend on the bottom characteristics of your stream. Steams with rocky bottoms work well with this activity.

First, fill the shallow pan with stream water. Next, collect submerged rocks, sticks, or handfuls of leaves from flowing sections of the stream. Holding the items over the shallow pan, carefully inspect for signs of life and movement. Dislodge any particles stuck to their surface, scrape off clumps, and transfer any living organisms to the pan. Keep the pan water free of soil particles so that it is easier to view the
organisms collected. All the organisms will be returned to the stream so handle them gently and keep them in water. It is also important to stress that all rocks need to be placed back on the stream bottom from where they were removed.

**Extension/Add-Ons:**
Gather field identification guides and identify the organisms collected. Your participants are not expected to become experts. Many aquatic insects spend part of their life cycle in the water as larvae and nymphs. They emerge as adults, a process known as metamorphosis, to complete their life cycle on land. Examples include mayflies, stoneflies, caddisflies, dragonflies, and dobsonflies. Record the different kinds of organisms found. Ask the participants their opinion of the streams water quality based on what they found.

**Suggested Books/Youth Literature:**

Drohan, Joy R., William E. Sharpe, and Sanford S. Smith. 2004. 4-H Water Project Unit 3: *Water Quality Matters!* Penn State College of Agricultural Sciences, Cooperative Extension

Written By: David Jackson (adapted from multiple sources)
FALL ACTIVITIES

Wildlife Food Search

Age Range: Ages 5-10

Season: Fall

Senses: Sight, touch, and smell

Time Required: 25-30 minutes

Location:
Activity requires an area where participants can walk through the forest collecting various kinds of wildlife food including nuts, berries, seeds and other tree fruit as well as twigs, leaves, grass and other types of vegetation.

Supplies: 1 gallon zip-lock bags, postage or kitchen food scale (optional)

Background:
Food is an essential component of all wildlife habitat. Different species of wildlife require different kinds of food. Wildlife need to find enough food from natural sources to survive. Without food being available, wildlife will be less likely to be found in an area. Habitat can be improved by planting various kinds of flowers, shrubs, and trees that provide food.

Description of Activity:
Once at your location, explain to the participants that they will be doing an activity that mimics the feeding activity of many kinds of wildlife. Tell the participants that they will be moving through the forest gathering different kinds of food (twigs, leaves, acorns, berries, grasses, forbs, etc.). You may want to take a moment to show the participants what they are to look for and how they are to collect it.

With participants working individually or in small groups, hand each a one gallon plastic zip lock bag. This will represent an animal’s stomach. Designate the area in which the students have to search for food. Allow approximately 15 minutes for the students to collect their wildlife food. If necessary, more time may be permitted. Explain that food pieces should be no longer than 3 inches, just what an animal may eat while feeding in an area.

After the activity, allow the participants to “show and tell” what they have found. Was finding wildlife food harder or easier than expected? Why? Was one type of food more plentiful than another, ex. acorns? Which foods were difficult to find? Which foods were easy to find? Were there any foods you could not find at all? Were there many different kinds of food available? Based on the food collected
would you expect to find wildlife using the area? If so, what species? When finished, scatter the wildlife food back on the ground in the area collected.

Adaptations:
An adaptation of this activity focuses on deer feeding behavior. Deer are predominantly browsers feeding on leaves, buds, and twigs that grow in the forest understory, rather than grazing on grass in a field like a horse or cow. However, they will also feed on acorns and other tree fruit such as crabapples, some grasses, and forbs. Tell the participants they will be moving through the forest gathering different foods deer eat. Review how deer feed by biting (browsing) bits of twigs and leaves off small trees and shrubs. Have them place the food pieces in their bags for “show and tell” later.

Extension:
Using the food collected in the “Wildlife Food Search” activity, identify the general category of each food item such as twigs, leaves, grasses, forbs, nuts, berries, seeds, fruit, etc. Discuss what species of wildlife would likely feed on each kind of food item.

Suggested Books/Youth Literature:

- Pennsylvania Game Commission. *Wildlife Note 28: White-tailed Deer*


- San Julian, G. J., Smith S.S. Penn State College of Agricultural Sciences; *From the Woods: White-tailed Deer* [http://pubs.cas.psu.edu/freepubs/pdfs/uh148.pdf](http://pubs.cas.psu.edu/freepubs/pdfs/uh148.pdf)

Written By: David Jackson
Rainbow Scavenger Hunt

Age Range: 5 to 10 years of age

Season: Fall

Senses: Sight, touch

Time required: 30 to 50 minutes (depending on length of walk)

Location: Any outdoor location with a variety of plants.

Supplies: None

Description of Activity:
Have the participants talk about the different colors of the rainbow (red, orange, yellow, green, blue and purple). Once they have named them all, tell them they are going to look for and collect all the colors of the rainbow in nature. Encourage them to find items that are already removed from the plants if possible. Give them 20-30 minutes working individually, or in pairs, to do this. When they finish, have them show the group what they found. What is it? Where did you find it? Is it always that color? If not, why does it change? Have the youth sort their objects and see how many different things they found for each color. Have the children count the number of unique items they gathered. Talk to them about why there might be so many colors. For example, fruits might be brightly colored to attract animals. These animals will eat the fruits and spread the seeds (inside the fruits) in their droppings.

In the fall, most of the color that they find will be from fallen leaves. Be prepared to explain to them why leaves change colors. Did you know that the bright colors of fall leaves are always in the leaf? They are only exposed when the leaf stops making food and starts to die. This causes the green to fade and the other colors to show through!


Suggested books/ Youth literature:


Hall, Zoe. 2000. Fall Leaves Fall. Scholastic Books

Activity Developed By: Natalie Aiello
**Seedy Soiled Socks**

**Age Range:** Ages 5 - 10

**Season:** Fall

**Senses:** Sight, touch, smell

**Time required:** 30 to 50 minutes (depending on length of walk)

**Supplies:** Old socks, dirt, water rubber bands, tray to hold water, decorating materials

**Location:** This activity will work best in an area where there are tall weeds that are going to seed. Look for an over-grown field, hedgerow, and edge of a wetland or woods.

**Description of Activity:**

Explain to the youth that they are going on a nature walk. Have them each put an old sock on their hand (either hand is fine) before the walk and tell them to feel free to touch all of the plants they see. Encourage them to run their hands through high weeds and along grassy areas or flowers that look “fuzzy”. After ten minutes, ask them if they see anything on their socks. If so, what is it? The more that they can touch the better! Why do plant seeds stick to things? What things in nature would the seeds stick to? How is a sock like the hair or fur on an animal?

Once the walk is over, have the participants slowly take off their hand socks without turning them inside out, and carefully fill their them with soil. Next, close off the open end of each sock with a rubber band. Place each sock on a dry tray or in a shallow pan. Separate trays are nice so the kids can take their socks home and watch them! Talk to the students about what plants need to grow (water, sun, oxygen). Make sure that they understand that their socks will need these and the soil is important too! Make sure they understand that while the socks should be kept moist; too much (or standing water) is not good. Tell them that their socks may grow many things because of the many seeds that they collected.

**Extensions:**

- Have the youth use markers and other materials to make a sock puppet first. This adds a creative twist, and also shows an interesting change in their puppet after the seeds begin to germinate!
- Teach the youth to look for and recognize differences between seeds from different plants, and have them think about how these differences are useful to the plant. Have them find the seeds or seed holding structures on the plants, and touch those areas directly with the socks.

**Suggested books/ Youth literature:**


Written by Natalie Aiello (adapted from I Love Dirt by Jennifer Ward)
**Still as a Stump**

**Age Range:** 5-10

**Season:** Fall (can be used in other seasons as well)

**Senses:** Sight, hearing, smell may also be employed

**Time required:** 20-30 minutes

**Location:** Any natural outdoor area, as “undisturbed” as possible

**Supplies:** None required, however seat pads, sample carpet squares, or plastic bags might be helpful for sitting on the ground

**Description of the activity:**
This is a “hands off” activity that lets youth connect with nature by observing the movements of plants and animals and the sounds of nature around them. The skills that youth will gain as a result include observation, interpretation, and patience. Start by explaining to the youth participants that they are about to have an incredible experience they will never forget, but it all depends upon them. They must be willing to sit quietly, without making any noise and without moving (“still as a stump”) for 20-30 minutes. (You will need to judge for yourself if the youth you are working with can sit for 30 minutes, some find this very difficult, others do not.) Explain to them that at first it will seem hard, but it will become easier as they get comfortable in their locations. Also explain to them that their mission is to observe the sights, sounds, and smells of nature happening around them on this day, and that the longer they sit still quietly the greater likelihood they will observe something very interesting, such as wildlife.

Next, lead the group to the designated area, and assign spots to each youth. Locations that are relatively flat and provide a tree to lean against work best. A seat pad, sample carpet square, or plastic bag is sometimes helpful. Position the youth far enough apart so that they cannot easily see or hear each other, but they are still within calling distance of you. Have them facing away from the rest of the group if possible. Settle yourself in the middle of the group and sit quietly without moving as well. If necessary, you may need to visit a youth who has a concern or is making noise. After the designated time is up, gather the group around you in the same area where you did the activity and “debrief” with a few questions. Here are some suggestions, with helps in parentheses:

*What did you see while sitting very still?* (Go around the circle and have each child say one thing, they can repeat what someone else says if they cannot think of anything different)
What did you hear? (Go around the circle again, but this time in the opposite direction as you did with the last question and have each child say one thing)

Did you see any plants moving? (This may be due to the breeze or an animal using it)

What did you notice that you’ve never have before? (Answers may include objects, sounds, smells, or feelings, etc.)

Why do you think you saw more this time? (Sitting still and quiet, most animals are looking for movement in their surroundings)

What could you do to see and observe more nature than you did today? (Camouflage and ground blinds could be used to hide the youth better, they could sit more quietly, move less, they might use binoculars to see farther. They could also eliminate or cover their scent with a commercial or natural product, etc.)

At the conclusion of the Still as a Stump activity, encourage the participants to try this technique again sometime (with their parent) in another natural area. Help them to understand that they will usually see more in nature when they are quiet, still, and observant.

Extensions:
- Do this same activity but have children wear camouflage cloths or blankets. Discuss the advantages of “breaking up your shape” with camouflage.
- Ask the youth to try this activity again before the next Nature Start gathering and report back to the group on what they observed.

Written by: Sanford Smith
WINTER ACTIVITIES

Walk a Mile on My Paws

Age Range: Ages 5-10

Season: Winter (adaptable to other seasons where sand, mud or similar medium is available)

Senses: Sight, (touch, possible)

Time required: 30 minutes

Location: Any neighborhood or community park/green space with snow; waterways and wetland areas are ideal for looking at tracks.

Supplies: None necessary. Suggested: track identification guide. For (non-snow) Extension: strips of cardboard, Plaster of Paris, mixing containers, craft sticks and water

Description of Activity:
When there is snow on the ground, wildlife tracking is a great pastime for children of all ages. Introduce (or revisit) what a habitat is and what an animal needs to survive. As a group, look at your surroundings and, if tracks are not readily apparent, take a closer look at areas that are likely places for wildlife. Discuss local wildlife while leading a search for wildlife tracks. Try to identify the tracks you find. The sense of touch can be incorporated by encouraging youth to touch the footprints, feel the shapes of the paw or hoof prints, make comparisons about animal sizes and weights and advantages/disadvantages (adaptations) of animal feet during winter.

Discuss habitat types, such as open, transition/edge, farm, urban and forest areas. What species of animal tracks are likely to be found in each place? When are animals most likely to be in open areas and why? Discuss (or revisit) hibernation and migration. What animal tracks are less likely to be seen in winter? Ask where were the animals going and what were they looking for?

Adaptations:

- In urban and suburban areas, cat and dog tracks are likely to be common. Use this experience to discuss differences between feline and canine footprints, such as retraction of claws on cats when walking.
Extensions:

- Learn other wildlife signs, such as scats, trails, runs, sleeping areas and feeding areas and search for them
- Make track casts using flexible but sturdy strips of cardboard as “dams” that wrap around an existing animal track. Mix Plaster of Paris and pour into the track to make a track cast. Note: This does not work well in snow.
- Some of the best trackers are trappers and hunters. If you know someone that who fits this description, they can add a lot to your group discussions.

Suggested Books and Web Sites/Youth and Leaders:


Written By: Lorraine Jacobs
It’s Cold and I’m Hungry!

**Age Range:** Ages 5-10

**Season:** Winter (can be adapted to any season)

**Senses:** Sight, touch, hearing, (smell, possible)

**Time Required:** 45 minutes

**Location:** Any natural area such as: state forest, park, or private forestland

**Supplies:** None necessary; Suggested:

- Wildlife Notes from Pa Game Commission. These notes provide a comprehensive look at many mammals and birds found in Pennsylvania. They also include preferred food for each species. They are available on-line at [http://www.portal.state.pa.us/portal/server.pt?open=514&objID=596812&mode=2](http://www.portal.state.pa.us/portal/server.pt?open=514&objID=596812&mode=2)
- A field guide to Pennsylvania plants and trees
- A field guide about animal tracks if snow cover is available

**Description of Activity:**

Introduce what animals are common to the forested or park area you plan to walk through and what they feed on during the winter. Explain that food is at its lowest level during the winter season and animals must search harder to find it. Some suggested species that are common to many forested areas include squirrels, chipmunks, turkeys, deer, various songbirds, foxes, rabbits, and small rodents. Perhaps the area may also include opossums, raccoons, or porcupines as well. Choose species that are found in the area and discuss these during the walk.

After discussing the food preferences of the local species, take a short walk through the natural area. Have the youth look for food that all of these species might eat to survive. If there is snow on the ground they may need to dig under the snow like an animal to find food. Each time a new food is found, discuss what kinds of animals may eat it. For example if an acorn is found, point out that squirrels, chipmunks, and deer (and more) eat acorns. Many times nuts and seeds may not have any food inside of them due to insect larvae feeding or other pests. Examine the nuts to see if they are hollow or rotten inside. If so, they are not viable as a food source, and the children should keep looking for other sources of food.

While walking through the forest also look for signs of feeding by wildlife. Examples include deer browsing, turkey scratching, rabbits and mice chewing on bark, etc. If there is snow on the ground,
follow some wildlife tracks for a distance and look for evidence of an animal feeding or searching for food.

**Adaptations:**
- If there are enough youth involved, assign an animal species to each child or create groups and have them look for food specific to the animal assigned to them. Discuss what is found with the entire group.
- Revisit the same area in September when plants are still green and nuts have begun to drop and compare the amount of food available at this time to what was found during the winter.

**Extensions:**
- Plant trees and shrubs that provide food for wildlife in the spring. Be sure to get permission from the park managers or landowner before planting.
- Discuss food preferences for wildlife that are not found in your area.

**Suggested Books/Youth Literature:**


Written By: Scott Weikert
I Spy with My Wild Eye

Age Range: Ages 5-10

Season: Winter (can be adapted to any season)

Senses: Sight, hearing, touch (smell, possible)

Time Required: 30 minutes

Location: Any neighborhood or community park/green space

Supplies: None necessary. Suggested: field guides to PA plant, trees and animal species may be helpful. A simple picture chart of common backyard birds may also help the younger participants with the extension activity. Bird-feeder supplies if completing the Extension.

Description of Activity:
Introduce that an animal’s habitat is “home,” and many species of wildlife in PA do not hibernate or migrate. Explain hibernation, migration and food caches. Provide examples of PA wildlife species that survive in each way. For example, frogs hibernate in ponds bottoms, robins migrate south to keep eating worms, and squirrels make food cashes of nuts in the ground. Encourage discussion about winter and wildlife adaptations to survive the cold, such as hollow hairs on deer and thick undercoats for warmth in beavers. Ask them to think about winter adaptations they would like to have. (take several answers)

Choose a short walking course through a neighborhood, park or other location. Lead the group by playing an “I spy habitat” game by looking for living space, food, water and shelter components for various animals. To answer “I spy...” statements, a youth may await a turn, make deer antlers on their heads or blurt out the answer—your choice. Example One: “I spy with my squirrel eye, something that I like to eat.” If no one spies it, you may provide another clue such as it is low or high; on the ground or attached to a tree. Example Two: “I spy with my bug’s eye a place where a wooly bear caterpillar sleeps in winter.” Example Three: “I spy with my hawk’s eye the best place to perch while looking for prey.” Example Four: “I hear with my bird’s ear, a bird perched in a tree.” You may enliven the journey and “warm-up” the group on this winter’s journey by including periodic role play or other actions, such as using the arms to see “how fast you can flap your wings;” curl and uncurl like a wooly bear; run a short distance like a squirrel.

Adaptations and Extensions:
• To increase the sensory experience, you may also encourage youth to touch safe wildlife food items, such as seeds, fruits, nuts, cones and solid foods, as well as bark textures where birds seek insects. For older youth, you may include some information about insect life cycles and their survival when talking about them as a food source.
• You may introduce winter plant and tree identification skills, such as looking at fruits, barks, tree shapes and leaf litter—especially ages 8+.
• Revisit the walking route through the seasons and look for changes in wildlife routines and species; replay the game looking for nests, tree cavities (holes), or wildlife signs.
• Make bird feeders (indoor access preferred for this activity on a cold day) using lard, seeds, pinecones or bagels, and twine (for hangers).

Suggested Books/Youth Literature:


(Note – some books may contain animals other than those found in PA; with each field excursion, you may build upon knowledge about PA’s native wildlife)

Written By: Lorraine Jacobs (adapted from multiple sources)
Tracker May I?

Age Range: Ages 5-10

Season: Winter (can be adapted to any season)

Senses: Sight

Skills: Animal Tracking; listening to instructions; Repetition of gait names and gait demonstrations may benefit the child as he or she takes this knowledge and explores animal tracks and trails

Time Required: 30 minutes

Location: Any neighborhood or community park/green space with an open area or playing field

Supplies: None necessary. Suggested: A wildlife track chart or field guide will assist with identification. Field markers for the adaptation.

Description of Activity:
Introduce animal tracking and the four typical wildlife gait patterns. Explain that wildlife tracking may include looking at and identifying tracks as well as knowing how an animal typically moves from place to place.

Teach the four common gait patterns by using arms and hands for wildlife forelimbs and legs and feet for hind limbs. After demonstrating and having the youth repeat your actions, line them up side by side about 30 feet away from you. Begin by calling someone’s name and your command: “Raven, you may take two pacer gaits.” They must respond with “tracker may I?”—you give permission and they proceed; if they forget to ask, they lose their turn and must return to “home base”. Repeat until someone tags you and then becomes the leader. You may associate the gaits with specific animals (in the case of older youth) when you make the commands, and the youth must remember the most likely gait of that animal. For younger participants, demonstrate the gait with the command.
Questions in Motion (include movement at different paces to keep warm): Discuss and ask questions about animal movement. Do they always use the same pace? Why or why not? Think about other Pennsylvania animal life and ask the participants to describe or guess ways that they move.

Wrap up Questions (or Questions for the Warming Hut and Over Hot Chocolate): Revisit the idea of habitat and the connection to movement. Can they think of times when animals do not need to move to survive? (hibernation) Humans rely heavily on the wheel for movement. Is the wheel the best invention ever? Why? Why not? (for older youth, encourage thinking about how our wheels affect wildlife movement from place to place) If you could “reinvent the wheel,” or make roads safer for wildlife, what would you do?

Adaptations and Extensions:

- Adapt the lesson to other than open areas to demonstrate that animals often have obstacles to face, such as trees, rocks, buildings, waterways and other structures. For instance, lead the lesson in a forested area. You may also use field markers to simulate obstacles and food source areas that animals must go to, if you give the command.
- For older youth, teach the gaits and species of animals that most typically use them.
- Include track identification and tracking with this lesson. Find and identify tracks in your community. (see also “Walk a Mile on My Paws)
- Include variations in gaits during the game; include variations in speed, such as routine browsing and foraging movement vs. being chased by a predator.
- Continue to build on knowledge about wildlife that are specific to your area and address questions about wildlife that are not native to PA

Suggested Web Sites and Books for Youth and Leaders:


(Note – some books may contain animals other than those found in PA; with each field excursion, you may build upon knowledge about PA’s native wildlife)

Written by: Lorraine Jacobs (adapted from multiple sources)
APPENDICIES (IDEAS)

Appendix 1: Developmental Characteristics of Youth Ages Five to Ten.

Appendix 2: Experiential Learning Model

Appendix 3: Tips for Working With Kids in the Outdoors

Appendix 4: Books with Additional Outdoor Activities

Appendix 5: Protecting Youth and Volunteers, Transportation/Field Trips
Emergency Medical Treatment

Appendix 6: Sample Press Release for Announcing Your Nature Start Group

Appendix 7: Annual Planning Sheet

Appendix 8: Nature Start Group/Participant Registration Sheet
Appendix 1.

Developmental Characteristics of Youth Ages Five to Ten.
Charts Adapted from the Essential Elements of 4-H Youth Development Programs curriculum, National 4-H Council, 2009.

Grades K-3 (ages 5-8)

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>IMPLICATIONS FOR PROGRAMMING</th>
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<tbody>
<tr>
<td>Physical</td>
<td></td>
</tr>
<tr>
<td>Growing slowly, just learning to master physical skills. Can control large muscles better than small muscles</td>
<td>Projects and meal times are messy. Activities that encourage use of large muscles, such as running, playing games, etc. are good</td>
</tr>
<tr>
<td>Social</td>
<td></td>
</tr>
<tr>
<td>Learning how to be friends; may have many friends. Fighting occurs but doesn’t last long. Towards the end of the phase, boys and girls separate.</td>
<td>Small group activities let this group practice their social skills, but still allow for individual attention. Role-playing helps children gain empathy. Encourage children to participate in mixed-gender activities.</td>
</tr>
<tr>
<td>Emotional</td>
<td></td>
</tr>
<tr>
<td>Are self centered. Seek approval from adults, and go out of their way to avoid punishment. Are sensitive to criticism; don’t like to fail</td>
<td>Be positive! Plan activities where everyone can experience some success. Foster cooperation, not competition.</td>
</tr>
<tr>
<td>Intellectual</td>
<td></td>
</tr>
<tr>
<td>Are concrete thinkers – base thinking in reality. Can’t multi-task well. Are more interested in doing things than getting a good result at the end.</td>
<td>Plan lots of activities that take a short time to finish. Focus on the process rather than the final product. Allow for exploration and inquiry.</td>
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### Grades 4-6 (Ages 9-11)

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>IMPLICATIONS FOR PROGRAMMING</th>
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<tbody>
<tr>
<td><strong>Physical</strong></td>
<td>Provide for lots of physical involvement. Use hands-on activities that allow youth to make and do things.</td>
</tr>
<tr>
<td>Growth continues at a steady rate. Small muscles have developed so they can do activities such as hammering, sawing, playing musical instruments, etc. By the end of this periods, they may be as coordinated as an adult, although lapses of awkwardness are common.</td>
<td></td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>Provide activities through clubs and group activities. Use activities that allow the youth to make decisions about what they make, do and use. Group youth in same sex groups when possible.</td>
</tr>
<tr>
<td>Peer influence grows. To be accepted by peer group is reward. Peer group can become a club, gang or secret society. Prejudice can develop during this period. Independence from adults is increasing. Discusses and evaluates others, develops a concept of “fair” or “unfair” as relates to others.</td>
<td></td>
</tr>
<tr>
<td><strong>Emotional</strong></td>
<td>Don’t compare youth to one another. Emphasize progress and achievement.</td>
</tr>
<tr>
<td>Growing independence. Beginning of disobedience, back-talk and rebelliousness. Common fears are the unknown, failure, death, family problems and non-acceptance. Concept of right and wrong continues to develop Sense of humor develops. Concept of self is enhanced by feelings of competence. Strong attachment to their own sex and show antagonism towards opposite sex.</td>
<td></td>
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<tr>
<td><strong>Intellectual</strong></td>
<td>Use simple, short instructions. Include real-life objects when teaching and involve their senses when possible.</td>
</tr>
<tr>
<td>Reading becomes an individual experience. Abstract thought is possible and plans can extend over several weeks. Activities can be evaluated with insight. Attention span increases. Ability to understand “Why?”</td>
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Appendix 2.

Experiential Learning Model

As adapted from the National 4-H Cooperative Curriculum system: http://www.4-hcurriculum.org/projects/visualarts/teaching/ExperientialLearningModel.htm

Experiential Learning – DO, REFLECT, APPLY

Experiential learning takes place when a youth is involved in an activity, looks back at it critically, determines what was useful or important to remember, and uses this information to perform another activity now or in the future. 4-H activities use this hands-on learning approach to teach both new topics and life skills. A five-step experiential learning model guides the process turning activities into fun learning experiences. Nature Start combines two of the five steps into a three-step model of Do, Reflect, and Apply.
Providing an activity experience alone does not create “experiential learning.” The activity comes first. The learning comes from the thoughts and ideas created as a result of the experience. This is a “learn by doing” or experiential process. Each step in the process needs to be followed to create a total learning experience.

Experience – Do

This is the activity which is focused on engaging the youth with nature. The Nature Start Mentor facilitates the exploration, guiding the youth through the activity steps. It is important the mentor is prepared to start the activity. Reading and understanding the background information and activity guidelines, and choosing a suitable location in advance, helps in the preparation for this stage.

Share and Process – Reflect

Using the reflection questions the youth describe what happened during or after each activity. This allows them to process their Nature Start experiences and to analyze and reflect upon what happened during the activity. It provides them an opportunity to make connections between natural processes and natural (living and non-living) things. It also helps all the youth appreciate and benefit from what others have observed or experienced.

Generalize and Apply

The Imagine questions allow the youth to generalize and apply the basic lessons learned in each activity. Having youth generalize from their experiences allows them to form principles or guidelines that can be used in real life situations. This is the beginning of relating the experience to life skills. Application of the experience focuses the youth on their accomplishments and how they can take the skills and techniques learned and apply them to a different situation.

Suggested Experiential Processing Questions
Used With Nature Start Activities

SHARING WHAT YOU DID

- What did you like about this activity?
- What happened during this activity?
- What did you observe?
- What was the easiest to do?
- What surprised you about ____________________________?
- How did you use your various senses to ____________________________?
- What new words did you learn?
PROCESSING WHAT’S IMPORTANT

- What would you do if _________________ were to happen?
- What was the most challenging or difficult part of the activity?
- What did you learn from this activity that you didn’t know before?
- Why is learning with others sometimes more fun than learning alone?
- What made this a good activity?

GENERALIZING (SO WHAT?)

- How will learning _________________ help you?
- Why is knowing _________________ important?
- When else have you had found and learned new things at the same time?
- What are some ways you like to learn?
- What did you learn by observation?
- What did you learn?

APPLYING WHAT WAS LEARNED

- What did you learn today that you will be able to use again someday?
- Describe a time when you might need the skills/knowledge you learned today.
- In what other ways could you apply the knowledge or information you gained in this activity?
Appendix 3.

Tips for Working with Children in the Outdoors

Safety for People
Before going outdoors with a group of children, you should know if anyone has allergies, especially to bee stings. It is a good idea to take a simple first aid kit with you and have a cell phone available. Always go over the rules before you start out. If there are dangers in the area, such as poison ivy, point them out so kids stay away.

Before the event, consider the environment and decide the best clothes to wear. Sturdy closed toe shoe and socks are recommended. On rainy days, umbrellas can get in the way, but you can have a great rainy day gathering if everyone has a raincoat or poncho. On sunny days, hats and shirts with sleeves will protect the skin. You should apply sun screen before starting out on a sunny day. If you are gathering in an area that could harbor ticks, wear long pants and socks and instruct the children to pull their socks over their pant legs. Use insect repellent that is recommended for children. Do a tick check – look at exposed areas of the skin when returning from being outdoors.

Safety for the Environment
There are some simple rules for protecting the environment:

Stay on trails
Do not pick plants
Do not disturb animals or their homes
Leave the trail the way you found it

Please be ethical in your treatment of the plants and animals you investigate. If you remove a bug or critter for a closer look, put it back in the place you find it. Any rocks or logs that you turned over should be returned to their original position. If you stay on trails, you will not step on or disturb tender plants.

Setting the Tone
As the Mentor, you set the tone of the gathering and activity. If you have a positive attitude and show a respect for nature and the environment, the children will follow your actions. Each time you go out, you are starting off together on an adventure. Share the sense of wonder and discovery with your group. Give each participant a chance to share and take the time to look and listen.
Group Management
Start each activity or hike with an introduction. This could be reading a short passage on the topic or talking about what you might see on the hike. This is the time to go over the rules and expectations.

Work with the children to develop some rules. The rules could vary, depending on the area and the activity. They could be:

- Stay with the mentor
- Protect the environment
- Listen when others are sharing

For learning and safety reasons, don’t let the group spread out too much. A good rule is to have the mentor act as the leader and everyone stays with or behind the leader, and another adult should stay at the end or behind the group. When walking, make frequent stops to explore things along the trail. This will also serve to help get the group back together.

Keep children involved to avoid discipline problems. Keep the group moving along between stops. When you do stop for further exploration, allow plenty of time for hands-on exploration and sharing.

Be flexible. Sometimes something unexpected comes when outside. You might see a family of newly hatched ducklings headed for the lake when you started out looking for bird nests. You could learn a lot about birds by watching the ducks. Use this teachable moment to your advantage; it might be the most memorable part of the outing.

At the end of the activity or a walk, wrap things up to review the learning. Some questions you might ask are: What did we see today? Did we see anything similar on other hikes? How did you feel when you were doing the activity? What was the hardest part? If you are keeping a nature notebook or scrap book, this is the time to add to that. Suggest some books to read and some activities that the children can do at home with their families. If you are planning another gathering, go over the details of the next event.

Planning your hikes or outings
Work with your group of children and their families to plan the gatherings, so you plan activities that are enjoyable to anyone. There are many community parks and state parks that have trails and natural areas. Ask the members and adults in your group to suggest some places they have been. Keep in mind
the ages and skill levels of the children in the group. If any of the children in your group are physically handicapped, you need to plan the activity in an area and trail that is accessible for them. Many public parks have trails that are handicapped accessible.

**What materials will you need?**
The Nature Start activities have been planned so you will not need to carry a lot of supplies. A small backpack or day pack is a good way to carry your supplies. Some things you might want to keep in your pack include:

- First aid kit
- A small notebook or note cards and pencils
- Bug boxes or plastic containers to use to take a closer look at bugs or worms
- Zip lock bags
- Small magnifiers or hand lenses
- A measuring tape
- Simple field guides
- A pair of rubber or gardening gloves
- Popsicle sticks for digging
- Hand wipes
- Grocery bags or small garbage bags to use to sit on the wet ground

You will need to add the permission slips with emergency information before you start each hike. If you want to carry water bottles or if you want each child to carry his own water bottle, that's your call.

If there are other supplies needed for an activity, the children can take turns carrying the equipment. You can carry supplies in small back packs, cloth tote bags, or buckets. You may chose to have a backpack for each person and take some time to put the bags together. That way each person can carry their own water, plastic bag to sit on, and nature notebook if you are using them.
APPENDIX 4.

Books with Additional Outdoor Activities


Piper, P. & Tag, S. eds. 2003 *Father Nature: Fathers as Guides in the Natural World*. University of Iowa Press,


Stiles D. & Stiles J. 2006 *Treehouses and Playhouses You Can Build*. Gibbs Smith


APPENDIX 5.

Protecting Youth and Volunteers

Transportation/Field Trips

Emergency Medical Treatment

Volunteers should obtain written permission from parents before transporting 4-H members or other youth in personal or commercial vehicles to any activity or event, including club field trips and activities and county, regional, or state activities. Written parental permission is not required for routine car-pooling of youth to and from regular group meetings and activities. Although permission slips are not required for insurance purposes, it is strongly recommended that volunteers use them so that all parents and leaders will know who is transporting youth to an event or activity.

There is no automobile liability coverage for the volunteer.

Private passenger vehicles used to transport youth must be properly registered and insured, and they must be driven by individuals with a valid license for the type of vehicle used. Vehicles must be used for their intended purpose, and a seat belt must be provided for each passenger.

The county extension office may want advance notice of any group field trip. Please provide the office with the following information: date and time of trip, destination, mode of transportation, and contact person.

The person in charge of the field trip should take the following with him/her to use in the event of an emergency:

- a signed Emergency Medical Treatment Release Form for every participant
- a signed Parental Permission Form for every participant
- insurance claim information

A sample Emergency Medical Treatment Release Form and a sample Parental Permission Form are below.

Medical Information forms should not be released to the general public. The form is completed and submitted for use if an emergency arises while the youth or adult is participating in a planned program. The form should be assessable to Extension Educators and volunteer leader(s) coordinating the program. It should be copied as needed.
NATURE START FIELD TRIP

PARENTAL PERMISSION FORM

The _____________________________ 4-H Nature Start group is planning a field trip. Please review the following trip details and complete, sign, and return the bottom portion of this form to the club leaders no later than ______________________ (due date).

Field trip to______________________________________________________________

Date of trip_____________ Time and place of departure___________________________

Mode of transportation_____________________________________________________

Leader in charge_____________________________ Phone_______________________

Cost of trip ____________________ Members should bring_______________________

________________________________________________________________________

( detach and return to group Mentor or Leader)

___________________________________ has my permission to participate in the 4-H

(name of child)

field trip to___________________________________________ on _________________

During the activity I may be reached at:

Address_________________________________________________________________

Phone_____________________________

If I cannot be reached in the event of an emergency, the following person is authorized to act in my behalf:

Name____________________________________ Phone_____________________

Relationship to participant________________________________________________

Physician's name____________________________ Phone_____________________

Other comments__________________________________________________________

Signature of parent/legal guardian__________________________________________
MEDICAL INFORMATION

Name: ___________________________________________ Date of Birth: ____________________________

Last    First    Middle

Home Address: ________________________________ Home Phone: (_____ )______________________

IN CASE OF EMERGENCY CONTACT:

Name: ___________________________________________ Home Phone:(_____ )______________________

Last    First    Middle

Address: ________________________________ Office Phone: (_____ )______________________

Other: (_____ )_________________________

Name: ___________________________________________ Home Phone:(_____ )______________________

Last    First    Middle

Address: ________________________________ Office Phone: (_____ )______________________

Other: (_____ )_________________________

HEALTH INFORMATION: (Please state the facts in connection with the following)

Describe any condition requiring medication as a treatment: ________________________________________

List any allergies and your child’s reaction (Ex: penicillin/rash; peanuts/swelling-requires epi-pen)

To medications: ____________________________________________

To foods: _____________________________________________
To environment (i.e. stings, dust, pollen, grass, animals): ____________________________

Any surgery in the past year? ________ If yes, please state nature: ____________________________

Name of Family Physician: ____________________________ Phone: (_____)______________________

Indicate health history information below. A check means yes. Please explain any checks in the space provided.

☐ Respiratory problems-Asthma, Tuberculosis, persistent cough, etc.
☐ Heart problems-high or low blood pressure, Rheumatic Fever, etc.
☐ Stomach or intestinal problems-ulcers, jaundice, hernia, colitis, indigestion, etc.
☐ Eye, Ear, Nose, Throat-Hay fever, ear infections, impaired sight or hearing
☐ Nervous disorders-convulsions, epilepsy, dizziness, etc.
☐ Skin diseases
☐ Emotional or mental disorders
☐ Recent exposure to a contagious disease
☐ Currently under a doctor’s care
☐ Physical limitations
☐ Kidney, gall bladder or liver disease
☐ Diabetes or hypoglycemia
☐ Muscular/Skeletal-arthritis, recent fractures
☐ Approximate date of last physical:
☐ Please explain any checks: ____________________________________________________________

IMMUNIZATION INFORMATION:

Diphtheria: ________ Pertussis: ________ Poliomyelitis: ________ MMR: ________

Other(s): Date (required) of last Tetanus injection: ____________________________

RECOMMENDATIONS AND RESTRICTIONS

Any treatment to be continued __________________________________________________________

________________________________________________________

Any medically prescribed meal plan or dietary restrictions ______________________________________

________________________________________________________
Is there any other information that staff need to know about your child? ____________________________________________

_____________________________________________________________________________________________________

List any special accommodations that are needed in order to participate in the program: ________________

_____________________________________________________________________________________________________

PARENTAL AUTHORIZATION FOR EMERGENCY MEDICAL CARE ONLY

MUST BE SIGNED BY PARENT/GUARDIAN

If medical information changes I agree to notify the Extension Office. I hereby authorize you, in the event of an emergency, that is, when you are unable to reach me for authorization or when circumstances require immediate action, to proceed according to good medical practice with treatment of my daughter/son. Also, I authorize the hospital attending physician, or other health care specialist administering the treatment to release pertinent information to the insurance company assuming coverage for the same. I understand that follow-up care is my responsibility, and I may be required to pick up my child from the emergency room.

____________________________________  ______________________________________  _____________
Parent's/Guardian's Signature        Print Name        Date

Insurance Company Name: ________________________________Policy Number: _______________

Insurance Company Address ________________________________________________________________

Insurance Company Phone Number: __________________________Subscriber Name: ______________________

Penn State encourages persons with disabilities to participate in its programs and activities. If you anticipate needing any type of accommodation or have questions about the physical access provided, please contact _________ in advance of your participation or visit.

Note: Some hospitals may require that this form be notarized in order for them to accept the parent’s or guardian’s signature. Please check with the hospital in your area or where your event will be held.
Appendix 6.: Sample Press Release for Announcing a Nature Start Group

(This format is suggested, however you may modify this as appropriate. Fill in all information where there is *underlined italic.*)

Contact Name: *(your name)*  
Phone Number: *(your phone number)*  
E-Mail Address: *(your email address)*  
Date: *(date you want this information to be released to the public)*

“Nature Start” Group Forming for Area Youth

Nature Start is forming a group in *(your location or region’s name)* for Children, Ages 5-10 Years Old. The group will be lead by Nature Start Mentor, *(your name)* of *(your home location, PA)*. Nature Start involves locally-based groups for youth ages 5-10. Youth involved in Nature Start will participate in monthly “gatherings“ to increase their awareness and knowledge of the natural world, gain interest in spending time outside, and demonstrate improved mental and physical health as a result of spending more time in direct contact with nature. Nature Start is for all youth, regardless of where they live — towns, cities, suburbs, and rural areas. Nature Start youth have FUN while connecting with nature. To learn more about Nature Start contact *(your county name)* County Cooperative Extension Office at *(county cooperative extension office phone number)* or *(your name)* at *(your phone number).*
Appendix 7.: Annual Planning Sheet

<table>
<thead>
<tr>
<th>Month</th>
<th>Nature Start Activity</th>
<th>Location</th>
<th>Mentor</th>
<th>Snack Person/Family</th>
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Appendix 8.: Nature Start Group/Participant Registration Sheet

Nature Start Group Name___________________________  Date_________

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<tr>
<th>Name</th>
<th>Email Address</th>
<th>Phone Number(s)</th>
<th>Parent/Guardian Name(s)</th>
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