

Amberosity Gott

FW 430 Forests as Classrooms

Forest Exploration and Stewardship

Target Audience:

My target audience are students ages 4-7. This age group is in the pre-operational stage. They are still very egocentric. Children at this age are very hands-on and need to try things out for themselves in order to learn. They may have a short attention span if activities are not hands-on or active play. Symbolic play, roleplaying or pretend play is important and generally well received at this age. Children at the mid to later ages in this range are starting to perceive some difference between real and pretend. They may be able to make basic connections between what they are pretending and how it relates to the real world.

I have taken the above information and my own knowledge of how my two boys (ages 4 and 2.5 years old) interact and learn to craft this lesson plan. I focused on the activities being driven by student observations and guided by some basic questions from the teachers. I also focused on ways to spark their interest and have them create personal connections to larger ideas such as environmental stewardship and forest products. In my experience, children at these ages greatly enjoy being able to share and teach the adults around them. Thus, discussions of the lesson material that incorporates their observations will help engage students and keep them interested. Students at this age also like to be able to pretend, explore and stay active. Activities that promote imagination, movement and supervised exploration are ideal. This curriculum also focuses on a lot of art-based play where students are in charge of drawing based on observations.

Applicable Learning Theories

This curriculum is designed to meet early childhood learning standards while still allowing students the flexibility to explore individual interests. It follows several of Humanism's principles in that it allows students to explore what interests them under the facilitation of a teacher. The ongoing journal project is an example of this. Students are free to journal about what interests them in the context of the forest subject but are also guided by broad questions from the teacher. Another example of flexibility for student's interests in this curriculum is the Environmental Stewardship 101 activity which serves as a jumping board for students to explore environmental stewardship topics that interest them. Students are challenged to choose an environmental stewardship activity that engages and inspires them and then to educate others about that activity.

This curriculum also uses principles from Constructivism. Throughout these activities students are asked to actively take their observation and new knowledge and make connections with what they already know. In several activities students are asked to connect what they are learning to their daily lives. For example, students are asked to brainstorm what forest products they already use and then bring in a forest product from home. This provides a pathway of understanding of why we need to protect forests and the important role they play in our lives using what students already know. Students are also encouraged throughout their journaling to improve, revise question and make new conclusions based on what they are learning and already know.

Learning Objectives

Creative Arts:

* (Knowledge Level) identify shapes, textures, and colors in forest objects and their own art

* (Comprehension Level) describe primarily through sketches or drawings 1-2 species they see in the forest

* (Application Level) experiment with colors, shapes, and materials to more accurately render their drawings of forest species

* (Application Level) produce sketches and drawings of forest species using a variety of art materials and accurate coloration/shape

* (Analysis Level) examine available materials on forest species and use those materials to inform their own drawings

Science:

* (Knowledge Level) describe the physical properties of forests, plants, and animals

* (Knowledge Level) describe what type of home these animals live in.

* (Knowledge Level) describe 1 rudimentary forest relationship

* (Knowledge Level) list 3 animal species that make their homes in the forest

* (Knowledge Level) identify an animal is a bird, mammal, reptile or amphibian

* (Comprehension Level) discuss why we need to protect forest habitat

* (Comprehension Level) identify 3 animal species that live in the forest from video, pictures or personal sightings

* (Comprehension Level) discuss changes that occur in the forest environment

* (Comprehension Level) explain what animals need to make a home in the forest; food, water, cover, and materials

* (Comprehension Level) describe through discussion, writing, or drawing 2-3 characteristics of a chosen species from the forest

* (Application Level) demonstrate the ability to independently observe, collect, describe and record information about forest habitat

* (Analysis Level) categorize items from the forest by color, species, shape, or other physical characteristics

* (Analysis Level) compare aspects of their lives to the lives of animals in the forest

Social Studies:

* (Knowledge Level) identify forest products outside the forest setting

* (Comprehension Level) describe 1 behavior they can do to help protect the environment

* (Comprehension Level) identify 1 career or job that is important to forest health

* (Application Level) apply knowledge of environmental practices and responsible behaviors to some aspect of their own lives

* (Analysis Level) explain how their actions contribute to forest and local ecosystem health

* (Synthesis Level) create an accurate map of a forest landscape using class observations

Learning Experiences and Instruction

Lesson One:

Stage One:

Established Goals:

Creative Arts:

- Uses different art media and materials
- Identifies shapes, textures, and colors

Science:

- Knows that plants and animals need food, sun, air and water to survive (State of Maine Early Childhood Learning Guidelines)
- Observes and discusses changes that occur in their world [e.g., plant growth, colors of foliage, stages of living things (caterpillar/butterfly), night and day, seasons, weather, a new building in the community] (State of Maine Early Childhood Learning Guidelines)
- Demonstrates curiosity about the natural environment (State of Maine Early Childhood Learning Guidelines)
- Asks questions and proposes ways to answer them (State of Maine Early Childhood Learning Guidelines)

- Shows interest in and discovers relationships and patterns (State of Maine Early Childhood Learning Guidelines)
- Observes and describes the physical properties of objects (State of Maine Early Childhood Learning Guidelines)
- Sorts living things by characteristics such as movement, environment or body covering (e.g., hair, feathers, scales) (State of Maine Early Childhood Learning Guidelines)
- Develops growing abilities to collect, describe, and record information through a variety of means including observation, discussion, drawings, maps, and charts (State of Maine Early Childhood Learning Guidelines)
- Makes generalizations or conclusions based on experiences (State of Maine Early Childhood Learning Guidelines)

Understandings (from Bloom's Taxonomy):

- * (Knowledge Level) describe the physical properties of forests, plants, and animals
- * (Knowledge Level) describe what type of home these animals live in.
- * (Knowledge Level) list 3 animal species that make their homes in the forest
- * (Knowledge Level) identify an animal is a bird, mammal, reptile or amphibian
- * (Knowledge Level) describe 1 rudimentary forest relationship
- * (Knowledge Level) identify shapes, textures, and colors in forest objects and their own

art

* (Comprehension Level) describe primarily through sketches or drawings 1-2 species they see in the forest

* (Comprehension Level) identify 3 animal species that live in the forest from video, pictures or personal sightings

* (Comprehension Level) discuss changes that occur in the forest environment

* (Comprehension Level) explain what animals need to make a home in the forest; food, water, cover, and materials

* (Comprehension Level) describe through discussion, writing, or drawing 2-3 characteristics of a chosen species from the forest.

* (Application Level) demonstrate the ability to independently observe, collect, describe and record information about forest habitat

* (Application Level) experiment with colors, shapes, and materials to more accurately render their drawings of forest species

* (Application Level) produce sketches and drawings of forest species using a variety of art materials and accurate coloration/shape

* (Analysis Level) categorize items from the forest by color, species, shape, or other physical characteristics

* (Analysis Level) examine available materials on forest species and use those materials to inform their own drawings

* (Analysis Level) compare aspects of their lives to the lives of animals in the forest

Students will know...

- ✓ 2-3 species that live in Maine forests and how to identify these species.
- ✓ Animals use resources from forests to make their homes.
- ✓ Animals have specific adaptations that allow them to live in different habitats.
- ✓ Animals have different characteristics that place them into the categories of mammal, bird, reptile and amphibian

Essential Questions:

- What types of animals live in a forest?
- What do animals need to live in a forest?
- What characteristics do animals that live in forests have? How do these characteristics help them survive in forests?
- What does a forest habitat look like? Where do animals live in this habitat?

Students will be able to...

- ✓ Make observations and sort objects into categories using physical characteristics
- ✓ Identify that an animal is a bird, mammal, reptile or amphibian based on clear characteristics
- ✓ Create drawings in the field that they can use to later identify the type of animal or plant seen
- ✓ Identify 2-3 forest plant or animal species based on physical characteristics; at least one of these should be a plant species

Stage 2: Assessment Evidence

Performance Tasks:

- Students in the classroom or in the forest setting will be asked to list and/or identify species that are native to the Maine forest. This may take the form of on-site identification of species in the forest setting. This could also be incorporated in the classroom or forest through a scavenger hunt game where they must find and identify pictures in cases of lack of access to forest areas or bad weather.
- Students will create a journal of their experiences in the forest or discuss their experiences with a focus on; questions they have, answers to those questions based on their observations, observations of the physical properties of projects, observations of changes in the forest, drawings, and maps.
- Students will describe 1 rudimentary forest relationship in some detail (e.g. the chipmunk makes his home in the pine tree and gather pinecones from it for food) either in a class discussion or in their journal

Other Evidence:

- Students are able to make personal connections and observations about the forest
- Contributions to class discussions about animal species, habitat and forest ecosystems/communities
- Students are able to compare forest objects and species using their physical characteristics

Stage 3: Learning Plan

Field Trip: Forest Exploration for Journaling and Observations

** This activity allows teachers and students to establish a forest journal which they are strongly encouraged to continue throughout the curriculum.

- Students should understand basic forest safety rules such as staying with the group, not disturbing plants or wildlife, not approaching or feeding wildlife, and leave no trace principles.
- Students should have some introductory knowledge of forest animals, characteristics and adaptations before taking the field trip.
- Teachers should choose a list of species for students to focus on before the field trip. Students should also be encouraged to identify or study any other species of animals or plants they wish beyond this list.

Species suggestions:

- Eastern gray squirrel (*Sciurus carolinensis*)
- Eastern chipmunk (*Tamias striatus*)
- White-tailed deer (*Odocoileus virginianus*)
- Black bear (*Ursus americanus*)
- Northern raccoon (*Procyon lotor*)
- Red fox (*Vulpes vulpes*)
- Snowshoe hare (*Lepus americanus*)
- American deer mouse (*Peromyscus maniculatus*)

- Yellow bellied sapsucker (*Sphyrapicus varius*)
- Downy woodpecker (*Picoides pubescens*)
- Hairy woodpecker (*Picoides villosus*)
- Blue jay (*Cyanocitta cristata*)
- Black-capped chickadee (*Poecile atricapillus*)
- American crow (*Corvus brachyrhynchos*)

Materials and Preparation:

- Teachers will need to identify a local forest setting suitable for children to walk through. The setting should be a good representation of a Maine forest with areas suitable for children to spend time journaling. The forest should also ideally have prominent signs of animal inhabitants.
- Journaling materials (Notebook with white or lined paper, pencils, crayons, markers etc.)
- Laminated photos of animal species (in case they are not sighted)
- Appropriate outdoor wear for each child (jackets, sneakers)
- Field guides

Activity:

- Once at the site have children pair into groups of 2-3.
- Have students explore the site within preset boundaries with their groups
 - Students should be looking for animals or signs of animals
 - Questions to answer:
 - What do animals need to survive in the forest?

- What signs do animals leave behind?
 - Where would you live if you were a forest animal?
 - What does a forest habitat look like? Where do animals live in this habitat?
- Have students regroup and share their observations. Discuss answers to the questions above.
- Lead a class exploration of the site. Use combination of laminated photos, signs of animals (scat, food remains, tracks, holes or burrows) and student observations to discuss each animal species, their homes and adaptations.
 - Questions to answer:
 - What types of adaptations does this animal need to live in this type of home? (e.g. The chipmunk has pouch cheeks to carry food to its home, the woodpeckers beak is long and pointed so it can grab bugs from the holes it pecks in trees)
 - What signs does this animal leave behind?
- Ideally while still at the site assign each student an area to sit within the forest and give students 10-30 minutes (depending on age and time available) to journal their observations. Journals can include written or drawn observations, poems, drawing of species or signs of species they saw etc....
 - Assist students with writing the date, time, and weather somewhere in their journal entry
 - If time is not available at the site have students complete their journals as soon as possible within the classroom.

- For very young students it may be best to have them sit as a group within the forest to journal.

Prompts for Journaling After the Field Trip and in the Classroom:

- Describe or draw a local species and their home
- Describe where and how you would live if you were a forest animal
- Provide forest objects for students to sketch in detail
- Write down questions for later exploration/study
- What is changing or has changed in the forest?
- Describe a forest relationship (e.g. the chipmunks live in the pine tree and eat the cones)

Activity: Sort and Match

- Students should have a basic knowledge of shapes and colors
- This activity can be used as an introduction to species, difference between species and observations. It can also be used after students have a working knowledge of forest species to assess their knowledge and observational abilities.

Materials and Preparation:

- Forest materials to sort and match; leaves or varying colors and species, sticks, rocks, bark etc.... Materials can be gathered by the teacher or by the students during the field trip. Be sure that gathering of materials is done in accordance with local laws, done sustainably and that they will not decompose before the activity is done (e.g. no live plants, insects etc....)

- If students have background knowledge of some plant species this is helpful but not necessary to the activity.
- Each student or groups of students should have a clear table to sort items
- Students should also have a way to label and identify their created categories. This could be labels or bins to contain items.
- Fields guides and/or pictures of local species to aid students in sorting
- Camera to take photos if activity gets cut short or you want to have a visual reference for students later on
- Teachers can choose how difficult or easy to make the sorting based on their class (e.g. a teacher may only distribute red, yellow and green leaves to a pre-school class, while a 1st grade class may have several types of sticks that match to the species of tree leaf)

Activity:

- As a class have students make observations about the items.
 - Questions to answer:
 - What color is it?
 - What shapes do you see?
 - Do you recognize what species this is from?
 - Is it hard? Soft? Rough? Smooth?
- Distribute the objects to individual students or groups. If using groups, it is advised they do not exceed 3 students.

- Give the class 10-15 minutes to sort the objects into categories. If needed assist students in labeling their categories. Allow students to use field guides and other identification materials if they like.
- Have students or groups explain to the class their categories and what characteristics they used to sort.
- If time allows, have students brainstorm other ways they could sort their objects

RESOURCES:

TV Show: 'Curious George' "Curious George and the Dam Builders" Season 1 Ep. 15

TV Show: 'Curious George' "Curious George and the Dam Builders" Season 1 Ep. 15

Book: 'The Sibley Guide to Birds' – David Allen Sibley

Book: 'Forest Trees of Maine' – Maine Forest Service (Available for free online in PDF format from; http://maine.gov/dacf/mfs/publications/handbooks_guides/forest_trees/index.html)

Book: 'Peterson Field Guide to Mammals of North America' – Fiona Reid

Lesson Two:

Stage One:

Established Goals:

Creative Arts:

- Uses different art media and materials
- Identifies shapes, textures, and colors

Science:

- Expands knowledge of and respect for their environment (State of Maine Early Childhood Learning Guidelines)
- Develops growing abilities to collect, describe, and record information through a variety of means including observation, discussion, drawings, maps, and charts (State of Maine Early Childhood Learning Guidelines)
- Demonstrates curiosity about the natural environment (State of Maine Early Childhood Learning Guidelines)
- Observes and describes the physical properties of objects (State of Maine Early Childhood Learning Guidelines)

Social Studies

- Understands and discusses why certain responsibilities are important (e.g., cleaning up, caring for pets) (State of Maine Early Childhood Learning Guidelines)
- Notices and expresses interest in different careers and workers' roles (State of Maine Early Childhood Learning Guidelines)
- Demonstrates interest in simple maps and other visuals to describe geographic location, direction, distance, size, and shape (State of Maine Early Childhood Learning Guidelines)
- Demonstrates awareness of the need to protect the natural environment (State of Maine Early Childhood Learning Guidelines)

- Knows and discusses where some products come from (State of Maine Early Childhood Learning Guidelines)

Understandings (from Bloom's Taxonomy):

- * (Knowledge Level) identify forest products outside the forest setting
- * (Comprehension Level) describe 1 behavior they can do to help protect the environment
- * (Comprehension Level) identify 1 career or job that is important to forest health
- * (Comprehension Level) discuss why we need to protect forest habitat
- * (Application Level) apply knowledge of environmental practices and responsible behaviors to some aspect of their own lives
- * (Application Level) demonstrate the ability to independently observe, collect, describe and record information about forest habitat
- * (Analysis Level) explain how their actions contribute to forest and local ecosystem health
- * (Synthesis Level) create a map using a variety of art materials and class observations

Students will know...

- ✓ How to make basic maps using their observations of a landscape
- ✓ How these jobs contribute to forest health
- ✓ 2-3 products that come from the forest

- ✓ How their actions impact the environment in the areas of recycling, energy usage, water usage and stewardship

Essential Questions:

- What jobs do people have taking care of or managing forests?
- How do these jobs help keep the forest healthy?
- How can maps help us study forests?
- What do we use that comes from the forest?

Students will be able to...

- ✓ Identify 2-3 forest products and discuss how they are obtained or used
- ✓ Help design simple maps based on places they have explored or are exploring and are able to use these maps with adult assistance to navigate
- ✓ Identify 1 career or job that is important to forest health (park ranger, firefighter, biologist, logger etc....)
- ✓ Identify forest products outside the forest setting (e.g. The Christmas tree in my home comes from the forest)
- ✓ Describe 1 behavior they can do to help protect the environment and shows follow-through in doing this behavior (e.g. turning off the light if no one is in the room)

Stage 2: Assessment Evidence

Performance Tasks:

- Students will choose an environmentally conscientious behavior to implement in their daily lives. They will create a visual explanation of that activity and explain it to the

class/their parents. E.G. turning off the lights when they leave the room, turning off the water when they are brushing their teeth, taking showers instead of baths, recycling their homework etc....

- Students will create a journal of their experiences in the forest or discuss their experiences with a focus on; questions they have, answers to those questions based on their observations, observations of how the forest is affected by humans, questions/observations about forest careers, drawings, and maps.
- Students will work together to design and create a map of a local forest area they visit. This could be located and include an urban area. Students will further use this map to discuss human impacts on forests. (e.g. There is a river next to the road where we saw a lot of trash, that could hurt animals that live there).

Other Evidence:

- Students are able to make personal connections and observations about the forest
- Contributions to class discussions about forest health, forest careers, and environmental stewardship
- Students are able to make connections between items in their home, classroom, town and where they came from in the forest (e.g. I have a wooden train track at home. The wood comes from trees in the forest)

Stage 3: Learning Plan

Activity: Mapping our Forest

** This activity should take place after “Forest Exploration for Journaling and Observations” or ideally a separate field trip should be made to the forest setting.

- Students should have sketches, notes, and observations about their forest setting that will aid them in creating a map
- Students should complete this activity as soon as possible after the field trip to allow for accuracy and/or should make multiple trips to the area to improve and revise their map
- For younger grades (Pre-k and Kindergarten) you can have them assist in designing a basic map or have them draw their own maps and then lead an expedition using their maps on the forest site.

Materials and Preparation:

- Students forest journals from “Forest Exploration for Journaling and Observations”
- Field Guides
- Large piece of paper (May be ideal to mount this on cardboard to allow for mobility and for it to be positioned where everyone in the class can see)
- Art materials for creating the map (crayons, pens, markers, scissors, erasers, paint etc....)

Activity:

- Have students use their on-site observations to draw rough sketches of a map of the forest area in their journals
- Identify a landmark that students are familiar with and start drawing the map there. It is best to draw a class rough draft on a whiteboard so that edits can easily be made. Have students assist in identifying other landmarks and placing them in the correct areas.
- Once a class rough draft is complete assign each student a landmark or area to work on. (e.g. One student gets the school, another gets a large oak tree with bird nest, another gets the vernal pool). Students should design a drawing or marker that represents their assigned landmark for the map.
- Have students help place their landmarks on the larger map following the draft created earlier.
- If time allows you can have students revise their map after visits to the site, or have them go on an expedition using their map to find a marker you place.

Activity: Humans and Forests: Jobs

- Students should have some basic knowledge of the forest and visited their forest site at least once before this activity.
- Students should be introduced to the idea of forest products before this activity
- Journals are again a useful tool for this activity as students can keep track of ideas, questions or observations about forest careers

- Teachers will need to find and contact those who work in the local forests; Ideally you will be able to set up a classroom or site visit with 2-3 that represent different forest careers.
 - Park rangers (National or State)
 - Game Wardens
 - Biologists
 - Firefighters
 - Search and Rescue
 - Loggers
 - Trail crews
 - Urban park or forest managers
 - Other forest product harvesters (mushrooms, balsam fir tips, flowers, herbs etc.)

Materials and Preparation:

- Dates and times set up with 2-3 speakers with time for students to ask questions
- Supplementary materials for those careers you are unable to get a speaker to represent but still are of interest; videos, pictures, books, props etc....
- Students forest journals from “Forest Exploration for Journaling and Observations”
- Materials for journaling (pens, markers, crayons etc....)

Activity:

- Before students meet the speakers have them discuss as a class and/or brainstorm in their journals different forest related jobs.
- Brainstorm as a class forest products and how they relate to student’s daily lives

- Have students bring in one forest product from their home and share where it comes from and what humans use it for
- Have students listen to/visit speakers and encourage questions related to their careers.
- After students listen to each speaker give them time to journal
 - What did you find interesting about this job?
 - How does this person help the forest? How do they help us?
 - What forests products does this person protect or harvest?
- If necessary, introduce supplementary materials on other forest careers to students
- **OPTIONAL FOR OLDER STUDENTS:** Have students choose one forest career and one forest product that are related. Ask them to spend 30 minutes designing an 8"x11" poster that shows the relationship between this job and the forest product. (e.g. a student may show a trail crew building a trail and then happy hikers hiking it)

Activity: Environmental Stewardship 101

- Students should have some basic knowledge of the forest and visited their forest site at least once before this activity.
- Students should be introduced to the idea of forest products before this activity
- Journals are again a useful tool for this activity as students can keep track of ideas, questions or observations.
- Check with administration about making conservation signs for other parts of the school
- This activity can prequel students independent research into aspect of environmental stewardship

Materials and Preparation:

- Some materials from the resources listed below for students to explore
- A 30-minute TV Show that explains environmental stewardship in an age-appropriate way
- Various cleaned items that can be recycled (tin cans, plastic bags, bottles, cardboard, paper). Best to avoid anything that can decompose but composting can be discussed in addition to this lesson.
- Paper and art materials
- Whiteboard for brainstorming student ideas for energy/water conservation, recycling and other environmentally friendly activities
- Teachers may choose to show a single show or may break up the topics into separate days each with their own relevant video

Activity:

- To introduce this lesson, a kid-friendly video on environmental stewardship should be shown. Some options are listed in resources.
- After the video lead a class discussion
 - What do we mean by “recycling”?
 - What happens when something is recycled?
 - Why do we want to conserve water/energy?
 - How does conserving resources help the forest?

- Introduce and explain the slogan “Reduce, Reuse, Recycle” (See the book resource “I Can Save the Earth!: One Little Monster Learns to Reduce, Reuse, and Recycle”)
- Have students brainstorm simple things they can do to help the environment by reducing, reusing or recycling
- Have each student pick an activity they would like to commit to doing for a week or choose an activity as a class to do together
- Have each student draw a poster or sign that they can use at home to help them remember their chosen activity
- Check in with students and remind them to follow through with their activity
- If possible, have students help make signs for the school to promote one conservation activity (e.g. “Last One Out, Lights Out” signs for classrooms etc...)

RESOURCES:

TV Show: ‘The Magic School Bus’ – “Wet All Over” Season 2 Episode 206

TV Show: ‘The Magic School Bus’ – “Family Holiday Special” Season 3 Episode 313

TV Show: ‘Sid the Science Kid’ – “Where Did the Water Go?” Season 2 Episode 51

TV Show: ‘Sid the Science Kid’ – “Clean Air!” Season 2 Episode 52

TV Show: ‘Sid the Science Kid’ – “Reused Robot” Season 2 Episode 53

TV Show: ‘Sid the Science Kid’ – “Save the Stump” Season 2 Episode 54

TV Show: ‘Sid the Science Kid’ – “Let There Be Light” Season 2 Episode 55

TV Show: 'Curious George' "Curious George Takes a Hike" Season 2 Ep. 10

TV Show: 'Curious George' "Everything Old Is New Again" Season 3 Ep. 7

TV Show: 'Curious George' "Follow That Boat" Season 5 Ep. 9

TV Show: 'Curious George' "Maple Monkey Madness" Season 6 Ep. 7

TV Show: 'Curious George' "Junky Monkey" Season 6 Ep. 10

Book: 'The Adventures of a Plastic Bottle: A Story About Recycling (Little Green Books)' – Alison Inches

Book: 'The Adventures of an Aluminum Can: A Story About Recycling (Little Green Books)' – Alison Inches

Book: 'I Can Save the Earth!: One Little Monster Learns to Reduce, Reuse, and Recycle (Little Green Books)' – Alison Inches

Graphic Organizer

