

LESSON 3

Teacher Guide



THE CALIFORNIA FOREST
FOUNDATION

Wonderful Wood: Nature's Most Adaptable Renewable Resource (90 Minute Lesson Plan)

This lesson can be completed in the classroom, or at home using teleconferencing (such as Zoom, Skype, Google Meet, Facetime, etc.) and/or shared documents (such as Google Docs) during group activities such as discussions and group projects. Sections requiring use of one of these remote-access tools have been marked (). Before beginning this lesson, explain to your students how you would like them to participate in these group activities if your class will be completing the lesson at home.*

Today's Topic: Wood and What It's Used For

NGSS 5-LS2-1: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Introduction to California's Wood (5 minutes)*

Have students watch the video, [Wonderful Wood: Nature's Most Adaptable Renewable Resource](#). Ask students to take note of all the different kinds of things that can be made from wood. Then, ask students to consider how harvesting trees can create a healthier forest. Discuss with your class ways to protect forests and their wood supplies, while still making the products people need.

Read and Respond

Read (10 minutes)

Students should read each of the three sections (Things Made of Wood, Anatomy of Wood, and Protecting the Wood Supplies) to learn about how wood is used to make different materials, what a tree trunk looks like, and various explanations as to why the harvesting of

wood is not necessarily a bad thing for the environment. Students can read independently, as a whole class, or in small groups.

Student Response (10 minutes)*

As students complete the passages, have them join a group discussion about what they learned. These can be small groups or the whole class, depending on your class size and needs. If completing this lesson in the classroom, you could also have the students break into short discussions after each reading rather than waiting until all readings are complete.

Possible discussion questions:

Things Made of Wood

- What kinds of things do you know that are made from wood?
- Why is wood a good material from which to make certain things?

Anatomy of Wood

- What does the inside of a tree look like?
- What do the rings inside of a tree trunk mean?
- How do the rings inside of a tree differ from each other?

Using Wood Can Help the Environment

- Is the cutting down of trees always a bad thing?
- Can trees be harvested and still protect the forest?

Research

Who Owns and Manages California's Forest? (10 minutes)

Direct students to appropriate websites or texts to determine current percentages of California forest ownership, or provide this data for students to use to complete this section.

One such resource is [Forest Research and Outreach](#) from the University of California. This page is static, but is a good starting point to find additional information about the percentages of ownership. Another appropriate website could be the [USDA](#).

Students should then complete the short reading on California's forest ownerships to learn more about how California's forests are owned by different groups of people with different needs.

Design Something Out of Wood (10 minutes)

Have students make a list of items in their homes that are made from wood or contain wood products.

Students should select an everyday object and draw a new design that would use wood in the product. Then, students should research to see if their object has ever been made of wood in the past, if a version containing wood is currently available, or if anyone is working on creating a version made from wood.

Direct students to perform online research at the following websites to learn about things made from wood:

- [13 Coolest Objects Made Out of Wood](#)
- [5 of the Most Bizarre Things Made Out of Timber](#)
- [California Forest Foundation](#)

Create a Food Web

Making Models (5 minutes)

Have students create a model to help them practice identifying terminology and reinforcing the concept of how matter and energy are moved through a California forest ecosystem.

Students will draw a food web for a local forest ecosystem. Some organisms they might include are plants, foxes, owls, rabbits, mice, seed-eating birds, insects, spiders, toads, and snakes.

Websites to use for California food web:

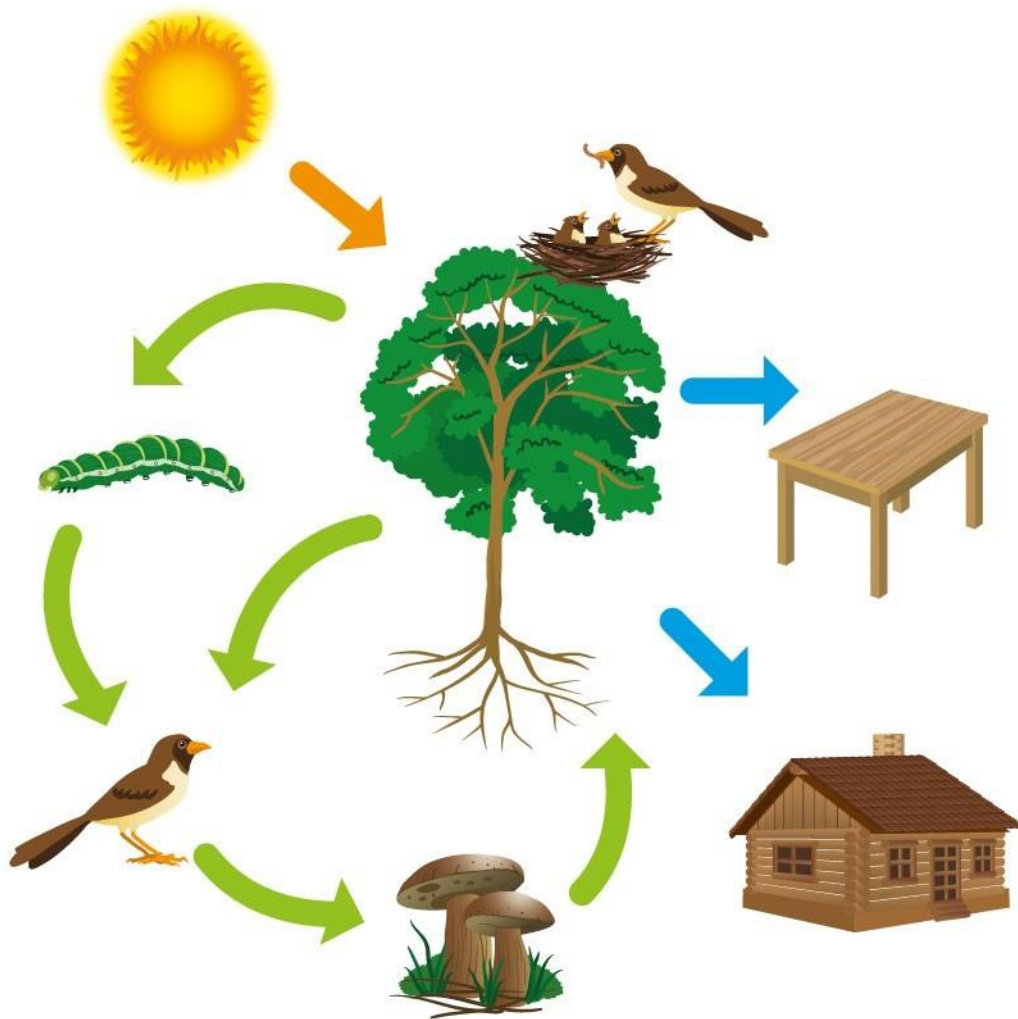
[California Forest Foundation: Wildlife](#)

[California Department of Parks and Rec: Animals](#)

[California Department of Parks and Rec: Plants](#)

[National Park Service: Animals](#)

Students should describe that the tree is home to many different kinds of organisms. It also serves as food for some of them, providing nuts, seeds, and fruits. Humans are also part of the forest ecosystem, in that they use the trees to make wood products, such as homes and furniture. They also use the trees for shade and may also even use them for food or medicine. An example of a food web that a student might create is provided below.



Example Food Web

What Did You Learn?

Assessment Questions (5 minutes)

Have students complete the following assessment questions to allow students to apply what they have learned. Note: correct answers are in bold; questions that are not multiple choice provide an example student response.

1. Describe one advantage of using wood over using steel as a building material.

Student responses will vary but could include that wood is a renewable resource, is better for the environment, helps to capture carbon, etc.

2. Which gas do forests help to remove from the air?

- a. Nitrogen
- ✓ **b. Carbon dioxide**
- c. Oxygen
- d. Methane

3. The **bark** is the outermost layer of the tree trunk.

4. Why is wood considered a renewable resource?

- a. It stores a lot of energy.
- b. It breaks down very easily.
- c. It gets used up quickly.
- ✓ **d. It can replace itself as it is used.**

5. **Nanotechnology** is one of the ways science is improving wood products to make them lighter and stronger at the same time.

Apply to the Real World

Group Activity: Writing (20 minutes)*

Have students complete the group activity to promote the sharing of opinions and working together.

Allow the students to work in small groups to complete a RAFT writing to answer the question from the prompt:

How would you explain to someone that using wood products is better for the environment than using metals, even though using wood products means cutting down trees?

Student groups should use the table below to choose a role (what perspective they are writing from), the audience (who they are writing to), the format (what they are writing), and the topic.

Student groups only need to choose one from each column on the table.

Role	Audience	Format	Topic
Construction company	Peer group	Speech	Using wood products for building materials instead of metals
Business owner	Government agency	Advertisement	
Environmental group	Building company	Letter	
Concerned citizen	Self	Play	