Beech Maple Forest Exploration Program Information Sheet

Theme: Beech Maple Forest Exploration
Recommended Grade Levels: 3rd - 6th
Seasons Offered: Fall & Spring
Program Length: 1.5 hours (Can be adapted upon request)
Maximum # of Students: 60

Program Synopsis: This hands-on program will have students exploring the main components of one of Michigan’s Beech Maple forest. They will learn how to identify American Beech and Maple trees by observing key characteristics of each tree, will discover the various animals that live in a Beech Maple forest by looking for animal signs, and will investigate the decomposers living underneath a rotting log. Students will also have the opportunity to create a forest web in order to see how all of the plants and animals in a forest are interconnected. (Upon request, this program can be adapted to teacher’s specifications with enough lead time).

Key Concepts: Beech Maple forest, basic tree identification, survival needs of a tree (water, sunlight, air, nutrients/good soil), survival needs of animals (food, water, air, shelter, space), nocturnal, animal signs, decomposition, forest web, community, ecosystem, conservation, awareness and appreciation of nature

Teaching Objectives: Students will …
- Learn basic tree identification skills and how to identify American Beech and Maple trees.
- Identify the four resources that trees need to survive.
- Discuss the importance of trees for us, animals, and our environment.
- Identify the five resources animals need to survive.
- Discover different types of signs which indicate the presence of animals in the preserve.
- Observe decomposers under a rotting log.
- Learn about the importance of decomposers in a forest.
- Demonstrate a forest web and how everything is interconnected in an ecosystem.
- Observe Michigan animals in natural and captive habitats.

Tips for a successful field trip

Preparing for an Outdoor Program: Students, teachers and chaperones need to dress for the weather. During inclement weather, outdoor activities may be shortened and conducted inside the nature center: but, unless the weather is severe, we will still go outside. Please have students wear lots of layers, hats, gloves, boots and coats in cold weather and rain gear when needed. Clothes and apparel may get dirty or wet during outdoor programs- please advise your students’ parents of this. During certain times of the year, insect repellent may be needed.

Before arriving, please remind your students and chaperones of the following:
- Walk quietly. Quiet hikers see more wildlife.
- Staying on the trails protects you, as well as the plants and animals that live in the preserve.
- Stay behind the leader and listen carefully to instructions.
- To care for our plants and animals, we need to be kind and not hurt them.
MI GLCE Standards:

1st Grade
- S.IP.01.11: Make purposeful observation of the natural world using appropriate senses.
- S.IP.01.12: Generate questions based on observations.
- S.IP.01.13: Plan and conduct simple investigations.
- S.IP.01.14: Manipulate simple tools (hand lenses) that aid observation and data collection.
- S.IA.01.12: Share ideas about science through purposeful conversation.
- S.IA.01.13: Communicate and present findings of observations.
- L.OL.01.13: Identify the needs of animals.

2nd Grade
- S.IP.02.11: Make purposeful observation of the natural world using appropriate senses.
- S.IP.02.12: Generate questions based on observations.
- S.IP.02.13: Plan and conduct simple investigations.
- S.IP.02.14: Manipulate simple tools (hand lenses) that aid observation and data collection.
- S.IA.02.12: Share ideas about science through purposeful conversation.
- S.IA.02.13: Communicate and present findings of observations.
- L.OL.02.14: Identify the needs of plants.
- L.HE.02.13: Identify characteristics of plants (branching patterns, leaf shapes, seeds, veins) that are passed on from parents to young.

3rd Grade
- S.IP.03.11: Make purposeful observation of the natural world using appropriate senses.
- S.IP.03.12: Generate questions based on observations.
- S.IP.03.13: Plan and conduct simple investigations.
- S.IP.03.14: Manipulate simple tools (hand lenses) that aid observation and data collection.
- S.IA.03.13: Communicate and present findings of observations.
- L.OL.03.41: Classify plants on the basis of observable physical characteristics (leaves, branching patterns, seeds).
- L.EV.03.12: Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (sharp teeth, claws, color, body coverings).

Program Activities:

Animal Survival Needs & Signs: (S.IP.01/2/3.11, S.IP.01/2/3.12, S.IA.01/2/3.12, S.IA.01/2/3.13, L.OL.01.13, L.OL.03.32, L.EV.03.12)
Students will use their senses and observation skills to look for animal signs such as tracks, nests, sounds, holes etc. of all kinds as they walk through the preserve. They will also discuss the five things animals need to live and see if they can find evidence of those things throughout the hike. If animals are spotted, students will observe their behavior and adaptations and have a discussion about their observations so they can get to know the animal’s life history and classification. Depending on the season and time of day, birds, squirrels and chipmunks, frogs, worms, and slugs are usually observed.
Rotting Log Investigation (Decomposition): (S.IP.01/2/3.11, S.IP.01/2/3.12, S.IP.01/2/3.13, S.IP.01/2/3.14, S.IA.01/2/3.12, S.IA.01/2/3.13)
Students will discover what decomposers are and the important role they play in the forest ecosystem by observing a variety of decomposers at work on and under rotting logs.

Wildlife Sanctuary: (L.OL.01.13, S.IA.01/2/3.12)
Students will continue their discussion about what animals need to survive by learning more about the wildlife sanctuary section of the Ecosystem Preserve. This section of the preserve provides larger species of animals with two important survival needs, space and shelter. Students will also learn more about the animals that call the wildlife sanctuary home by discussing some of the scientific research projects that take place.

Tree Investigation: (S.IP.01/2/3.11, S.IP.01/2/3.12, S.IP.01/2/3.13, S.IA.01/2/3.12, S.IA.01/2/3.13, L.OL.02.14, L.HE.02.13, L.OL.03.41)
Students will become junior botanists and discover some of the basic characteristics of trees that help scientists to identify them such as branching patterns, bark, leaf shapes, size, habitat and seeds. They will use these skills to identify the American Beech tree and Maple trees. A discussion about the importance of trees, animals and humans to the forest will follow.

Forest Web of Life: (S.IA.01/2/3.12, L.OL.01.13, L.OL.02.14)
In order to see how everything in the forest is connected, students will create a forest web together using the various plants, animals (or signs of a specific animal), and survival resources that they saw while walking through the forest. They will discover that all of the plants and animals in the forest are interconnected and have an important role to play in the Beech Maple forest ecosystem.

Ideas for Pre & Post Classroom Activities:

Activities:

Every Tree for Itself: Play a game that will teach kids how trees survive. Explain to them that they are now going to become a tree and try to get everything they need to produce their own food in order to grow tall and strong. Have them plant themselves firmly in a spot and remind them that trees can only move their branches (arms). As they do this, spread out color-coded requirement cards (colored poker chips also work) and explain that each color square represents a requirement that trees need to survive (nutrients – brown, water – blue, sunlight – yellow). Tell them that when the round starts they are to gather with their branches as many of the requirement cards as they can. Let them gather for 30 seconds. Then discuss what happened. Feel free to play more rounds by adding twists to the game such as drought (not enough water), move the trees closer together (to simulate overcrowding), storms (too much water, not enough sun), nutrient deficient soil (few nutrient cards), etc. (Adapted from Every Tree for Itself Lesson Plan from Project Learning Tree by the American Forest Foundation)

Meet a Tree: In pairs, have one student wear a blind fold. Their partner must lead them to a tree (within the perimeter you’ve set). The blind folded students must use their senses—other than sight—to explore their tree. They can hug it, sniff it, rub their cheeks on it, listen for what might be living on it, and even lick it. After they have explored the tree, their partner should lead them back to the starting point and then, with blindfolds removed, the students must try to locate the tree they explored. Switch places and have the leader wear the blindfold. This a great
introduction activity to teach students about the different characteristics of trees by using a variety of senses other than sight. It is also a wonderful activity to teach the importance of teamwork and trust.

Art:

**Animal Track Maps:** In conjunction with a forest animal storybook, have the students think back to the forest stories you read together as a class. Now that they have learned about animal signs, they can create maps of the animal signs that the characters in the books would leave behind (i.e. tracks, scat, shelters, browse, fur, feathers, etc.). Have the students create a visual representation of the stories and make an animal signs map.

**Create Your Own Forest Animal:**
Using recycled materials (egg cartons and various other containers) and craft supplies, have students create their own forest critter. As they create it, have them think about its name, adaptations, habitat, diet, etc. They can write a report about it and/or share their critters and their unique critter characteristics with the class. This is a favorite art activity of both our campers and camp leaders at the Ecosystem Preserve and works well in a learning cycle lesson plan as the application section.

**Forest Animal Sculptures:** Invite the students to create clay sculptures of forest animals that they observed in the Ecosystem Preserve or studied in class.

**Leaf Critter Creation:** In the fall, collect leaves of various shapes and colors from the ground. Have students create their own leaf critters by gluing the various leaves to their paper. At the preserve, we like to read the book **Leaf Man** by Lois Ehlert before doing this art activity.

**Leaf Rubbings:** Collect leaves of various shapes and sizes from the ground. Have students place a leaf underneath a piece of paper and use the flat side of a crayon to color over the leaf. The leaf’s shape and venation should appear on the paper as the student continues to color over the leaf.

**Tree Portraits:** Collect leaves, twigs, and seeds from the ground. Have students create tree portraits by gluing these items onto a paper as the main parts of a tree such as roots, trunk, branches, leaves, and seeds.

**Exploration & Experiments:**

**Decomposition Experiments:** Fill gallon Ziploc bags with moist soil. Give each student (or group of students) a piece of a material that we commonly throw away (i.e. disposable diaper, paper, plastic shopping bag, glass, wood, etc.) and have the students measure their item and record the data. Additionally, have them make a prediction about whether or not they think it will decompose and why. Place the object in a Ziploc bag and leave the bags in a room temperature storage space (such as a cupboard or closet). Over a period of time (several weeks or even months) come back to the bags and measure the materials, to check their decomposition. Have a discussion about the data collected. Were their predications right?

**Plant Life Cycle Experiment:** In a one gallon Ziploc bag, place several sheets of wet paper towel. Place 2-4 bean seeds in the middle of the paper towel and staple underneath each seed
in order to prevent it from falling to the bottom. Nearly seal up the bag, but leave a small corner open for some air flow. Through this process, students can watch the process of germination.

**Sharing/Discussion:**

**Nature Station:** Set aside an area in your classroom for students to bring in nature items to display. Have the students share where they found the item, why they think it is special, how it feels, smells, looks, etc. A nature station also creates a unique resource for other sensory activities where students can blindfold each other and try to identify the object by using their other senses such as touch, smell, and hearing.

**The Lorax:** Read the story of *The Lorax* by Dr. Seuss in class and have a class discussion with the students about the message of the book. Some questions to guide the discussion include:

- How does the story relate to us and what we are studying in class?
- Does it remind you of anything happening around us?
- What can we do to help save our forests, the animals, and the natural community?
- What are some things that we can do every day to help protect the earth?

**Writing:**

**Animal Reports:** Have students write their own forest animal reports by conducting simple research and learning about their animal’s diet, habitat, and unique adaptations. Students could also draw a picture of their forest animal or create a clay sculpture and share their animal report with the class.

**Animal Stories:** For younger children that cannot do simple research yet, have them write a story about a forest animal. It could be a real or a make-believe story, but encourage the students to write about their animal in a natural (not fantasy) setting. Students can then share their stories with the class.

**Tree Reports:** Have each student pick a Michigan tree that they are going to research. They can practice using resources such as field guides, libraries, the internet and experts to write a presentation for the class. You could have the class take notes on each presentation, or have each student make a fact sheet for their tree so that you can create a class field guide from each student’s research information.

**Great Resources for the Classroom**

**Our Favorite Forest & Forest Critter Storybooks Include:**

- *A Log’s Life* by Wendy Pfeffer
- *Around the Forest: Who’s Been Here?* by Lindsay Barrett George
- *Diary of a Worm* by Doreen Cronin and Harry Bliss
- *Forest Explorer: A Life-size Field Guide* by Nic Bishop
- *In a Nutshell* by Joseph Anthony
- *Leaf Man* by Lois Ehlert
- *Lost in the Woods* by Carl Sams and Jean Stoick
- *Sky Tree* by Thomas Locker
- *Some Snug Slug* by Pamela Duncan Edwards
- *Red Leaf, Yellow Leaf* by Lois Ehlert
- *The Busy Tree* by Jennifer Ward
- *The Gift of the Tree* by Alvin Tresselt
- *The Giving Tree* by Shel Silverstein
- *The Lorax* by Dr. Seuss
- *The Salamander Room* by Steve Johnson
- *The Tin Forest* by Helen Ward
- *Under One Rock – Bugs, Slugs, and Other Ughs* by Anthony D. Fredericks
- *Where Would I Be in an Evergreen Tree?* by Jennifer Blomgren
- *Who Will Plant a Tree?* by Jerry Pollatta

**Internet Resources:**

**Beach Maple Forest Unit Plan**- This unit plan was created for teachers in the Great Lakes region to use in their classrooms to learn more about Beach Maple Forests. Includes five lesson plans correlated to Michigan's GLCE standards for 1st to 3rd grades and accompanying background information and handouts. Lesson plans include: Forest Overview, Michigan Trees, Decomposers, Terrarium Observations, and Forest Web. Created by April VanderMolen, Senior Elementary Education student at Calvin College and CCEP student staff member under the direction of Jeanette Henderson, CCEP Program Manager, January 2012.

[www.calvin.edu/academic/eco-preserve/programs/school.html](http://www.calvin.edu/academic/eco-preserve/programs/school.html)

**Focus on Michigan Forest: Michigan PLT Lesson Plans**- This free guide is intended to be used as a supplement to the Project Learning Tree (PLT) Pre K-8 Environmental Education Activity Guide. It has been structured for educators who wish to teach about Michigan’s amazing forests. Each section provides correlations to the Michigan frameworks, additional resources and contact information for public and private organizations that manage and/or protect natural resources in the state.


**Mesic Southern Forest (Beech Maple Forest) Community Abstract**- This is a great scientific description of a Beach Maple Forest community on the Michigan Natural Features Inventory’s website.

[http://mnfi.anr.msu.edu/abstracts/ecology/Mesic_southern_forest.pdf](http://mnfi.anr.msu.edu/abstracts/ecology/Mesic_southern_forest.pdf)

**Michigan Animal Factsheets**- The Michigan Department of Natural Resources’ website contains a variety of factsheets about Michigan animals.

[www.michigan.gov/dnr/0,4570,7-153-10370_12145---,00.html](http://www.michigan.gov/dnr/0,4570,7-153-10370_12145---,00.html)

**Michigan Forest Forever Teacher’s Guide** – This is a resource on the web about Michigan’s forests. It is comprehensive source of information about Michigan's forests and Michigan forestry. Designed especially for the needs of Michigan educators and students and benchmarked to the Michigan Education Middle School Standards. It contains a lot of wonderful resources and a tree identification primer.

[http://mff.dsisd.net/TreeBasics/TreeBasics.htm](http://mff.dsisd.net/TreeBasics/TreeBasics.htm)
Lesson Plans:

- Creepy Crawlies and the Scientific Method: More Than 100 Hands-on Science Experiments for Children by Sally Kneidel. Published by Fulcrum Publishing.
- Project Learning Tree: Environmental Education Activity Guide for Pre-K-8th Published by American Forest Foundation

For questions and/or additional information about this program please contact:

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