

How to Build a forest

Integrated arts & science lesson, 5th grade

Ecosystems Unit

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Lesson overview

This lesson is organized around the essential question, “How can I be more present and intentional in the way I live my life, enjoying, respecting, and caretaking the natural resources in my world?” In it, students will explore ecosystems through art/theater and individual projects.

Learning objectives & “I can” statements

Learning objectives

Students will be able to

- describe and understand how plants and animals in an ecosystem are interdependent.
- describe and locate the producers, consumers, and decomposers in an ecosystem.
- discuss connections between people and ecosystems.

“I can” statements

“I can describe and understand how plants and animals in an ecosystem are interdependent.”

“I can describe and locate the producers, consumers, and decomposers in an ecosystem.”

“I can discuss connections between people and ecosystems.”

Common Core State Standards & North Carolina Essential Standards

CCSS Language Arts 5

- RL.5.2 Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
- W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- W.5.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
- SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher- led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
- SL.5.1c Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.

NCES Science 5

- 5.L.2 Understand the interdependence of plants and animals within their ecosystem.
- 5.L.2.2 Classify the organisms within an ecosystem according to the function they serve: producers, consumers, and decomposers
- 5.L.2.3 Infer the effects that may result from the interconnected relationship of plants and animals to their ecosystem.

NCES Theater 5

- 5.C.1.1 Use a variety of postures, gaits, and mannerisms to express a variety of characters in the presentations of stories.
- 5.C.1.2 Apply appropriate vocal elements of volume, pitch, rate, tone, articulation, and vocal expression in various types of formal and informal presentations.
- 5.C.2.2 Interpret various characters from different genres of given texts through the use of the body and voice.
- 5.A.1.2 Evaluate how intended meanings are conveyed through formal and informal productions.

Materials

- *How to Build a Forest* video
- *The Lorax* (book/video)
- Ecosystems texts/books/videos

Some combination of...

- Aquariums/terrariums
- Biltmore stick (measure heights of trees)
- Material to make a clinometer (protractor, string, straw, washer)
- Other supplies relevant to projects that students choose

Local resources such as...

- The Eno River
- The Great Sweep
- Museum of Life and Science
- Durham County Extension Service
- Forest rangers

Vocabulary

Biotic, abiotic, producer, consumer, decomposer

Before the performance

Ask the students the essential question, and ask them to react to it in some way. Small group and large group discussions should take place.

Have the students read *The Lorax* in small groups. Then, have each group write a scene that represents some aspect of the story, practice the scene, and present it to the rest of the class. Discuss the components of a scene.

During the performance

Show the students small sections of the *How to Build a Forest* video throughout the study; teachers can use discretion as to when they would play small clips. Ideally, it would take place over several weeks, with perhaps two short clips shown per week. Consider using the clips beginning with the full forest.

Have students write and draw their responses in a journal and then discuss several questions: What if we did not have forests? What would we miss? What is the true value of a forest? What does it mean to me? What do you think a forest means to the artists?

After the performance

Students will study forest ecosystems, their make-up, and the interconnectedness of the living and non-living parts. In the eastern United States, use hardwood and pine forests as examples, and use the outdoors around your school to study them.

Outside, or using images of these forest types, introduce the key elements of an ecosystem. In small groups, have students brainstorm how these components relate to each other. How would decomposers be affected if all of the producers and consumers disappeared? What about the consumers if there were no producers? What would happen to the producers if there were no decomposers? Why? How do the abiotic parts influence the biotic parts of an ecosystem? Where do people fit into ecosystems?

Have students choose at least two projects, to be completed over several weeks. These projects should demonstrate students' understanding of the components and relationships within ecosystems. If relevant to their projects, introduce the students to local resources (such as the County Extension, park rangers, or service projects at local parks) that they might use as they research and implement their projects. Project possibilities:

- 1) Sketch a forest ecosystem and then create a comic strip where they take away something from the forest in each box; consider the unseen parts of an ecosystem.
- 2) Create a 3-D forest model in several sections and take away key elements of the forest as the sections go on.
- 3) Write a scene or short play that is set in a beautiful forest, and as the play goes on key parts are taken out until there is only a bare stage.
- 4) Create a rap or poem that addresses your response to the essential question.
- 5) Create a work of art that addresses the essential question.
- 6) Do service work for a forest (example: The Great Sweep by the Eno River), take photos, and describe what was accomplished.
- 7) Create real ecosystems in aquariums/terrariums and work to keep them thriving in class while considering what it takes to build an ecosystem.

Have the students share their projects with the class. (You might have a time for performances and a time for students to walk among visual displays.) At the end of the project, the class should consider the essential question again, discuss, and observe any changes in their understanding.

Assessment

- Assess students' projects for their understanding of the basic parts of an ecosystem.
- Look for deeper thoughtfulness and understanding in the class discussions about the essential question.

- Observe whether students take actions in class that are consistent with their answers to the essential question – that enhance their caretaking of natural resources (e.g., recycling). Can students describe/show/articulate why it makes sense to do these actions and why doing so is important?
- Observe whether students who create real life ecosystems take care of them.
- The students should complete their projects with diligence and creativity.