



Giant sequoia, among the largest living things on the planet, are a great resource for cross-disciplinary studies. ***Our Giant Sequoia Forests*** introduces students in second through fifth grades to giant sequoia forests and offers ideas for exploring and taking action to protect these amazing trees. Below you will find answers to activities in the brochure and ways to use the publication in your classroom.

Introduction

Show students a photograph of a giant sequoia tree. Create a K-W-L chart with the class. Give the students a few pieces of information about giant sequoia to entice them, such as,

- they are the largest living things on the planet
- they can live to be really old
- they are found only in California, in the mountains.

Have students think about large animals they may compare to the giant sequoia; the largest sequoia is the same width of a large orca.

Additionally, introduce the students to the idea of a forest. Have the students pair-share what a definition of a forest is and what you find in a forest:

- a forest is a large area of land with trees and other plants
- things you may find in a forest are trees, plants, animals, fungus, rocks, fallen logs, trails and people!

Tell the students they are going to read more about a forest in California called a giant sequoia forest.



Giant Sequoia Brochure

After students have read the booklet and answered all the Sequoia Superhero Challenges, review the answers with the class.

Sequoia Superhero Challenge

page 2: Where to Visit the Giant Sequoia

1. Which park is farthest north? Which park is farthest south?

Farthest north – Placer County Big Trees Grove

Farthest south – Giant Sequoia National Monument

2. Where do giant sequoia grow?

Giant sequoia grow in the Sierra Nevada mountains in California.



3. Which direction would you need to go to visit the giant sequoia?

Answers will vary.

4. How old can giant sequoia grow to be?

They can live to be more than 3,000 years old.

Additional discussion questions:

- What is the climate like where you live? What is the difference between climate and weather?
- Do you think giant sequoia trees could live in your backyard? Why or why not?

Sequoia Superhero Challenge

page 4: Giant Sequoia Past to Present

1. Compare how Native Americans and European settlers thought differently about using giant sequoia trees.

Native Americans thought the giant sequoia trees were sacred and should be treated with respect. They did not cut down the trees. The European settlers wanted to cut the trees to make money from them and to display them in museums.

2. Why did people cut giant sequoia trees?

People cut giant sequoia trees to display in museums and to make money from the wood. They made fence posts and shingles with the wood.

3. What did John Muir do to protect giant sequoia forests? Why do you think people wanted to protect giant sequoia forests?

John Muir wrote about the giant sequoia size and strength, shared pictures of their beauty and bought land to protect the trees. People wanted to protect the trees because they were so beautiful, big and strong.

Additional discussion questions:

- How long have giant sequoia been growing on this planet and on what continents did they used to grow on?
- Why do giant sequoia still need our help today?
- Why do you think parks are so important for both plants and animals and humans?

Sequoia Superhero Challenge

page 6: Life Cycle of a Giant Sequoia

1. What would happen in the forest if there were no Douglas squirrels or long-horned beetles? If there were no Douglas squirrels or long-horned beetles we may not have as many giant sequoia trees because they help spread the seeds so more trees can grow.

2. How is a tree's life different from the life of a person? A tree can continue to grow for a long period of time and does not die from "old age" like a person. Something dangerous like fire actually can help a tree grow and does not hurt it.

Additional discussion questions:

- How does fire help a giant sequoia tree?
- How can you tell the age of a cone, or of a tree?
- If fires, insects, and fungus do not kill giant sequoia trees, what do you think might?

Through the Seasons



page 7-8: Through the Seasons

Winter

1. Mountain chickadee
2. Dark-eyed junco
3. Deer mouse
4. Snow plant

Spring

5. Western wood pewee
6. Dogwood
7. Black-headed grosbeak
8. Lupine
9. Monkeyflower
10. Trillium
11. Sierra Nevada ensatina salamander

Summer

12. California sister butterfly
13. American robin
14. Red thimbleberry
15. Blue elderberry

Fall

16. Dogwood
17. Chipmunk

Try This

Make a list of adjectives to describe the giant sequoia forest during each season: fall, winter, spring and summer. How is the forest similar and different than the area where you live?

Additional discussion questions:

- What birds do you see where you live?
- How do the animals survive in the winter months when there is snow? What do they eat?



Activities

Create a sequoia timeline. Create a timeline of giant sequoia history starting 200 million years ago when they first appeared on our planet, through when Native Americans were on the land until the present day. Use the information in the brochure to start your timeline. Look up additional information on the web or in books to add to your timeline. Add additional historical information based on what you are studying in class and what major events happen in your state.

Personal forest story. Write and present to the class a personal story about being in a forest or around trees. How did they make you feel? What did you do in the forest? What did you notice was in the forest? Include student drawings of their experiences as well.

Sequoia research paper. Research one aspect of the giant sequoia forest that you learned about in the text. Examples include history of sequoia use, logging, sequoia and fire, life cycles, forest seasons, a specific animal, and parts of a tree. Give a short presentation about your topic to the class.

Analyze giant sequoia height and width data. Show students the following table, which shows the tallest and largest giant sequoia trees. Have the students work in groups to create two bar graphs, one of the heights of the trees and another of the circumferences.



Giant Sequoia Tree	Tree Height	Tree Circumference
General Sherman	275 feet	103 feet
General Grant	268 feet	108 feet
President	241 feet	93 feet
Lincoln	256 feet	98 feet
Stagg	243 feet	109 feet
Boole	269 feet	113 feet
Genesis	253 feet	85 feet

Once students have finished with their graphs, have them look for any patterns. Then they can work together to answer the following questions:

1. Is the tallest giant sequoia also the biggest? Are there any trees that are really big but not as tall?
2. What might cause a giant sequoia to get big around but not as tall?
3. What are some things that trees need to grow? Specifically what do giant sequoia need to grow? (Refer to the brochure for more information.)



Phenology survey at your school.

Talk with the students about **phenology – nature’s calendar, when trees blossom, birds build nests, and leaves turn color**. Ask them what time of year they get sick, or get allergies. What time of year do they eat berries? Plants and animals go through different life cycle changes during different times of the year. Trees and plants start to form new leaves, produce flowers, fruits and then seeds. Animals may hibernate, build nests, produce eggs and have babies.



When scientists study these different changes, it is called **Phenology**. Go outside with your students and walk around your schoolyard or neighborhood, or have students do this at home around their neighborhood. Have them write down what they observe about the plants and animals in their area. Do they notice any flowers, fruits, new leaves, leaves changing color, nests, insects on flowers and similar changes?

You can also have them list different phenological events that would happen during each season: in fall leaves change color, in spring flowers bloom. Continue this survey at different times of the year to see what changes are happening around your area.

Resources

Visit our Redwoods Learning Center at SaveTheRedwoods.org/learning-center for these great additional resources:

- Photo Libraries
- Reading Lists
- Giant Sequoia maps
- Field Trip Guide
- Videos



Wrap-Up

Ask students to think about what they learned about giant sequoia forests and the plants and animals that live in them.

Have each student write down a couple words to describe what they learned (sample words might be, tall, strong, adaptable, old).

Display any worksheets or artwork on the walls. Have students present what they have learned to another class.



Standards

Common Core State Standards

English Language Arts

Grades 2-5: *Reading Standards for Informational Text – Key Ideas and Details, Craft and Structure, Integration of Knowledge and Ideas.*

Grades 2-5: *Speaking and Listening Standards – Comprehension and Collaboration, Presentation of Knowledge and Ideas*

Grades 2-5: *Writing Standards – Text Types and Purposes, Research to Build and Present Knowledge*

Mathematics Standards

Grades 3-5: *Operations and Algebraic Thinking, Measurement and Data*

NGSS

Grade 5: *Matter and Energy in Organisms and Ecosystems, LS2-1*

