USING DR. HOWARD GARDNER’S THEORY OF MULTIPLE INTELLIGENCES TO
CONNECT 4TH-8TH GRADE STUDENTS TO NATURE

by

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PROJECT SUMMARY

Climate change, wildlife exploitation, urban sprawl, natural resources conservation, waste disposal—these are just a few of the environmentally-related issues that are some of the most current hot-button topics, both in our country and internationally. Generations will continue to deal with these situations in the future, many on an even greater and more urgent scale than any previous generation before them. Therefore, it is important to connect individuals, especially youth, with nature and the outdoors so that we can have an environmentally-conscious society that better understands and connects with these issues and is therefore more prepared to deal with them.

This capstone project focuses on creating a diverse curriculum that will engage students in grades 4-8 with nature and the environment through activities that utilize multiple intelligences (Gardner, 1983). Multiple intelligences have been implemented in a number of formal classroom settings for decades, but research on how they have been used in the environmental and outdoor education fields is limited.

The curriculum is designed for an instructor-guided nature hike for students in grades 4-8. The hike is planned for three hours in length (but adaptable to longer or shorter time frames) and takes place at a residential environmental learning center in Minnesota. The primary audience are students in grades 4-8 (estimated ages of 9-14 years old) from a variety of backgrounds, communities, and school types in the upper Midwest (MN/WI/IA/IL). While the curriculum will primarily be used at a non-formal environmental education center, it can be modified to apply to a variety of environments.
and time constraints. It will primarily be used in a non-formal environmental education center, but is adaptable to a variety of environments and time constraints, and includes activities designed so that even educators with a limited science background and experience will be able to use them effectively.

The curriculum is based on the eight multiple intelligences defined by Gardner, and discussed in depth in chapter two. There are a number of activities available for instructors to use with students, with each of the activities placing emphasis on a different intelligence (some activities may utilize more than one intelligence) and are designed for the suggested learning styles of this age group. The curriculum activities meet a number of current Minnesota state academic standards in art, language arts, physical education, science, and social studies, as defined by the Minnesota Department of Education.

The goals of this project are to create an experience that engages each student with nature on an individual level, based on their preferred intelligence style. Because people often demonstrate affinities for more than one type of intelligence, the variety of activities provides the best chances of finding at least one experience that connects with each person on a personal level.
Description of Class Materials

**Lesson Plan (p. 5-19)**

The class curriculum that will be used in the Root River Hike class.

**Student Journal (p. 20-27)**

Each student receives their own journal to personalize and keep after leaving Eagle Bluff. The journal includes activities used during the hike.

**“Meet an Outdoor Enthusiast” Biographies (p. 28-40)**

Theses bios will be laminated and attached to individual clipboards. Each student receives a clipboard to use on the hike as a backing for their journal. The bios are used as part of the “Meet an Outdoor Enthusiast” activity introduced on pg. 3 of the lesson plan.

**Nature Quotes (p. 41)**

Collection of nature-inspired or related quotes (some of which are included on the “Nature Quotes” page of the journal) for the instructor to share with the class.

**“Who Am I?” Cards (p. 42-45)**

Selection of clues used as part of the “Who Am I?” activity described on pg. 9 of the lesson plan. There are 30 different clues available in the final kit.

**Wild Edible Plants Guide (p. 46-47)**

Simple visual guide for students to use during the hike while identifying some of the common edible plant species found on Eagle Bluff’s campus.

**Additional Resources (p. 48)**
Outcomes, students will:
1. Investigate the natural environment using their senses.
2. Use a journal to document their experience and record impressions and feelings.
3. Learn about individuals whose personal experiences with the environment and outdoors has impacted others.
4. Begin to shape their values, behaviors, and attitudes towards the environment and themselves.

Brief Synopsis:
Experience the outdoors in a unique and personal way! Participants will become “naturally” immersed while hiking along the Root River landscape. Interactive games and a variety of drawing and writing exercises are incorporated within the class to help students create a memorable connection with the natural world.

Outline:
Journal Preparation (15 minutes)
Nature journals are a place to record notes and feelings, and a way to keep track of observations about the natural world. Before the hike, students will create a personalized journal that will include activities, as well as space to reflect on their experience through writing, poetry, and art. Students are encouraged to continue using their journal when they leave Eagle Bluff.

Meet an Outdoor Enthusiast (5 minutes into + during class)
Nature has long been a source of inspiration for many kinds of people, including artists, musicians, writers, engineers, and philosophers. Throughout the hike, students will learn more about an individual whose passion for the outdoors helped them make an impact on the world in a unique way.

Leave No Trace (10 minutes)
The outdoors is a wonderful recourse to be shared by everyone. It’s important for us to protect and conserve it for others. Students will learn the basics of “Leave No Trace”, a set of outdoor ethics that promote conservation of our natural spaces.

On the Trail (2 hours, 30 minutes)
Nature holds many secrets that can be discovered with curiosity, time, and experience in the outdoors. Students will travel along the beautiful bluffs and banks of the Root River. Along the way they will engage in activities, games, and journal exercises designed to create a personal connection with the environment and help them appreciate the natural world.
Class Framework

**Topic:** Connecting with Nature

**Theme:** Spending time outdoors helps individuals create positive connections with the environment and recognize the importance of our natural world.

**Universal Concepts and Theme Statements:**

1. **Exploration:** Observing the natural world requires attention to detail.

2. **Expression:** A journal offers a means of self expression and reflection based on personal experiences.

3. **Stewardship:** Hiking enhances appreciation for the natural world and encourages a sense of stewardship.

4. **Connection:** The more time spent in a place, the more one feel connected to it through memories and experiences.

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### Preparation Before Class

**Outline**

- **Preparation Before Class** (45 min.)
- **Journal Preparation** (15 min.)
- **Meet an Outdoor Enthusiast** (5 min.)
- **Leave No Trace** (10 min.)
- **On the Trail** (2 hours, 30 min.)
- **Clean Up** (30 min.)

### Equipment

**Kit Items:**

- Journals
- Clipboards with carabiners (24)
- Journal Rings
- Rubber Bands
- Rain Protector Sheets (~30)
- Journal Title Page
- Nature Noises CD
- Nature Artifacts
- Permits
- Lesson Plan
- Classroom Sign

**Backpack Items:**

- 1st aid kit
- Bandanas (10)
- Oil Pastels
- Charcoal
- Colored Pencils
- Pencils
- Pencil Sharpeners
- Construction Paper
- Glue Sticks
- Slips of Paper
- Fabric Squares
- Magnifying Lenses (10)
- Field Guides
- Wild Edibles ID Sheet
- Big Boxes
- “Who am I!” Cards

**Additional Supplies (stored in the Kit Room):**

- Crayons
- Colored pencils
- Pencils
- CD player

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**Weather Considerations:**

- Modify your route to allow for inside time on days with heavy rain or thunderstorms.
- Be aware of hazardous trail conditions, such as erosion or icy patches (early season).
- Bring extra water bottles for hot/humid days, and sunscreen and bug spray during warm weather.

**Preparation Before Class**

- **Plan your route and activities for the hike:** Decide on which route you will take with the class. Keep in mind your student’s physical abilities, class time, and weather conditions when determining your route. See the appendix for a detailed map of suggested routes.

- **Journal pages:** Identify which journal pages you would like to use. Make sure you have any props or supplies you need for those activities. Decide on your method of teaching: instructor pre-panned activities or allowing the students to choose (or a combination of both).

- **Setup the classroom:** Strive to create an atmosphere of investigation and learning. Setup chairs, or cushions from DC10 (for younger students). Place nature artifacts (feathers, bones, fungus, etc.) around the room and display any related posters (from kit room).

- **Inventory the equipment:** Make sure all kit and backpack items are accounted for. Refill any additional supplies (crayons, colored pencils, etc.) as needed. Report any missing or broken items to the Adventure Education Coordinator (in person or on class maintenance clipboard).
Journal Preparation

OUTCOME: Students will personalize a journal that will be used throughout the hike.

Nature journals are a place to record impressions, feelings, and observations inspired by the outdoors. These might be something scientific, such as ecosystem features, plant types, or animal populations, or it might be something more intangible, such as personal thoughts, beliefs, or attitudes. Journals may contain sketches, drawings, poetry, or musical lyrics. You may choose to share your ideas and creations with others, or keep them private.

Allow the students some time to personalize the front of their journal. All journals should have the following information recorded somewhere on the front cover: Title, Location, Date, Weather Conditions, and Name. Encourage the students to add other décor or pertinent information to their journal cover. Once most students have finished decorating their journal, have them turn to the page “What is Nature?” Allow a few minutes for students to answer this question; encourage them to express their initial thoughts and ideas through whatever means they choose (i.e., written words, drawings, lyrics, poetry).

Turn & Talk: Have the students explain their “What is Nature?” page.

Meet an Outdoor Enthusiast

Outcome: Students will learn more about an individual whose personal experiences with the outdoors impacted others.

Each of the student clipboards has a short bio highlighting an iconic or influential individual in the field of environmental or outdoor education. These men and women used words, images, music, or other means to connect others with nature. Some of these enthusiasts started at a young age, while others began later in life. Throughout the hike, the instructor may ask students to summarize who the outdoor enthusiast on their clipboard is and how he or she made an impact. For a discussion topics, have the students talk with others about similarities and/or differences between their individuals.

Leave No Trace

Outcome: Students will learn the importance of the Leave No Trace principles and how they can apply them to their outdoor experience.

In order to promote responsible recreation it is important to maintain a certain code of ethics while hiking. Leave No Trace (LNT) is a set of seven principles that help us enjoy nature in a sustainable way that minimizes our impact on the environment. These principles can be adapted so they can be applied in any outdoor setting, from the remote backcountry wilderness to a local city or state park. In addition to talk about each principle, there is an associated hand motion to help student’s remember them.

Think-Pair-Share: Ask the students to brainstorm behavior guidelines that we should follow when hiking (refer them to the Four Respects, if necessary). See how many of the LNT principles students can identify on their own before introducing them.

Outdoor Enthusiasts

Visual-Spatial (Images)
John James Audubon, Ansel Adams, Olivia Bouler, Frank Lloyd Wright

Verbal-Linguistic (Words)
Rachel Carson, Gary Paulsen, John Muir, Edward Abbey

Logical-Mathematical
Bill Nye, Rolf Peterson, Eiji Nakatsu

Bodily-Kinesthetic
Steve Irwin, Ann Bancroft, Tom Brown Jr., Clare Marie Hodges

Musical
John Denver, Douglas Wood

Interpersonal (Others)
Jane Goodall, Gaylord Nelson, Lois Gibbs, Chico Mendes

Intrapersonal (Self)
Aldo Leopold

Naturalistic
Julia Butterfly Hill, Caitlyn Larsen, Teddy Roosevelt

Instructor Note
Create a “natural” atmosphere by playing the nature sounds CD while students work on their journals.

Journal Construction

Teach your students how to setup their journal. Attach the journal to the clipboard using two metal rings. Place the journal upright on the blank side of the clipboard. The carabiner should be in the lower left hand corner.
1. **Plan ahead.** Know the area you will be visiting, how long you will be there, and which route you will take. Be prepared for the weather, trail conditions, and potential hazards (e.g., sunburn, insects, etc.). Be sure to have plenty of water and snacks, if necessary. “Know before you go!”

2. **Walk on trails and durable surfaces.** Always travel on established trails and if you need to leave the trail, avoid trampling delicate plants and sensitive ecosystems.

3. **Dispose of waste properly (aka “Stash you trash!”).** Nothing ruins beautiful scenery like a bunch of unnatural trash. Never leave litter, even biodegradable waste, in areas where you travel. If you see litter left from someone else, be sure to pick it up and dispose of it properly.

4. **Take only pictures.** Allow others to enjoy the discoveries you made. Examine, but do not take, interesting items that you find during your hike. This includes wildflowers, rocks, antlers, or nests. The exception to this rule: You should take human trash that doesn’t belong in nature (see principle #3).

5. **Minimize fire impacts.** If you are camping during your hike, use an established campfire ring. Always be sure your fire is completely extinguished (cool to touch and not smoking) before leaving a campsite. Never burn trash or non-natural materials. While we will not be using any fire on our hike today, this is still a good principle to know for the future.

6. **Respect the wildlife.** It’s exciting to see animals in their natural habitat, but we should respect their space. Avoid quick movements and loud noises, both of which can be stressful to animals. Observe them from a distance, and never chase or harass them. Never feed wild animals—it can alter their behavior and affect their health.

7. **Respect other hikers.** Others enjoy the outdoors as well, so make sure to keep a respectful noise level when hiking, yield to older or disabled hikers, and respect private property.

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### On the Trail

**Outcome:** Students will participate in a variety of activities that help them connect with nature in a unique and personal way.

The hiking section of class is a chance for instructors to get creative and add their own personal touch to the class. Unless a school specifically requests certain activities, there is not a set list that an instructor must follow. There are some suggested guidelines for the hike:

- **Attempt to incorporate at least one activity from each of the eight sections (i.e., artistic, linguistic, physical, etc.).** This provides the best opportunity for students to experience an activity that fits their learning preference and helps create a personal, memorable connection with the outdoors.

- **You may prepare your curriculum prior to class, or split the students up into pairs/small groups and let each pick one or two activities (more if time allows) that they would like to try.** You may also want to provide the students with a selection of activities from each learning section, and allow them to pick from those.
Before heading out on the trail, give the students time to use the restrooms, fill water bottles, and put on appropriate clothing.

**Trail Activities.** Each of the hike activities are designed engage various *learning intelligences*. Learning intelligences are ways that people take in and process information (based on Dr. Howard Gardner’s theory of multiple intelligences). Some of the activities emphasize one type of intelligence, while others may incorporate two to three types. The activities are grouped by which intelligence they highlight *(see the side bar for more info)*.

### Visual-Spatial Activities

**Visual-Spatial Outdoor Enthusiasts**: John James Audubon, Ansel Adams, Olivia Bouler, Frank Lloyd Wright

**Nature sketch.** Students will draw in order to record observations and expressions. Inform the students that they will be spending approximately ten minutes sketching or coloring a natural scene. Choose a comfortable location *(suggested location: along the bank of the Root River)*. Students may use just a pencil, or additional art materials such as colored pencils, charcoal, or pastels (available in the RRH backpack). Remind students that their pictures will not be compared to other students, but also invite them to share their drawings in partners, small groups, or as a whole group.

**Alternative version**: Instead of provided coloring materials, encourage the students to paint or sketch using natural materials and color sources, like soil or leaves.

*Materials: Pencils, colored pencils, crayons, sketching charcoal, pastels*

**Color Hunt.** This is a great activity for younger students (4th-5th grade). Give each student a different colored fabric square. As you hike along the path, encourage the students to find as many objects as possible that closely match the color and/or pattern of the cloth. After a few minutes, have students swap squares and start a new search.

The fabric squares may also be used to introduce the concept of camouflage. Split the class into two groups. Give a predetermined number of fabric squares to the first group and have them use the pattern and color to camouflage it within an area. After all the pieces are hidden, the second group must search for the fabric squares. Switch roles and repeat.

*Materials: Fabric squares*

**Visual Scavenger Hunt** *(Journal activity)*. Find an area where students can easily go off-trail. Turn to page 4 in the journal; allow the students time to explore and challenge them to find as many different natural items on the list as possible. Have students share any unique items that they found with the rest of the group.

**Alternative version: I ♥ the Outdoors.** Challenge the students to find as many heart-shaped natural objects (rocks, leaves, twigs) as possible.

**Team Sketching.** Choose a tree to study within eyesight. Ask all the students to study the same tree for this activity. Each student sketches the tree from the perspective of wherever they are standing or sitting. Sketch for
Root River Hike

about 3 minutes and then have them pass their journal to the person on their right. Continue sketching the tree in the style of the person who started the sketch. Ask students not to project their own style into the drawing. After 3 minutes, pass the journal again to the person on the right again. After 3-4 passes, return the journal to the original owner. Look at the drawing in your journals. Did the group stay consistent with your style? Does it look like a drawing you would have created?

Leaf Art. This activity is especially good for hikes in late autumn when there is a surplus of colorful, fallen leaves. Have students collect downed leaves, seeds, flowers, and other natural materials and use them to create art pieces (see example). Remember to follow the LNT principles when choosing materials.

Partner/Group Draw. This activity is a great way to have students focus and notice small details about nature. Split the group into pairs and have partners sit back-to-back. Provide one of the partners with a natural object (pinecone, rock, seed pod); have the first partner describe the object, while the second partner draws/sketches the object based on the description (without seeing it). After a few minutes, have them see how similar their drawing looks to the actual object. Switch roles.

You can also have the group form a circle and place one object in the middle for everyone to focus on at the same time. Each student draws the object from their unique perspective.

**Think-Pair-Share:** Ask the students what details or features they noticed about their object while describing it to their partner. Which of these details would they have missed if they glanced at the object quickly?

**Musical Activities**

**Musical Outdoor Enthusiasts:** John Denver, Douglas Wood

**Sound Map.** Students should select their own location that is interesting, comfortable, and away from other classmates. Doing so will help them hear more sounds and limit distractions. Students should turn to the “Sound Map” page in their journal; in the middle of the journal page there is an “X” which represents them. During the designated listening time (3-5 minutes), record either by words or pictures each sound they hear and the general location and distance in which they heard it, keeping “X” as the reference point.

Compare the sounds heard. What was one sound everyone heard? What was the closest sound? The furthest? What was something you heard that no one else noticed? Was there a sound that you could not identify? Did you notice anything else while sitting quietly?

**Nature Jam.** This works well with younger students (4th-5th grade). Send the students into the woods to find their musical instrument of choice. This may be rock against rock, stick against stick, whistles from blades of grass, leaf popping, etc. Discourage the breaking of tree branches and limbs. With these natural musical instruments, gather in a circle and have each student perform separately to highlight the sound of their instrument. Once everyone has had an opportunity to perform, begin the “nature jam” by joining all the instruments together!
Verbal-Linguistic Activities

Verbal-Linguistic Outdoor Enthusiasts: John Denver, Douglas Wood

Windspark Poem (Suggested location: Eagle Point Overlook)

Find an area where all students can spread out and sit down. Eagle Point offers a wonderful “birds eye” view of the bluff country and the Root River flowing below. Due to the limited space at the overlook use extreme caution and set boundaries as students glimpse at the view stretched out before them. To help students understand what they are looking at and its historical significance, use the information below to guide students to a better understanding of the unique landscape of southeastern Minnesota:

Minnesota’s unique terrain of countless lakes and rivers is the result of glacial activity that lasted for tens of thousands of years. The last glacial event ended around ten thousand years ago, leaving behind the landscape that we see today in Minnesota. Southeastern Minnesota however, was not covered by the most recent glacial event, leaving the landscape entirely different when compared to the rest of the state. As the glaciers in the rest of the state receded, huge glacial melt-waters forged downstream, cutting through hills, and carrying away eroded sediments. This created deep valleys with remnant terraces that can be seen for miles and miles. The Driftless area, as it is often referred to, lacks the lakes common to greater Minnesota, but has a beautiful landscape composed of deep valleys hidden among rolling bluffs. The Root River lies in one of these valleys and is considered a remnant river whose waters rose as high as the tops of the bluffs that surround Eagle Bluff.

Once all students have had a chance to view the bluffs and understand its history, complete the poetry page marked “Windspark”. A windspark is a poem with five lines. Each line must be written according to these instructions:

1. Write the words “I dreamed”.
2. Write “I was a ...” and give an example of an object or person.
3. Describe a location (where did this happen).

If time permits, have students share their poem with the entire class or divide into smaller groups and share poems amongst themselves.

Poet-Tree. A poet-tree is a poem that has four lines. Each line must be written according to these instructions:

1. Habitat (an area) name.
2. Three words that describe what the habitat is like.
3. Two phrases about how that specific habitat makes you feel when you’re there.
4. A phrase or sentence beginning with the words “I wish...”

Acrostic Poem. Choose an object, landscape, plant or animal (e.g., agate, prairie, tree, bobcat) and use the letters in the name as the first letter of other words or phrases that describe that item.
**Story Trail.** Divide the students into smaller groups of three or four participants. Inform the class that they will be selecting a theme from something they have noticed during the hike and perform a short skit or play for the class. Allow students only a few minutes to choose a theme and practice their skit. For example, a theme may be woodpeckers searching for insects under bark. The skit should only be a few minutes. Take the first group and walk them out about 30-50 feet. Have group #2 walk to group #1. Once there, group #1 will perform their skit for group #2. Once completed, group #2 will walk ahead 30-40 feet and prepare to give their skit. Group #3 will walk to group #1 and listen to their skit, walk to group #2 and listen to their skit, and then walk forward 30-40 feet to prepare to give their skit. This continues until the last group is ready to begin. You as the instructor will walk with the last group to group #1 to hear their skit. After the skit, walk all the students to the next group to hear their performance. After each skit you will continue to pick up the students and walk them to the next group until the very end of the story trail.

**Nature Haiku.** Haiku is a very short form of Japanese poetry. Haiku poems consist of three lines. The first and last lines of a Haiku have five syllables and the middle line has seven syllables. The lines rarely rhyme. Have the students write a haiku on journal page 9 about something they have seen or experienced on the hike, then invite students to share their poems with the group.

**Create-a-Story.** Give the students time to explore and find a natural object, such as a pinecone, flower, or leaf (you can also bring out some of the nature artifacts from the classroom). Have students create a unique story about their object: How did it get there? What was its history? Invite them to be as creative as they like, even if the story seems farfetched or unrealistic. For a more physical version of this activity, divide the students into groups and have them create a short play about their object (instead of a story) to perform in front of the group.

**The Greatest (Tiny) Adventure!** This activity can be done individually or in pairs. Students should find a section of ground, roughly the size of a hula hoop. Using magnifying lenses, have them observe the space and its features up-close and create a short story about their adventures in this area if they were shrunk down to 1/2 inch tall. What would they eat? What obstacles would they need to overcome? What dangers would they face and how would they protect themselves? What would they use for shelter or clothing? *[Materials: Magnifying lenses]*

**What Does It Mean to You?** Have the students read the nature-inspired quotes and excerpts on the Nature Quotes journal page (pg. 13). Ask them to share their thoughts, feelings, or opinions on those quotes. This is a good activity for older students (7th grade and older).

**Logical-Mathematical**

**Logical-Mathematical Outdoor Enthusiasts:** Neil Degrasse Tyson, Rolf Peterson, Eiji Nakatsu

**Nature Clustering.** Divide the students into groups of three. Each group will select an object to observe. For example the object may be a rock, bird, river, fungi, tree, soil, etc. Write the name of the object in the middle of the “Nature Cluster” journal page and draw a box around it. Within your smaller group, think of as many different objects that are directly related or connected to the first object you circled in the
middle. Write those objects on the page and draw a line connecting it to the boxed object. Continue the cluster by adding objects that are now connected to the secondary objects and so on.

**Nature Clustering Example:**

```
Plants
  \-----\   \-----\
  \     /         /     /
  \   /           /   /
  \ /             / /
Soil

Decomposing

Beetle Larvae

Spring

Rabbit

Fox

Mole

Owl
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**Who Am I?** Use the descriptive cards that describe a plant or animal that lives in Minnesota. Read the riddle out loud and have students try to identify which animal or plant the card is describing.

**Materials:** “Who Am I?” cards

**Bones.** You will need five objects such as five sticks, five rocks, or five bones. Place the five objects in a pattern on the ground and have students guess what number (between 1-5) the objects represent. The catch to this activity is that the arrangement of the objects does not matter. Instead show the numbers on your fingers each time. Emphasize that keen observation is observing the whole scene rather than one individual part. You can also adapt this activity for the trail, by stopping at random intervals, pointing to an object and asking the students “How old is this?” The key: The answer is however many fingers you use to point at the object (i.e., one finger = one year old, three fingers = three years old, etc.)

**Observation Olympics.** Find a common object, such as an abundant species of flower, or one that all the students can observe at the same time, such as a tree. Tell the students that they have 10 minutes to record as many unique observations about the selected object as possible. Once they regroup, each group will share their observations; if another group has recorded the same thing, the two observations cancel out each other. The goal: Have the most unique observations of all the groups.

**Our Natural World.** Turn to the “Our Natural World” page in the journal. Ask students to find objects in nature (column 1), and tell how they are like that object (column 2). In the third column, they should write how they are like that object. Make sure they consider less obvious things such as the air, sun, or soil.

**Example on pg. 10**

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**Instructor Note:**
You may find it useful to compose a nature cluster together first as a large group before attempting the activity in smaller groups.

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**Obs. Olympics Example**

**Group 1**
Brown spots with pale yellow ring on leaves
Leaf edge as “teeth”
Three leaves on each stem
Leaves are smooth and shiny
Flowers have four petals
Flowers have six stamens

**Group 2**
Toothed leaf edge
Leaves have one central vein
Flowers have four petals
Each stem has three leaves
Leaves dark on top, pale on underside
Hairy stems
Leave is heart-shaped
**Naturalistic**

**Naturalistic Outdoor Enthusiasts:** Julia Butterfly Hill, Caitlyn Larsen, Teddy Roosevelt

**Track ID.** Keep an eye out for tracks seen in the snow, near the river, or in the mud. Record the tracks and have students use the nature guide in the backpack to identify which animals may have left them.

**Wild Edibles.** During the spring and summer there are a number of edible plants found along the trails of Eagle Bluff. This is a great chance for students to try sampling some of the tasty treasures that nature can provide. Some cautions: Be sure you are 100% positive on how to identify edible plants; when in doubt, don’t take the risk! The *Wild Edibles ID Sheet* provided in the RRH backpack identifies some of the safest and most recognizable edible plants found around Minnesota. *Also,* never pick more than needed (sharing is good).

**Plant and Animal ID.** If your group is lucky enough to see wildlife, take time to stop and have students identify what animal you just spotted or heard. Plant ID is also a fun activity; use the plant ID guides from the RRH backpack if you’re not familiar with the local plant species, or give it to the students to use.

**ABC’s of Nature.** Challenge the students to find natural items that begin with as many different letters of the alphabet as possible (*e.g.*, Air, Broken twig, Creaking tree). Creativity is definitely allowed. This is an activity that can be ongoing throughout the hike.

**Comparisons.** Students will find two specimens of the same species (branches, fungi, flowers, grasses, etc.) and draw them side-by-side, noting differences between them. By comparing two similar objects, students can find differences between objects and see variability within a single species. Regather the students to discuss the major and subtle differences that they have found.

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**Suggested Edibles**
- Garlic Mustard
- Wild Ginger
- Ramps/Wild Leeks
- Angelica
- Spring Beauties

**Instructor Note:** This activity is best done in a location where students have access to many individuals of the same species, such as a patch of wildflowers.
**Physical-Kinesthetic**

**Physical-Kinesthetic Outdoor Enthusiasts:** Steve Irwin, Ann Bancroft, Tom Brown, Jr., Clare Marie Hodges

**Hug-a-Tree.** This is a time for students to apply critical thinking skills. Ask the students to think of the trees analogically. An analogical statement is a comparison between two different things in order to highlight similarities: “A tree is like.... because...”

Each tree plays a distinct role in its niche and just like humans, each tree is unique in its shape, structure, and purpose.

**Think-Pair-Share:** Ask the students to look at the trees around them. What do they notice about them? As you look at those trees, what else do they represent?

Separate the students into pairs. Hand out a bandana to each pair and instruct one student to become blindfolded. The sighted partner will guide their blindfolded partner to a tree near the trail. The blindfolded partner must use their sense of touch and smell to create a mental image of what that tree may look like. The partner then guides them back to the start and the blindfold is removed. The student now must recall the mental image created and physically locate the tree chosen by his/her partner. Once located, switch roles and repeat. It is important during this activity that safety is stressed. The sighted partner is responsible for the safety of his or her partner at all times. **[Materials: Bandanas]**

**Camouflage.** Tell the students that they are predators and you are the prey. Pick a spot where you will stand and close your eyes; they will have 30 seconds to find a hiding spot where you are not able to see them. If you can see any part of them once you open your eyes, they will have been spotted by the prey and are out (have a designated spot for these students to sit during the rest of the game). After you have spotted as many students as possible, close your eyes and count to 10. The remaining students must move to a new hiding spot. After 10 seconds, try to spot as many students as possible. Repeat this for 3-4 rounds, after which the student hiding closest to the instructor without being spotted is the winning predator. In between each hiding round, hold up a designated number of fingers on your hand; the students should be close enough to see how many fingers you’re holding up.

**Group discussion:** What are some different adaptations animals and plants use to survive in nature? Which camouflage or adaptations would be best in the environment you’re in at the moment? If you could have one animal adaptations, which would you choose and why?

**Nature Charades.** Pass out slips of scrap paper and have the students write down animals, plants, or other natural objects that could be found around Minnesota. Split the group into two to three teams and have students take turns attempting to act out the different items on the paper for their team (no talking or noises!).

**[Materials: Paper slips]**

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**Tree Analogy Examples:**

1. A tree is like an apartment building: providing homes for many different inhabitants.
2. A tree is like an energy plant: producing energy and giving off a by-product.
3. Tree bark is like skin: protecting the core from disease and infections.
4. A forest is like a family: which survives by producing offspring.
5. A forest is like a group of people: each has its own unique physical characteristics standing it apart from all others.
**Park Ranger.** Find a fairly open area and pre-set boundary lines. Pick one student to be the Park Ranger (or the instructor can be the first ranger). This player begins in the center of the space. All other players stand in a line (shoulder-to-shoulder) facing the Park Ranger. All of these players should choose an animal to become their identity; they do not need to tell anyone else what their animal is.

The Park Ranger then says a characteristic that an animal may have (e.g., beak, feathers, four legs, scales, etc.). If a player’s animal has that feature, they must run across the space without being tagged or going out of the boundaries. The Park Ranger tries to tag as many people as possible. If a player is tagged they become a Tree. Trees freeze where they are tagged and cannot move, but can sway and tag other players as they run past. Any players tagged by tree become trees as well. The last player who is not a tree wins and get to be the next Park Ranger.

**Inter/Intrapersonal**

**Inter/Intrapersonal Outdoor Enthusiasts:** Jane Goodall, Gaylord Nelson, Lois Gibbs, Chico Mendes, Aldo Leopold

**Experiencing Nature.** Nature holds many secrets that can only be discovered with curiosity, time, and experience in the outdoors. This experience allows you to begin to explore and shape your own values, attitudes, and behaviors towards the environment and yourselves. Today you will discover men, women, and youth who have used their outdoor experience to influence others in a unique way.

**Think-Pair-Share:** Allow students to reflect on past experiences they had while outdoors. Was it a positive or negative experience? Why or why not? Ask the students if they know of a person whose love for the outdoors has impacted their life in some way?

**Solo Sit/Walk.** A solo sit is an opportunity for students to break from the pack and observe what surrounds them alone. Each student should find a comfortable location to sit. Be sure to spread the students out far enough to discourage conversation. Students may record their observations on the “nature notes” page in their journal. After approximately five minutes regroup and process. What was unique about your location? How would you describe it? What did you smell or hear? What other inhabitants in your area?

A solo walk is similar to a solo sit in that a student will walk down a designated trail with some distance created between them and the person walking before and after. This is a time for students to reflect on their time in the outdoors.

**Reflection.** Journal Activity (*Suggested location: along the Root River at the canoe launch site or North Campfire ring*)

**Outcome:** Students will reflect on their hiking experience today.

Encourage students to find a comfortable spot along the river and complete the “Reflections” page in their journal. Our natural world is filled with beauty, intrigue, wonder, fascination, mystery, and excitement. Developing keener observation skills can lead to a greater understanding. Understanding leads to appreciation and concern for our natural environment. How can you be concerned about something you don’t
understand or have a relationship with? The experiences one has while exploring nature can be very personal and also vary greatly from one individual to another. By keeping a journal, one can reflect on his/her impressions in a style comfortable and meaningful.

Encourage students to find a comfortable spot along the river and complete the “Reflections” page in their journal.

1. Today I enjoyed...
2. Nature and the environment are important to me because....
3. Three things I can do to help the environment and myself is to....

Students may choose to share their reflections with a friend or with the group before hiking back to the classroom. There may be additional pages within the journal that are not completed. Encourage students to take the journal back home and complete these pages in a natural area near where they live. This could be their backyard or a city park.

Clean Up
Allow time back at the classroom to inventory all of the equipment from the students and the activity backpack. Students should be encouraged to keep their journal and finish completing its pages back at home. Remove the journal rings. Restock journals. Erase the chalkboard and stack chairs. Report any lost or broken equipment to the Adventure Education Coordinator or on the maintenance clipboard located in the kit room.

References & Additional Materials


Seven Principles Overview. Leave No Trace Center for Outdoor Ethics. Retrieved from https://lnt.org/learn/seven-principles-overview


Minnesota Academic Standards

**Arts (Approved 2008)**

4.1.1.5.1 Describe the characteristics of the elements of visual art including color, line, shape, value, form, texture, and space.

4.1.3.3.2 Describe how music communicates meaning.

4.1.3.3.2 Describe how visual art communicates meaning.

4.2.1.1.1 Create movement sequences and improvisations using choreographic forms to express an idea, theme, image or tradition.

4.2.1.3.1 Improvise and compose rhythms, melodies, and accompaniments using voice or instruments to express a specific musical idea.

4.2.1.4.1 Use movement, voice, costume and props to create a scene or sequence of scenes based on life experience or an existing piece of literature.

4.2.1.5.1 Create original two– and three-dimensional artworks to express specific artistic ideas.

6.1.3.3.2 Analyze the meanings and functions of music.

6.1.3.5.2 Analyze the meanings and functions of visual art.

6.2.1.5.1 Create original two– and three-dimensional artworks in a variety of artistic contexts.

**Language Arts (Approved 2010)**

5.6.3.3 Write narratives or other creative texts to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

5.8.2.2 Summarize a written text aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

5.8.3.3 Summarize the point a speaker makes and explain how each claim is supported by reasons and evidence distinguishing between a speaker’s opinions and verifiable facts.

5.10.1.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

5.10.2.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

5.10.3.3 Use knowledge of language and its conventions when writing, speaking, reading, or listening.

5.10.5.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meaning to develop word consciousness.

6.4.2.2 Determine a theme or central idea of a text and how it conveyed through particular details; provide a summary of the text distinct from personal opinions or judgement.

6.7.3.3 Write narratives or other creative texts to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

6.7.4.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

6.9.4.4 Present claims, findings, respect intellectual properties, sequence ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clean pronunciation.

6.11.1.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

6.11.2.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

6.11.5.5* Demonstrate understanding of figurative language, word relationships, and nuances in word meaning to extend word consciousness. *(Activity dependent. This standard is covered with the “Windspark” activity whose use is at the discretion of the instructor or request of the a teacher.)*

7.7.3.3 Write narratives or other creative texts to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
Minnesota Academic Standards

Language Arts (cont.)

7.11.2.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

8.7.3.3 Write narratives or other creative texts to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.

8.11.2.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Physical Education (Approved 2010)

4.5.1 Students will follow, with few reminders, activity specific rules, procedures, and etiquette.

4.5.3 Students will work cooperatively and productively with a partner or small group resulting in good sportsmanship.

4.6.1 Students will experience enjoyment while participating in physical activity.

4.6.3 Students will interact appropriately with peers while participating in group activities.

5.2.1 Students will use fundamental strategies in modified sports-related games.

5.3.2 Students will identify the benefits derived from physical activity.

5.3.3 Students will participate in moderate to vigorous physical activity.

5.5.3 Students will utilize safety principles in activity situations.

5.5.4 Students will choose a partner that he or she can work with productively.

5.6.5 Students will recognize physical activity as a positive opportunity for social and group interaction and communication.

6.4.1 Students will participate in moderate to vigorous physical activity in a variety of settings.

6.5.1 Students will apply rules, procedures and etiquette, which exhibit good sportsmanship.

6.6.1 Students will recognize physical activity as a positive opportunity for social and group interaction and communication.

6.6.2 Students will enjoy participation in physical activities.

6.6.4 Students will demonstrate enjoyment from participation in physical activities.

7.6.1 Students will enjoy participation in physical activities.

7.6.2 Students will recognize the social benefits of participation in a variety of physical activities.

Science (Approved 2010)

4.1.2.2.1 Identify and investigate a design solution and describe how it was used to solve an everyday problem.

4.1.2.2.2 Generate ideas and possible constraints for solving a problem through engineering design.

5.4.2.1.1 Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.

5.4.4.1.1 Give examples of beneficial and harmful human interaction with natural systems.

5.3.1.2.2 Explain how slow processes, such as water erosion, and rapid processes, such as landslides and volcanic eruptions, form features of the Earth’s surface.

6.1.3.1.1 Describe a system in terms of its subsystems and parts, as well as its inputs, processes and outputs.

7.4.3.2.3 Recognize that variation exists in every population and describe how a variation can help or hinder and organism’s ability to survive.

8.3.1.2.2 Explain the role of weathering, erosion and glacial activity in shaping Minnesota’s current landscape.

Social Studies (Approved 2011)

4.1.1.1.1 Describe how people take action to influence a decision on a specific issue; explain how local, state, national or tribal governments have addressed that issue.
What is Nature?

Use the space below to write, draw, and explain what the word “Nature” means to you.

Smart Strengths

Circle the number in each section that best describes you.

Section 1: Online
1. I like to listen to songs on the radio or internet
2. I like to watch videos on YouTube.
3. I’d rather write texts or emails, instead of watch videos.
4. I like to watch videos of animals.
5. I like watching science videos or experiments.
   I enjoy watching videos on sports or physical activities.
6. I enjoy watching videos my friends have posted.
7. I like to play video games against myself.

Section: Weekend plans
1. Go to a music concert and hear live music.
2. Paint, draw, sketch, or make something out of clay.
3. Read a good book or magazine
4. Visit a zoo, park, or aquarium.
5. Visit a science museum
6. Go running, hiking, or play sports.
8. Enjoy some alone time hanging out at home.

Section 3: When working on a project...
1. I often hum or sing to myself.
2. I prefer when the directions have pictures, or I watch a video on how to do it.
3. I prefer written directions.
4. I would prefer to work on it outside.
5. I organize and lay out all of the materials needed.
6. I like to move around when working.
7. I’d prefer to work in a group with others.
8. I work best when I’m by myself.
Section 4: Favorite School Activities
1. Music classes like band or choir
2. Art classes
3. English or Language Arts
4. Biology
5. Math
6. Physical Education/Sports
7. Hanging Out with Friends
8. Study Hall

Scoring: Count up how many of each number you circled. The numbers that you picked show how you are smart in different areas. The number you picked the most is your preferred area of intelligence.

1. Music Smart: Learn best through song, rhyme, rhythm and sound.
2. Picture Smart: Learn best through pictures or images.
3. Word Smart: Learn best through writing, reading or telling stories, poetry, songs, or essays.
4. Nature Smart: Learn best when the subject is related to animals, plants or the environment.
5. Math Smart: Learn best through numbers, logic, and solving mathematical problems.
6. Body Smart: Learn best by doing and being hands-on.
7. People Smart: Learn best by working with others on social projects.
8. Self Smart: Learn best on your own, working independently.

Does this “smart-style” describe your personality? Do you think you could have multiple types of intelligence?

Scavenger Hunt

Before you check an item off your list, make sure at least one other person can verify the sighting.

SIGHT
___ Spider web
___ Tunnel
___ Something perfectly straight
___ Something circle-shaped
___ Something beautiful
___ Deer track
___ Eagle
___ Insect
___ Nest
___ Animal Fur
___ Moss
___ Woodpecker Hole
___ Animal Home
___ Flower
___ Bone
___ Chewed leaf (not by you)
___ Something camouflaged
___ Seed dispersed by wind
___ Maple leaf
___ Seed dispersed by the wind

SMELL
___ Tree bark
___ Crushed pine needles
___ A Flower
___ Soil

TASTE
___ The Air
___ Snow
___ Pine needles

SOUND
___ Bird calling
___ Running water
___ Silence
___ Wind
___ Moving vehicle
___ Chattering squirrel
___ Squeaky sound
___ Pleasant sound
___ Teacher

ACTION
___ Mammal running
___ Bird flying
___ Insect flying
___ Leaf falling
___ Cloud moving
___ Tree swaying

TOUCH
___ Pine cone
___ Decomposing log
___ Something wet
___ Something dry
___ Mud
Find a quiet place to sit and listen. Every time you hear a sound, mark it on the map below. Indicate how far the sound is from you, as well as, the direction as it relates to where you are sitting.
A windspark is a poem with five lines. Each line must be written according to these instructions.
1. Write the words “I dreamed”
2. Write “I was” and give an example of an object or person
3. Describe a location (where did this happen)
4. Describe a type of action
5. Use an adverb to describe the action in #4.

Example:
1. I dreamed
2. I was a tree
3. On a hillside
4. Playing with the wind
5. Joyfully

Now it’s your turn.

1.

2.

3.

4.

5.

A poet-tree is a poem that has four lines. Each line must be written according to these instructions.
1. Habitat name.
2. Three words that describe what the habitat is like.
3. Two phrases about how that specific habitat makes you feel.
4. A phrase or sentence beginning with the words “I wish…”

Example:
1. Prairie
2. Dry, grassy, buggy
3. Makes me think of bison days and endless horizons
4. I wish they wouldn’t disappear

Now it’s your turn.

1.

2.

3.

4.

5.
Acrostic Poem

1. Choose an object (such as a tree)
2. Use letters in the name as the first letters of other words or phrases which describe your object.

Example: (Oak)

Old
And
Knotty

Nature Haiku

Haiku is a traditional form of Japanese nature poetry that has been adapted to fit the English language. The first and last lines have five syllables and the middle line has seven syllables. The lines rarely rhyme. Write a haiku about something you have seen or experienced on the hike.

Line 1 (5 syllables):

Line 2 (7 syllables):

Line 3 (5 syllables):

Create-a-Story

Explore and find a natural object, such as a pinecone, flower, bone, or rock. Now create a unique story about your object: How did it get there? What was its history? Be as creative as you want, even if the story seems farfetched or unrealistic.
Look around you and choose one natural object. It can be living or non-living. Write the object in the middle of your page and put a circle around it. Now think of additional objects that interact with your circled object. Link the two together with a line. How many objects can you link?

Our Natural World

<table>
<thead>
<tr>
<th>Something in nature:</th>
<th>Things we have in common:</th>
<th>How it helps me:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sun</td>
<td></td>
<td></td>
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<tr>
<td>Tree</td>
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<tr>
<td>Plants</td>
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<td>Owl</td>
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<td>Seed</td>
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<td>Snake</td>
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<td>Tunnel</td>
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<tr>
<td>Shrew</td>
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</tr>
</tbody>
</table>
Nature Quotes

Read some of the outdoors-inspired quotes below. What message do you think the writer was trying to send? Which one is your favorite? Do you disagree with any of them?

If I were a tree I would have no reason to love a human.  
— Maggie Stiefvater

The wilderness holds answers to questions we have not yet learned how to ask.  
— Nancy Newhall

In every walk with nature one receives far more than he or she seeks.  
— John Muir

A society grows great when old men plant trees whose shade they know they shall never sit in.  
— Greek proverb

I’d rather have roses on my table than diamonds on my neck.  
— Emma Goldman

The tree which moves some to tears of joy is in the eyes of others only a green thing that stands in the way.  
— William Blake

Nature does not hurry, yet everything is accomplished.  
— Lao Tzu

There are no passengers on spaceship earth. We are all crew.  
— Marshall McLuhan

What quote would you write to summarize your experience on the hike today?
Today I enjoyed...

Nature and the environment is important to me because...

Three things I can do at home to stay connected with nature:
1.
2.
3.

Ways I can use my “smart strengths” to explore the environment:
John James Audubon (Apr. 26, 1785 -- Jan. 27, 1851)

John James Audubon was an ornithologist, naturalist, and artist. After failing at several different types of business ventures, he decided to pursue his hobby of drawing and studying birds. He went on to become one of the most well-known natural artists, illustrating hundreds of bird species from around North America. Today his name is often associated with birds and bird conservation; the National Audubon Society was named in his honor.


Edward Abbey was an author and essayist known for his environmental advocacy. As a young man, he worked as a seasonal ranger in many National Parks, where he collected notes and sketches for his writing. He hated seeing dams, highways, and other development and many of his books focused on people destroying or sabotaging industrial structures that threatened natural areas. Because of this he remains a controversial, but influential, icon in environmental issues.
Ansel Adams  (Feb. 20, 1902 -- Apr. 22, 1984)
Ansel Adams was a photographer and environmentalist. As a child he struggled in school due to learning disabilities and spent much of his time exploring the natural areas around his home near San Francisco, CA. When he was a young man, he began photographing landscapes with a camera his parents gave him. His black-and-white photographs brought the beauty of the American West to the public, and helped influence the preservation of the Yosemite Valley and other wilderness areas.

Ann Bancroft  (Sep. 29, 1955 -- Present)
Ann Bancroft is an explorer, author and teacher from St. Paul, MN. Ann’s love of the outdoors began early in life; her father often took her on camping and canoe trips in northern Minnesota. She was the first woman to reach the North Pole on foot and by sled, as well as the first woman to ski across both Greenland and Antarctica. In 1991 she founded the Ann Bancroft Foundation, which encourages girls and women to reach, explore, and discover their own passions and dreams.
Olivia Bouler (2000 – Present)
Olivia Bouler was just 10 years old when she heard about the 2010 BP oil spill in the Gulf of Mexico. The spill threatened the ecosystems and wildlife of the Gulf Coast where she vacationed with her family. Inspired by her hero James Audubon, Olivia used her artistic talent to draw and paint 500 original bird drawings, which raised $200,000 for Gulf recovery efforts. She was named a White House Champion of Change and wrote a book, *Olivia’s Birds: Saving the Gulf* which raised more proceeds for wildlife recovery.

Tom Brown, Jr. (Jan. 29, 1950 – Present)
Tom Brown, Jr. is an acclaimed outdoorsman and a renowned tracker, teacher, and author. When Tom was only seven an Apache elder named Stalking Wolf started training him in the skills of tracking and wilderness survival. After his training, Tom spent the next ten years in the wilderness with no manufactured tools—sometimes not even a knife! He went on start The Tracker School in 1978, teaching students the same skills he learned from Stalking Wolf.
Rachel Carson (May 27, 1907 – Apr. 14, 1964)

Rachel Carson was an author, scientist, and conservationist. Disturbed by the widespread misuse of synthetic chemical pesticides, she wrote *Silent Spring* (1962), which described the harmful effects of chemicals on wildlife and the environment. The book helped make the public aware of the dangers of these chemicals, and led to the creation of the Environmental Protection Agency (EPA) and a nationwide ban on DDT and other harmful pesticides.


Henry John Deutschendorf Jr., known professionally as John Denver, was a singer-songwriter and activist. He composed and recorded over 300 songs, many of which were inspired by nature and the outdoors. As an environmentalist, he promoted sustainable living and clean energy sources. An avid pilot, he was killed in a plane crash while flying an experimental airplane in California.
Lois Gibbs (Jun. 25, 1951 -- Present)
Lois Gibbs became involved in environmental causes in 1978 when she discovered that her son’s elementary school in New York was built on a toxic waste dump. Eventually it was revealed that her entire neighborhood, Love Canal, had been built on top of this dump. With no prior experience, Lois organized her neighbors to petition the local government to protect their families’ health. Her efforts led to the creation of the Superfund program, which locates and cleans-up toxic waste sites around the U.S.

Jane Goodall (Apr. 3, 1934 -- Present)
Dame Jane Goodall is a British primatologist and considered to be the world’s expert on chimpanzees. She started studying chimpanzees in Africa in 1960, and observed many similarities between humans and chimp behavior and was one of the first people to observe primates using tools, something experts had believed only humans could do. She founded the Jane Goodall Institute and the Roots & Shoots program, and works extensively on conservation and animal welfare issues.
Julia Butterfly Hill (Feb. 18, 1974 -- Present)

On a family hike at age 6, a butterfly landed on Julia Hill’s finger and stayed there the entire hike, earning her the nickname “Butterfly” and growing her love for nature. During a road trip to northern California, she joined a protest to protect a 1500-year-old redwood tree named “Luna.” Julia climbed 180 feet above the ground and lived in the tree for more than two years, battling rain, strong winds, freezing temperatures, and harassment from loggers. Eventually the logging company agreed to preserve Luna and 30 acres of old-growth redwood forest around it.

Clare Marie Hodges (1890-1980)

During a family visit to Yosemite National Park in 1904 at age 14, Clare Marie Hodges fell in love with the valley. She would return as a teacher for the Yosemite Valley School, and eventually became the first female ranger for the National Parks Service (NPS). As a ranger, she patrolled the valley and remote areas of the park on horseback, but refused to carry a gun for protection. Though her time with the Park Service was short, she helped open opportunities for other women in the NPS.
Stephen Irwin grew up in rural Australia, and always had a love for animals, especially reptiles. He and his wife Terri turned his family’s small wildlife park into the Australia Zoo, and began co-hosting a television series called The Crocodile Hunter. On the show he was known for his outgoing personality, and teaching people to appreciate creatures that many considered scary, disgusting, or creepy. Irwin died in 2006 after being pierced in the chest by a stingray barb while filming an underwater documentary.

Caitlyn Larsen (2001 -- Present)
When 10-year old Caitlyn Larsen noticed mining equipment being assembled on a mountain behind her New Mexico home, she decided to investigate. Caitlyn and her parents learned that a company was planning to strip mine the mountain for gold, destroying many natural ecosystems and uprooting native plants and animals. She reached out to the Governor and Bureau of Land Management for help, who discovered the mining was not correctly authorized and was halted. Caitlyn’s actions helped protect the wildlife and habitats of the mountain.
Aldo Leopold (Jan. 11, 1887 -- Apr. 21, 1949)
Aldo Leopold was an author, philosopher and conservationist. He is considered by many to be the father of wildlife ecology, and one of his best-known ideas is the “land ethic” which calls for an ethical, caring relationship between people and nature. His collection of essays called *A Sand County Almanac* has become one of the most respected books about the environment ever published. Today, many people from around the world travel to visit his “shack” in central Wisconsin to seek solace and inspiration.

Wangari Maathai (Apr. 1, 1940 -- Sep. 25, 2011)
Wangari Maathai was a Kenyan environmental political activist. She founded the Green Belt Movement, an organization focused on planting trees, conservation, and women’s rights. She hired women and paid them for every tree seedling they planted. In 2004, she became the first African woman to receive the Nobel Peace Prize for her humanitarian work. Today Kenya has over 30 million trees that have been planted by women through Wangari’s work.
Chico Mendes  
(Dec. 15, 1944 -- Dec. 22, 1988)

Francisco Alves “Chico” Mendes was a Brazilian rubber tapper and activist who grew up in the Amazon rainforest. The son of a native rubber tapper, he watched as plantation owners took advantage of workers to harvest rubber from trees, and destroyed native rainforest. Chico advocated for the human rights of Brazilian peasants and indigenous peoples, and led a movement to preserve the Amazon forest. He was assassinated outside his home by a rancher who opposed his activism.

John Muir  
(Apr. 21, 1838 -- Dec. 24, 1914)

Also known as “John of the Mountains”, John Muir was a Scottish-American naturalist, author, and environmental philosopher. He spent much of his life writing about his adventures in nature, and advocated strongly for the preservation of wilderness in the U.S. He founded the Sierra Club to protect natural areas and helped create the National Park bill. Today he is referred to as the “Father of the National Parks.” The enthusiasm toward nature expressed in his writings has inspired many readers to take action to help protect our country’s wild areas.
An American politician and environmentalist from Wisconsin, Gaylord Nelson became a leading figure in the fight against environmental degradation and social injustice. He believed the environment belonged to the people and that it was the government’s job to protect and conserve it. He proposed a day to raise awareness of environmental problems, which eventually became the very first Earth Day on April 22, 1970.

Eiji Nakatsu (Unknown -- Present)
Japanese engineer Eiji Nakatsu had a problem. As an engineer on the speedy “bullet” trains of Japan, he wanted to make them faster, but also quieter. Because they were so fast, they created sonic booms when traveling through tunnels. Eiji realized studying birds could help, so he designed a train based on the sleek beak of a kingfisher and the modified feathers of owls. The new train was not only faster and quieter, but also more aerodynamic, saving millions of dollars in power and fuel costs.
Gary Paulsen (May 17, 1939 -- Present)
Gary Paulsen is a Minnesota author who has written more than 400 books, short stories and magazine articles, primarily for teenagers. Most of his work features the outdoors, and highlights the importance of nature. He often uses “coming of age” themes in his novels, where a character masters the art of survival and isolation as a rite of passage to maturity. His most famous books include *Hatchet*, *Dogsong*, and *The Winter Room*.

Neil deGrasse Tyson (Oct. 5, 1958 -- Present)
After a visit to the Hayden Planetarium at the Museum of Natural History, Neil deGrasse Tyson became obsessed with space and astronomy. Now the director of that same planetarium, Neil makes complex astronomy ideas accessible to the public through radio talks, podcasts, internet videos, and television shows. In addition to astronomy, he educates people on topics such as environmental protection, climate change, and science literacy.
Rolf Peterson (Apr. 5, 1949 -- Present)
Wildlife researcher Rolf Peterson began studying wolves and moose on Isle Royale National Park in 1958. This remote and rarely visited island in Lake Superior was the perfect environment to watch ecological processes. His study of the relationship between wolves and moose on the island is the world’s longest running wildlife study, and has provided scientists with much information about the balance between predators and prey.

Teddy Roosevelt
(Oct. 27, 1858 - Jan. 6, 1919)
As the 26th President of the United States, Theodore Roosevelt Jr. established many new national parks, forests, and monuments intended to preserve the nation’s natural resources. A lifelong naturalist and outdoorsman, he was proudest of his work in conservation, establishing the U.S. Forest Service in 1905. During a hunting trip in Mississippi, Roosevelt refused to shoot an old bear that had been tied to a tree by his hunting guides. After this event, a toy store owner named their stuffed toy bears after him, leading to the creation of the Teddy Bear.
Frank Lloyd Wright (Jun. 8, 1867 – Apr. 9, 1959)

An architect and interior designer, Frank Lloyd Wright designed more than 1,000 structures. He believed in a philosophy called organic architecture and designed buildings that were in harmony with humanity and the environment, so that the occupants were close to the natural surroundings. His most famous work is Fallingwater, a home build over a 30-foot waterfall.

Douglas Wood (1951 -- Present)

“Minnesota renaissance man” Douglas Wood has many roles including author, illustrator, musician, nature guide, and naturalist. He wrote the children’s books Old Turtle and A Quiet Place, and performs music related to the outdoors with his band, WildSpirit. As a student he struggled with ADHD and dyslexia, eventually going from “worst reader in the class” to international best-selling author. He communicates the inspiration found in nature through words and music.
What Does It Mean to You?

Have the students read the nature-inspired quotes and excerpts on journal page 13. You can do this as a whole group, or have them reflect on the quotes during the solo-sit activity. Ask them to share their thoughts, feelings, or opinions on any of the quotes. Which ones are their favorites? What would they write to summarize their experience on the hike today? This is a good activity for older students (6th grade and older).

Wilderness is not a luxury but a necessity of the human spirit. — Edward Abbey

The breaking of a wave cannot explain the whole sea. — Vladimir Nabokov

If I were a tree I would have no reason to love a human. — Maggie Stiefvater

The woods are lovely, dark, and deep. But I have promises to keep, and miles to go before I sleep. — Robert Frost

The wilderness holds answers to questions we have not yet learned how to ask. — Nancy Newhall

In every walk with nature one receives far more than he or she seeks. — John Muir

A society grows great when old men plant trees whose shade they know they shall never sit in. — Greek proverb

I'd rather have roses on my table than diamonds on my neck. — Emma Goldman

The tree which moves some to tears of joy is in the eyes of others only a green thing that stands in the way. — William Blake

Nature is a haunted house, but Art is a house that tries to be haunted. — Emily Dickinson

In the end we conserve only what we love. We will love only what we understand. We will understand only what we taught. — Baba Dioum

Even after the heaviest storm the birds come out singing. — Rose Kennedy

There are no passengers on spaceship earth. We are all crew. — Marshall McLuhan

Now I see the secret of the making of the best persons. It is to grow in the open air, and to eat and sleep with the earth. — Walt Whitman

Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts. — Rachel Carson

In the spring, at the end of the day, you should smell like dirt. — Margaret Atwood

Nature does not hurry, yet everything is accomplished. — Lao Tzu

If you truly love Nature, you will find beauty everywhere. — Vincent Van Gogh

People from a planet without flowers would think we must be mad with joy the whole time to have such things about us. — Iris Murdoch

An early morning walk is a blessing for the whole day. — Henry David Thoreau
Plant

- I am very common in northern Minnesota, but you will also see me here at Eagle Bluff if you just look up.
- Being “rusty” is very bad for me.
- I am the second tallest in North America, and can live 200-400 years.
- Lumberjacks of the 1800’s harvested my wood.
- White-tailed deer like to eat bud tips off of my branches.
- My relatives are conifers.
- My needles make a tasty tea.
- Squirrels, chipmunks, birds and mice feed on the seeds in my cones.
- I have five needles in each bunch, one for every letter of my name.
- I am named after a color.

EASTERN WHITE PINE

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Plant

- I come in many shapes: globular, fingerlike, or oblong, to name a few.
- I am a home and a food source rolled into one.
- Over 2000 kinds of me are found in North America.
- You can find me on trees, leaves, roots, and plant stems.
- The irritation of insects, fungi, and bacteria forms me.
- If you look inside of me, you may find a larva.
- I attract predators, such as chickadees, woodpeckers and beetles.
- Most of my kind are not harmful.
- I look like a small bump on the plant.
- Well “golly” most anglers can use what is inside of me for bait.

GALL
I am usually brown or black, but I can also be red, green, or yellow.
There are over 50,000 species of my kind in the world.
I have three body parts.
I eat many insects that are harmful to plants.
I grow out of my skin 4 to 12 times before becoming an adult.
Scorpions, ticks, and mites are my relatives.
Once my prey is captured, I'll paralyze it with my fangs which turns their
insides to mush. YUM, YUM!
When I was born I looked just like my ma and pa.
Many people would like me if they just took the time to get to know me.
Even though I have eight eyes, I cannot see very well.

**SPIDER**

If you threaten or corner me, I will vomit to ward you off.
I have a great sense of smell.
You may use sanitizer and soap to keep clean. For me, I pee on my leg to keep bacteria from growing.
A group of us together is called a venue.
Thanks to many people, I am protected by the International Migratory Bird Treaty.
I am a relative of the stork and ibis.
I will nest on the ground or in caves.
A skillful glider I am. I once traveled for 6 hours without flapping a wing.
Though many humans think I am ugly, my feather-free head helps keep diseases away.
I am a carrion eating bird, preferring the dead to the living.

**TURKEY VULTURE**
Fungi

- I have very cool names like Stink Horn, Witch’s Butter, and Penny Bun.
- It is important to have nutrients to survive, but I am quite lazy and will not search for my food.
- I can be very tiny or very large. If you travel to Oregon you would find I am as large as 1,220 soccer fields.
- If it wasn’t for me, you would be walking waist-deep through dead trees and animal parts.
- I have an identity disorder: I am neither plant nor animal.
- I can be found throughout the world—in the woods, in your house, or even on your body!
- I move around by producing spores which ride in the wind.
- You would enjoy me in a tasty entrée, but beware! Sometimes I can be deadly toxic.

Fungi

AGATE

Land Feature

- You will find me throughout the world including Minnesota.
- I come in a variety of shapes and sizes.
- If it wasn’t for volcanoes I would not be here.
- In some cultures, if you wear me, I will cure the sting of a scorpion or the bite of a snake.
- I am often small enough to fit in your pocket.
- In order for me to form I need volcanic ash, water, and iron.
- Many people spend a lifetime trying to find me.
- You admire me for my bands that can be blue, green, red, orange, purple, or black.
- Rock hunters love me.
- If you go to a jewelry store, you may find me in a ring or on a necklace. I really am such a gem!
- I am the official state gem of Minnesota.
Spanish Explorer Hernando De Soto first discovered me in 1541.
Mark Twain has written a book about me. Have you read it?
Every day I haul 436,000 tons of sediment.
I am the second largest in the United States.
I enjoy traveling and have visited many great cities in United States.
I really do take my time and only travel about 1.2 miles per hour.
I have been invaded by Zebra Mussels, an exotic animal that depletes the food supply for other animals.
My name was given to me by the Ojibwa Native Americans which means “Great River”.
Many people depend on me for their drinking water.
Come visit me and my birthplace in Northern Minnesota at Lake Itasca.

MISSISSIPPI RIVER

I hate to brag, but if it was not for me, life could not exist.
You may call me a traveler of sorts. Although I do not own a Harley I do like to cycle.
I am very simple yet incredibly complex.
There is only 1% of me on earth that humans can consume.
Hydro is my nickname.
United States is the worst country conserving me. Matter of fact, you have probably wasted me already today. Do you know how?
I was present during the age of the dinosaurs.
I make up 3/4 of your body.
I am bonded together with 2 hydrogen and one oxygen atom.
I can be a solid, liquid or gas.

WATER MOLECULE
Wild Edible Plants of Eagle Bluff

Remember! Always check with your instructor first BEFORE eating any plants. If you’re not sure if something is safe to eat—don’t eat it!

Wild Ginger (*Asarum canadense*)
This low-lying plant grows in large clusters in shady deciduous forests. The roots were made into a ginger-flavored candy by pioneers. However you *should not* eat the root, because it may actually be toxic. Instead, break it into pieces and enjoy the ginger-like smell!

Look for the distinct heart-shaped leaf.
Try to find the small purple-brown flowers growing under the leaves, close to the ground. They smell like decomposing meat to attract flies and ants for pollination!

Wild Leeks (*Allium tricoccum*)
Also called *ramps*, these plants have long, smooth, shiny leaves and often grow in clusters, especially in the spring. The leaf stems are a reddish-purple color near the ground.

If you gently dig up the leeks (don’t pull too hard!), you can find a white edible bulb that tastes like an onion! Or you can chew on the leaves, which also have an onion-like taste.
**Garlic Mustard** *(Alliaria petiolate)*

This invasive species is very easy to find at Eagle Bluff. It has heart-shaped leaves with wavy (toothed) edges. The leaves and stems are edible, and taste like garlic. In fact, it can be used to make a pesto for pasta!

Grows in patches, about 3-4 feet tall. Look for the small, white flowers with four separate petals.

**Angelica** *(Angelica atropurpurea)*

This is Minnesota’s tallest wildflower, sometimes growing up to 9 feet tall! Look for a thick green stem with purple streaks that looks like celery. Try taking a small taste of the stem, but be careful—some people say it tastes like soap. It can be turned into chewy candy that tastes like black licorice.

Look for large clusters of white flowers that look like pom-poms.
RESOURCES


Seven Principles Overview. Leave No Trace Center for Outdoor Ethics. Retrieved from https://lnt.org/learn/seven-principles-overview