



# Lesson 4

## The Sustainable Forest



### Objectives:

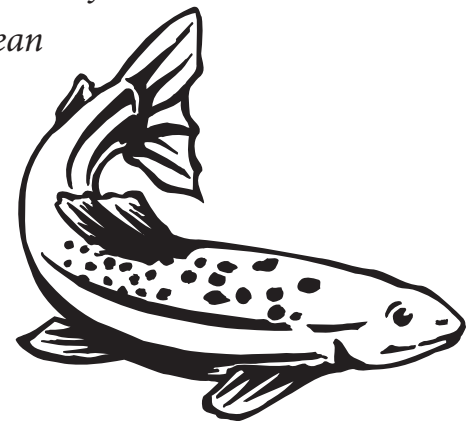
1. To understand that California has the most comprehensive timber harvest regulations in the nation.
2. To understand that California foresters must prepare a timber harvest plan and have it approved by the Department of Forestry before harvesting may take place on private forest land in California.
3. To understand that many different kinds of forest workers cooperate to help a registered professional forester in preparing a timber harvest plan, such as wildlife and fisheries biologists, botanists, geologists, and hydrologists.
4. To understand that sustainable forestry ensures balance between increasing consumer demands for wood products and safeguarding environmental needs.



### Focus:

1. Establish the comprehensive nature of laws that protect California's forests and wildlife by asking the students to guess what some of these laws might concern. Put their suggestions on the board. Examples are given below:

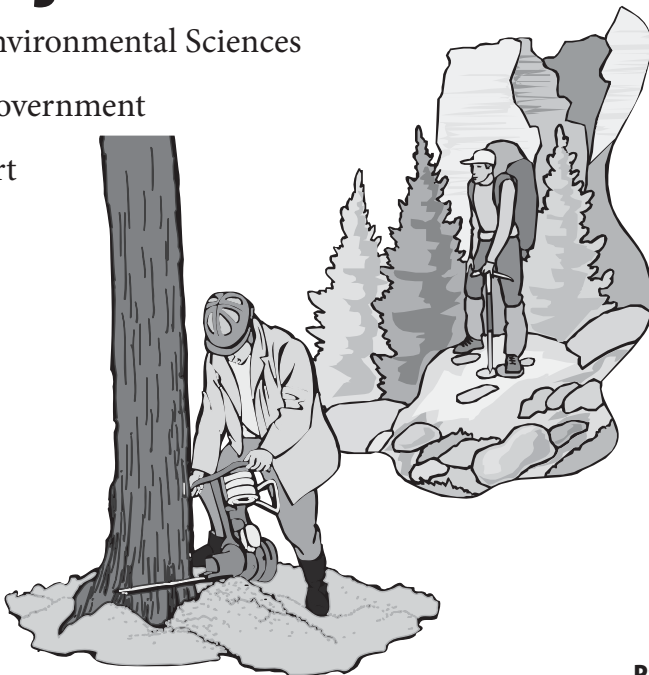
- *protecting wildlife and fish*
- *keeping water clean*
- *keeping the air clean*
- *protecting other plants in the forest*



2. Read together the material in the *Did You Know?* activity sheet on the next page to validate correct answers and to illustrate some of the particular rules that protect forest health and provide protection for wildlife.

### Subjects:

1. Environmental Sciences
2. Government
3. Art



### Vocabulary:

1. **Artifact:** an object with historic value that has survived from the past.
2. **Hydroelectric Plant:** a place where electricity is produced by the energy of rapidly moving water.
3. **Spawning:** the producing or depositing of eggs by fish.
4. **Erosion:** the wearing away of the soil, usually by wind or water.
5. **Riparian Zone:** the area along a river or a stream.

VOCABULARY

# Enrichment Activity:

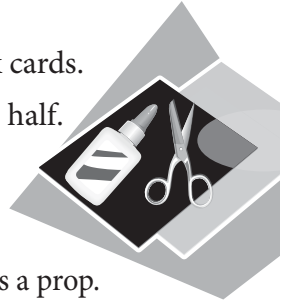
1. Have the students make a forest panorama display:

- ✓ Make copies of pages 22 and 24. This is the information sheet that will be glued behind the panorama.
- ✓ Color the picture on pages 21 and 23.
- ✓ Cut the information windows along the dotted lines.
- ✓ **EMPHASIZE NOT TO CUT THE TOPS OF THE WINDOWS!**
- ✓ Have the students glue a perimeter along the outside back of the panorama ONLY.

- ✓ Glue the panorama to the information sheet along the outside perimeter.
- ✓ The two pages need to be positioned so that the written information lines up with the windows.

2. Make an optional set of props so that the panorama can stand:

- ✓ Give students two 3x5 index cards.
- ✓ Have them fold each card in half.
- ✓ Have them glue one half of each card, with the fold up, to the back of the finished panorama. The card will act as a prop.



## Information for Panorama Windows:

### Window #1

Areas may not be harvested near archeological sites, such as those areas containing Native American artifacts.

### Window #2

Forests provide multiple recreation opportunities, such as fishing, hiking, horseback riding, camping, motorcycle riding, mountain biking and bird watching.

### Window #3

Dams and hydroelectric plants install fish ladders so the fish can reach their spawning grounds.

### Window #4

Old methods of logging once blocked streams. Now foresters and other scientists use best management practices that will protect and restore salmon habitat.

### Window #5

Forest roads must be built carefully and maintained in order to prevent erosion.

### Window #6

Trees alongside waterways are not harvested. These areas next to streams are called riparian zones.

### Window #7

Riparian zones need trees to shade the water and keep it cool for fish and other organisms living in the stream.

### Window #8

Riparian zones prevent erosion from clogging rivers and streams.

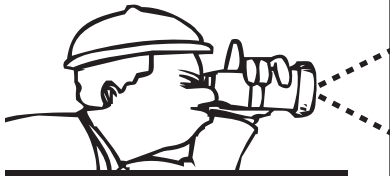
### Window #9

All approved harvest operations must protect water quality, wildlife, plants and their habitat. Regulatory agencies inspect harvest areas before, during and after harvest.

### Window #10

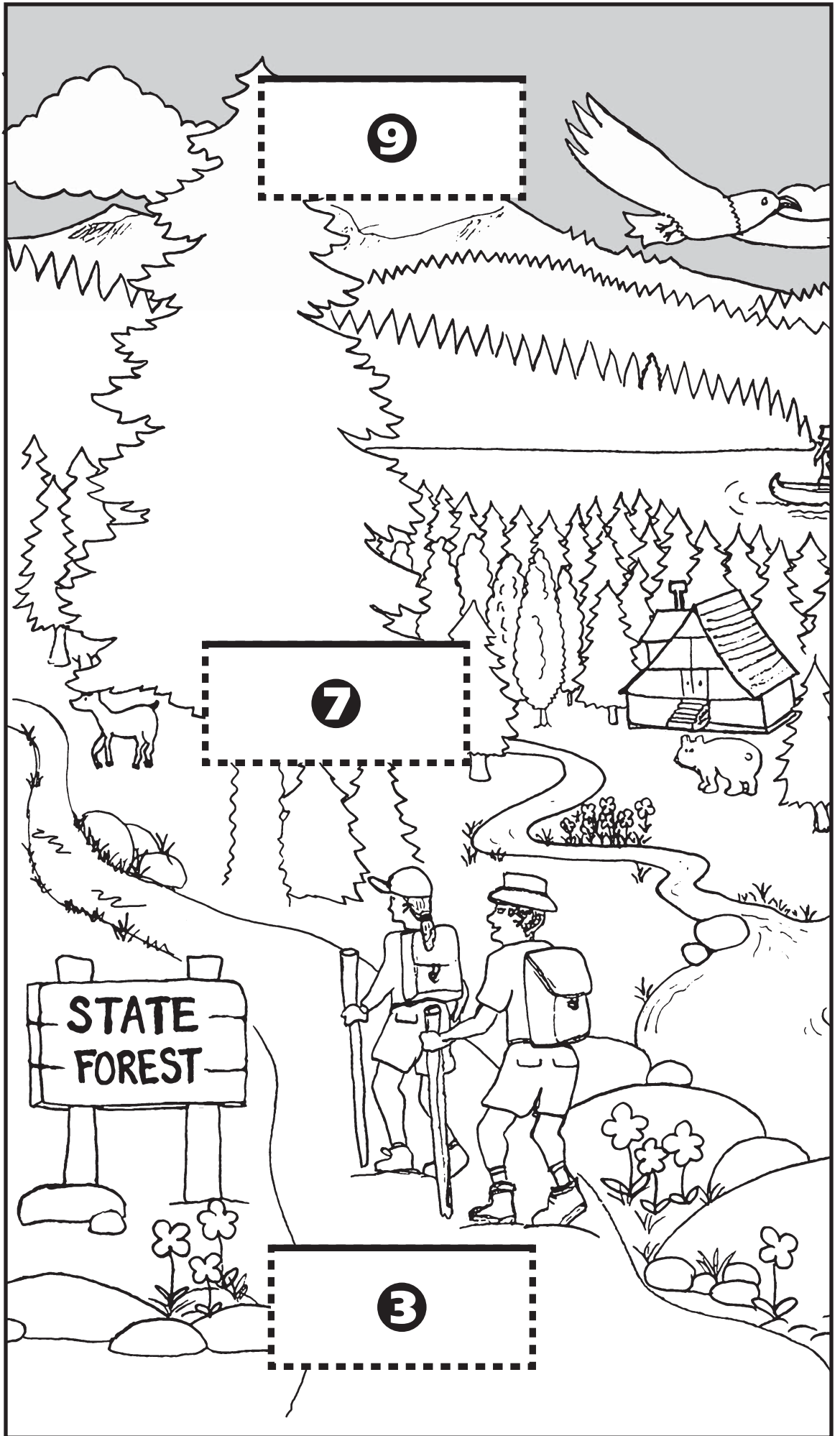
Openings made by timber harvesting are 20 acres or less on average. Law requires replanting of trees in harvested areas.





# FOREST

# P A N O R A M A



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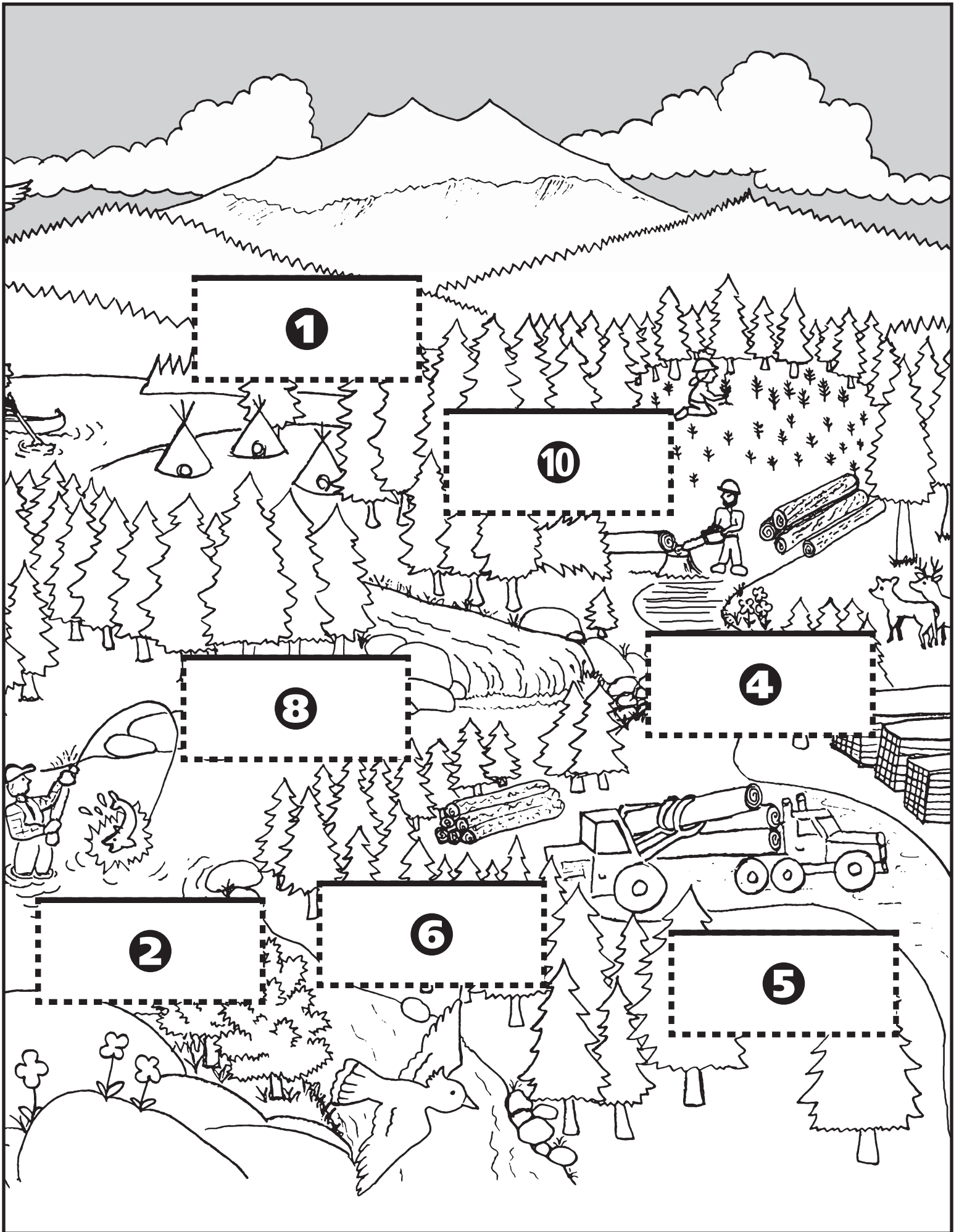
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Riparian zones need trees to shade the water and keep it cool for fish and other organisms living in the stream.

Dams and hydroelectric plants install fish ladders so the fish can reach their spawning grounds.



# Did You Know?...



Name \_\_\_\_\_

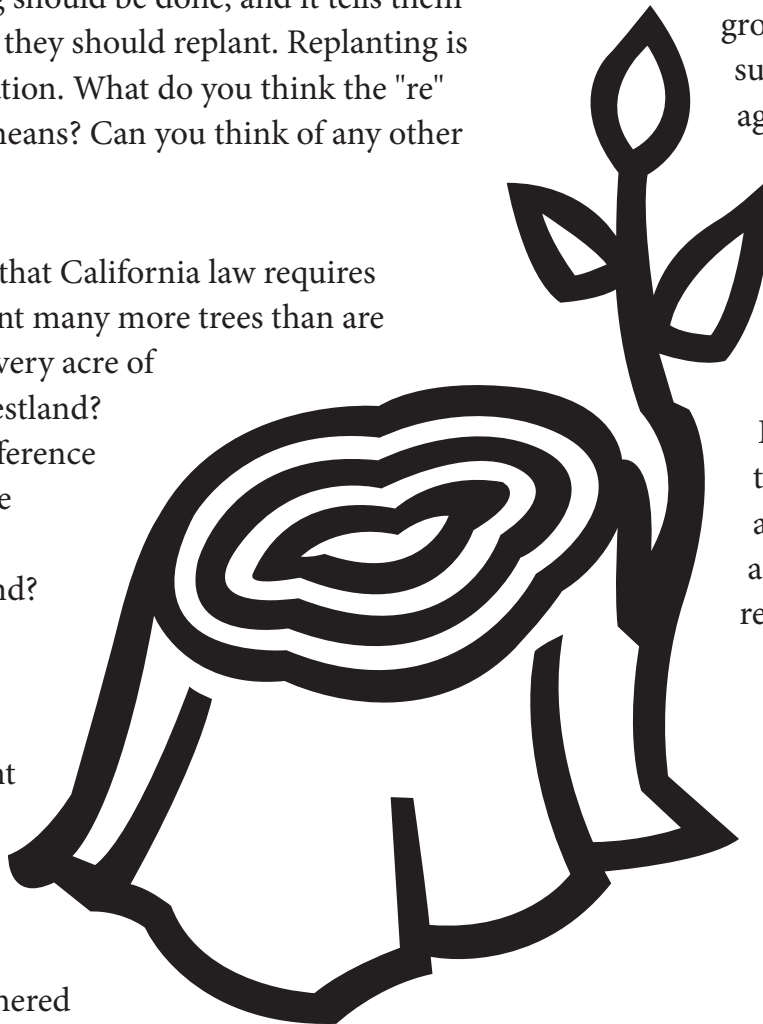
Read the information and questions below then write your answers on the back of this sheet.

1. Did you know that California's foresters never harvest more than is already growing elsewhere in the forest? This is called **sustainable forestry**. Can you guess what sustainable means?
2. Did you know that the harvesting of trees on private land is carefully monitored in California? The California Forest Practices Act is the most important of the laws that help regulate how the forest is maintained. It tells foresters what they must do before they may harvest. It tells them how harvesting should be done, and it tells them how and when they should replant. Replanting is called reforestation. What do you think the "re" in each word means? Can you think of any other "re" words?
3. Did you know that California law requires foresters to plant many more trees than are harvested on every acre of productive forestland? What is the difference between private forestland and public forestland?
4. Did you know that California foresters replant harvested areas with seedlings that come from seeds gathered

from that same location? Only the strongest and best seedlings are used for replanting. What is the difference between a seedling and a seed? What is the difference between a seedling and a sapling? What is the difference between a sapling and a tree?

5. Did you know that eight out of every ten trees that are planted grow to be adult trees? What happens to the other two?

6. Did you know that forests grow through different stages of succession? Young forest—Middle age forest—Mature forest. A forest never stays the same. Parts of the forest are always growing, decaying, dying, or renewing. Disturbances from wind, floods, fires, insects, and humans have shaped forests for centuries. Disturbance is a natural part of the forest's life cycle and creates a diversity of tree species and ages while enhancing the forest's resiliency.



# ANSWER KEY

## DID YOU KNOW?...

- 1.** Did you know that California's foresters never harvest more than is already growing elsewhere in the forest? This is called sustainable forestry. Can you guess what sustainable means?

### Answer:

To maintain a forest's health, productivity and diversity over many generations of human activity and use.

- 2.** Did you know that the harvesting of trees on private land is carefully monitored in California? The California Forest Practices Act is the most important of the laws that help regulate how the forest is maintained. It tells foresters what they must do before they may harvest. It tells them how harvesting should be done, and it tells them how and when they should replant. Replanting is called reforestation. What do you think the "re" in each word means? Can you think of any other "re" words?

### Answer:

It means "again". Renew, review, reestablish, revive, restore.

- 3.** Did you know that California law requires foresters to plant many more trees than are harvested on every acre of productive forestland? What is the difference between private forestland and public forestland?

### Answer:

Private forestland is owned by private individuals, such as Christmas tree farmers, forest products companies, resort companies, and ordinary citizens. Public lands are owned by the state or federal government.

- 4.** Did you know that California foresters replant harvested areas with seedlings that come from seeds gathered from that same location? Only the strongest and best seedlings are used for replanting. What is the difference between a seedling and a seed? What is the difference between a seedling and a sapling? What is the difference between a sapling and a tree?

### Answer:

A tree is a woody plant with one main stem or trunk. It may have several branches. It may lose its leaves or stay

evergreen. Its seeds come from fruits, nuts, or cones. The seed provides nutrients (food) for the young tree as it first begins to grow. A seedling is what sprouts from the seed. It is the youngest form of a tree. A sapling is a very young, slender tree.

- 5.** Did you know that eight out of every ten trees that are planted grow to be adult trees. What happens to the other two?

### Answer:

- Animals, like deer, eat some of the seedlings.
- Insects attack some of the young trees.
- Fire destroys some of them.
- Some do not get enough water or sunlight.
- Some trees may be thinned out to allow remaining trees to grow larger and healthier. The thinned trees that were harvested are made into wood products or energy.

- 6.** Did you know that forests go through many changes? Explain the types of forest disturbances and how they can benefit the forest.

### Answer:

Types of disturbances could be wind storms, land slides, forest fires, harvest of trees, insect damage, volcanic eruptions, etc.

These disturbances can be beneficial because they may create an opening in the forest where grasses and shrubs will grow due to increased sunlight. These new food sources will attract many different types of animals. As a young forest renews itself in this open patch, other animals will forage and seek shelter here. Healthy landscapes have a diversity of forest types and ages that in turn support a diverse population of wildlife.

