

The Forest as a Sustainable Natural Resource

Essential Question of Unit: Why is it important to protect our forest environment?

Lessons	Time Length	Key Questions/Concepts: What questions/concepts will focus student learning?	Teacher Focus: What are the aims of this lesson for learning?	Key GEs addressed	Activities Supporting Learning Targets	Assessments	Supporting Resources
•What is an environment?	•1 class period	•What defines an environment? •What do people mean when they talk about the environment?	•Have students discover what we mean when we talk about an environment	<ul style="list-style-type: none"> •1.5 Writing Dimensions: Students draft, revise, edit, and critique written products so that final drafts are appropriate in terms of the following dimensions: <ul style="list-style-type: none"> •Purpose -- Intent is established and maintained within a given piece of writing. •Organization -- The writing demonstrates order and coherence. •Details -- The details contribute to development of ideas and information, evoke images, or otherwise elaborate on or clarify the content of the writing. •Voice or Tone -- An appropriate voice or tone is established and maintained. •1.15 Speaking: Students use verbal and nonverbal skills to express themselves effectively. •1.19 Research: Students use organizational systems to obtain information from various sources (including libraries and the Internet). •2.1 Types of Questions: Students ask a variety of questions. 	<ul style="list-style-type: none"> •Brainstorming: What do we think the term environment means? Have students brainstorm ideas on chart paper. •Discussion: Where have you seen this word? •Research: Working in groups or pairs, use classroom resources and look up definitions of environment. •Writing: Create your own definition. Have groups write their own definitions of the term. •Presentation: Groups share definitions with group. They should come up with one definition for whole group. •Notebook: Write definition in science journals. 	<ul style="list-style-type: none"> •Participation •Cooperative group work •Written definitions •Quick presentations •Journal notes 	<ul style="list-style-type: none"> •Magazines •Books •Computers •Dictionaries/encyclopedias •Journals •Pencils/colored pencils
•The environment of our school	•2 class periods	•What environment do we have locally?	•Learn about our local environment around our school.	•4.6 Understanding Place: Students demonstrate understanding of the relationship between their local environment and community heritage and how each shapes their lives.	<ul style="list-style-type: none"> •Walk around school: Class walks around the school. Talk about visualizing what they see as if they were a hawk flying over the school looking down. •Picture taking: Students and/or teacher(s) take photos of surroundings. •Make maps: Students make maps of the school and its surroundings. Maps should show the local environment. •Science journal entry: Students write and draw about map activity. 	<ul style="list-style-type: none"> •Participation •Maps •Journal notes 	<ul style="list-style-type: none"> •Camera •Journal •Pencils

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<ul style="list-style-type: none"> •Healthy environments 	<ul style="list-style-type: none"> •3-4 class periods 	<ul style="list-style-type: none"> •What does our environment need to be healthy? 	<ul style="list-style-type: none"> •See what is needed to keep our local environment healthy and strong. 	<ul style="list-style-type: none"> •2.2 Problem Solving: Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge •7.1 Scientific Method: Students use scientific methods to describe, investigate, and explain phenomena and raise questions in order to: <ul style="list-style-type: none"> •Generate alternative explanations - hypotheses - based on observations and prior knowledge •Design inquiry that allows these explanations to be tested; •Deduce the expected results; •Gather and analyze data to compare the actual results to the expected outcomes; and •Make and communicate conclusions, generating new questions raised by observations and readings. 	<ul style="list-style-type: none"> •Brainstorming/Discussion: Talk with class about what environments needs to stay alive . •Read book: <u>The Wump World</u> and/or <u>Farewell to Shady Grove</u> •Play activity “Every Tree for Itself” from <u>Project Learning Tree: Environmental Education Activity Guide</u> •Discussion: Talk about how “Every Tree for Itself” shows what plants and environments need •Science journal entry: Write and draw about activity •Terrarium building: Each student gets to build a terrarium for themselves •Science journal: Draw and write about their terrariums •Watch video on “Plants” 	<ul style="list-style-type: none"> •Participation in discussion and activity •Terrariums •Science journals 	<ul style="list-style-type: none"> •Book: <u>The Wump World</u> or <u>Farewell to Shady</u> by Bill Peet •Journals •Pencils, colored pencils •Terrarium materials: jars with lids, soil, pebbles, small plants •Book: <u>Project Learning Tree: Environmental Education Activity Guide</u> •Colored bingo chips for “Every Tree for Itself” •Paper plates to draw personal Tree Rings for “Every Tree for Itself” •Video: “Plants” by Bill Nye

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•Natural Resources	•4 -5 class periods	<ul style="list-style-type: none"> •What do people mean by “natural resources”? •What are some different kinds of natural resources? •What can happen if we do not take care of resources? 	<ul style="list-style-type: none"> •Learn about different natural resources and the difference between renewable, nonrenewable, and sustainable resources. •Learn about the importance of taking care of resources and how resources can be harmed if not taken care of. 	<ul style="list-style-type: none"> •1.5 Writing Dimensions: Students draft, revise, edit, and critique written products so that final drafts are appropriate in terms of the following dimensions: <ul style="list-style-type: none"> •Purpose -- Intent is established and maintained within a given piece of writing. •Organization -- The writing demonstrates order and coherence. •Details -- The details contribute to development of ideas and information, evoke images, or otherwise elaborate on or clarify the content of the writing. •Voice or Tone -- An appropriate voice or tone is established and maintained. •1.19 Research: Students use organizational systems to obtain information from various sources (including libraries and the Internet). •7.2 Investigations: Students design and conduct a variety of their own investigations and projects. These should include: <ul style="list-style-type: none"> •Questions that can be studied using the resources available; •Procedures that are safe, humane, and ethical; •Data that are collected and recorded in ways that others can verify; •Data and results that are represented in ways that address the question at hand; •Recommendations, decisions, and conclusions that are based on evidence, and that acknowledge references and contributions of others; •Results that are communicated appropriately to audiences; and •Reflections and defense of conclusions and recommendations from other sources, and peer review. •7.11 Systems: Students analyze and understand living and non-living systems (e.g., biological, chemical, electrical, mechanical, optical) as collections of interrelated parts and interconnected systems. •7.16 Natural Resources and Agriculture : Students demonstrate an understanding of natural resources and agricultural systems and why and how they are managed. 	<ul style="list-style-type: none"> •Read book: Just A Dream •Brainstorming: Whole class works on trying to determine what the term “natural resources” means •Discussion: Take apart the words and think about things from nature; and resources as being something we need to use •Research: Use classroom resources and work in pairs and small groups to find definition of term •Writing: Each group creates their own definition •Presentation: Each group presents their definitions •Science notebooks: Put definition into science notebook •Break down the term “natural resources” into renewable, nonrenewable and perpetual. •Do “Renewable or Not” lesson from Project Learning Tree: Environmental Education Activity Guide to learn about the differences between the three types of resources •Science journal entry •Do activities “Greed versus Need” and “Popcorn Generation” from Project Learning Tree: Environmental Education Activity Guide •Science journal entries of activities 	<ul style="list-style-type: none"> •Book: •Posters •Presentations •Science journals 	<ul style="list-style-type: none"> •Book: Just A Dream by Chris Van Allsburg •Magazines •Books •Computers •Dictionaries/ encyclopedias •Book: Project Learning Tree: Environmental Education Activity Guide

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•Trees and TCS	•3 - 4 class periods	•What trees do we have around the school?	•See the richness of our tree variety around the school and being to identify some of the local trees.	<ul style="list-style-type: none"> •1.17 Notation and Representation: Students interpret and communicate using mathematical, scientific, and technological notation and representation. •1.19 Research: Students use organizational systems to obtain information from various sources (including libraries and the Internet). •4.6 Understanding Place: Students demonstrate understanding of the relationship between their local environment and community heritage and how each shapes their lives. •7.15 The Universe, Earth, and The Environment: Students demonstrate understanding of the earth and its environment, the solar system, and the universe in terms of the systems that characterize them, the forces that affect and shape them over time, and the theories that currently explain their evolution. 	<ul style="list-style-type: none"> •Walk in the woods: Walk around school environment to identify trees around property. •Photography: Students and/or teacher(s) takes photos of trees and/or tree parts around school. •Tree ID: Identify local trees. •Research reports: Student choose a local tree, collect information on it, and write a report. •Drawing: Students draw parts and whole of their tree. 	<ul style="list-style-type: none"> •Reports on individual trees •Drawings 	<ul style="list-style-type: none"> •Susan Sawyer visit •Research materials on Vermont trees (i.e. internet sources, books, encyclopedias, guides). If time permits: create a published book through Blurb.com
•Parts of trees	•1-2 class periods	•What are the different parts of trees?	•Learning about the names for the different parts of trees and their purposes	<ul style="list-style-type: none"> •7.15 The Universe, Earth, and The Environment: Students demonstrate understanding of the earth and its environment, the solar system, and the universe in terms of the systems that characterize them, the forces that affect and shape them over time, and the theories that currently explain their evolution. 	<ul style="list-style-type: none"> •Drawings: Guide students through a lesson on parts of the tree. •Follow-up with a quiz on tree parts. 	<ul style="list-style-type: none"> •Drawings •Quiz on tree parts 	<ul style="list-style-type: none"> •Diagram of tree parts from library resources, encyclopedias, and/or internet sties
•Lifecycle of a tree	•1-2 class periods	<ul style="list-style-type: none"> •How do trees regenerate? •What kind of time is needed for different trees? 	•Learn about the lifecycle of our trees and the relationships between trees and their time lines.	<ul style="list-style-type: none"> •7.11 Systems: Students analyze and understand living and non-living systems (e.g., biological, chemical, electrical, mechanical, optical) as collections of interrelated parts and interconnected systems. •7.15 The Universe, Earth, and The Environment: Students demonstrate understanding of the earth and its environment, the solar system, and the universe in terms of the systems that characterize them, the forces that affect and shape them over time, and the theories that currently explain their evolution. 	<ul style="list-style-type: none"> •Reading and discussion on <u>The Lorax</u>. •Teach the students about lifecycles of trees and time it takes to grow. 		<ul style="list-style-type: none"> •Book: <u>The Lorax</u> by Dr. Seuss

The Forest as a Sustainable Natural Resource

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Lessons	Time Length	Key Questions/Concepts: What questions/concepts will focus student learning?	Teacher Focus: What are the aims of this lesson for learning?	Key GEs addressed	Activities Supporting Learning Targets	Assessments	Supporting Resources
•Uses of trees	•1-2 class periods	•How do we use trees? What are some of the many uses of trees?	•Students learn about how many different materials, supplies, and food we get from trees.	•3.9 Sustainability: Students make decisions that demonstrate understanding of natural and human communities, the ecological, economic, political, or social systems within them, and awareness of how their personal and collective actions affect the sustainability of these interrelated systems.	<ul style="list-style-type: none"> •Reading and discussion of <u>The Kopak Tree</u>. •Discussion: Talk about all the things that come from trees. Look around the room and cite objects from trees. •Homework assignment: search around home for all the things they have that come from trees. 	•Homework assignment	• <u>The Kopak Tree</u> by Lynn Cherry
•Reforestation and protection	•2 class periods	•Why is it important to be careful when cutting down trees? How can we create sustainable practice in our tree use?	•Teach students about land planning for sustainability.	<ul style="list-style-type: none"> •3.9 Sustainability: Students make decisions that demonstrate understanding of natural and human communities, the ecological, economic, political, or social systems within them, and awareness of how their personal and collective actions affect the sustainability of these interrelated systems. •4.5 Continuity and Change: Students understand continuity and change. This is evident when students: •7.1 Scientific Method: Students use scientific methods to describe, investigate, and explain phenomena and raise questions in order to: <ul style="list-style-type: none"> •Generate alternative explanations - hypotheses - based on observations and prior knowledge •Design inquiry that allows these explanations to be tested; •Deduce the expected results; •Gather and analyze data to compare the actual results to the expected outcomes; and •Make and communicate conclusions, generating new questions raised by observations and readings. •7.16 Natural Resources and Agriculture : Students demonstrate an understanding of natural resources and agricultural systems and why and how they are managed. 	<ul style="list-style-type: none"> •Visit from forester: Have forester in for a talk about land use and taking care of forests. •Land maps and plans: Look over land maps and plans of local area. Create a pretend plan for a plot of land -- showing care and management of trees and plants. Read <u>Where Once There Was A Wood</u> 	•Created plans for a plot of land	<ul style="list-style-type: none"> •Forester: David Paganelli, Orange County Forester •Land use maps •Book: <u>Where Once There Was A Wood</u> by Denise Fleming