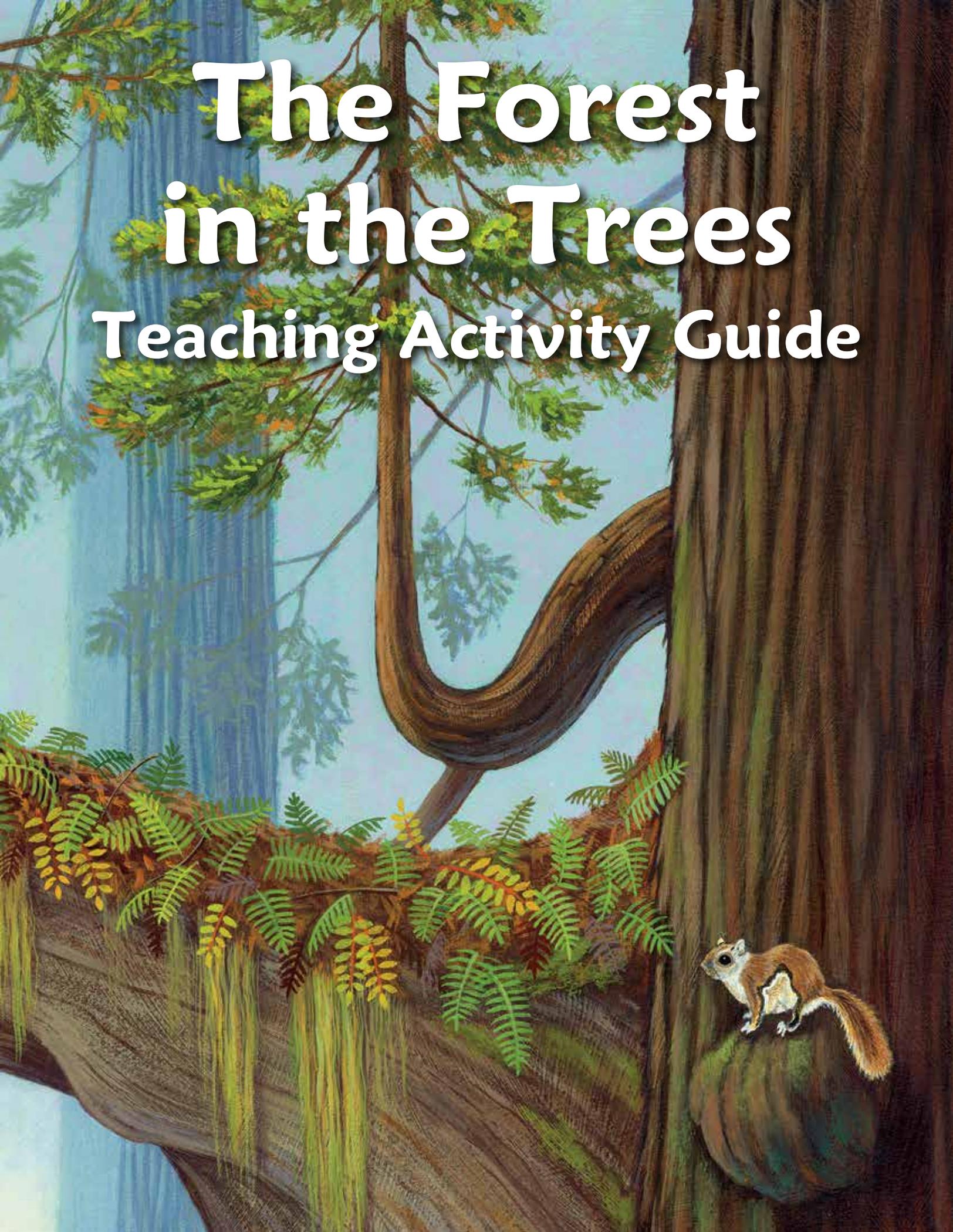


# The Forest in the Trees

## Teaching Activity Guide



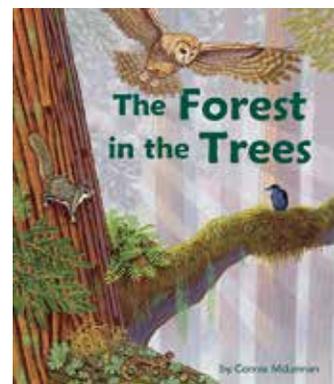
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Mt. Pleasant, SC 29464



By Connie McLennan

# How to Use This Activity Guide (General)

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There are a wide variety of activities that teach or supplement all curricular areas. The activities are easily adapted up or down depending on the age and abilities of the children involved. And, it is easy to pick and choose what is appropriate for your setting and the time involved. Most activities can be done with an individual child or a group of children.

**For teachers in the classroom:** We understand that time is at a premium and that, especially in the early grades, much time is spent teaching language arts. All Arbordale titles are specifically selected and developed to get children excited about learning other subjects (science, geography, social studies, math, etc.) while reading (or being read to). These activities are designed to be as comprehensive and cross-curricular as possible. If you are teaching sentence structure in writing, why not use sentences that teach science or social studies? We also know and understand that you must account for all activities done in the classroom. While each title is aligned to all of the state standards (both the text and the For Creative Minds), it would be nearly impossible to align all of these activities to each state's standards at each grade level. However, we do include some of the general wording of the CORE language arts and math standards, as well as some of the very general science or social studies standards. You'll find them listed as "objectives" in italics. You should be able to match these objectives with your state standards fairly easily.

**For homeschooling parents and teachers in private schools:** Use as above. Aren't you glad you don't have to worry about state standards?

**For parents/caregivers:** Two of the most important gifts you can give your child are the love of reading and the desire to learn. Those passions are instilled in your child long before he or she steps into a classroom. Many adults enjoy reading historical fiction novels . . . fun to read but also to learn (or remember) about historical events. Not only does Arbordale publish stories that are fun to read and that can be used as bedtime books or quiet "lap" reading books, but each story has non-fiction facts woven through the story or has some underlying educational component to sneak in "learning." Use the "For Creative Minds" section in the book itself and these activities to expand on your child's interest or curiosity in the subject. They are designed to introduce a subject so you don't need to be an expert (but you will probably look like one to your child!). Pick and choose the activities to help make learning fun!

**For librarians and bookstore employees; after-school program leaders; and zoo, aquarium, nature center, park & museum educators:** Whether reading a book for story time or using the book to supplement an educational program, feel free to use the activities in your programs. We have done the "hard part" for you.

# What Do Children Already Know?

Young children are naturally inquisitive and are sponges for information. The whole purpose of this activity is to help children verify the information they know (or think they know) and to get them thinking “beyond the box” about a particular subject.

Before reading the book, ask the children what they know about the subject. A list of suggested questions is below. The children should write down their “answers” (or adults for them if the children are not yet writing) on the chart found in Appendix A, index cards, or post-it notes.

Their answers should be placed on a “before reading” panel. If doing this as a group, you could use a bulletin board or even a blackboard. If doing this with individual children, you can use a plain manila folder with the front cover the “before reading” panel. Either way, you will need two more panels or sections—one called “correct answer” and the other “look for correct answer.”

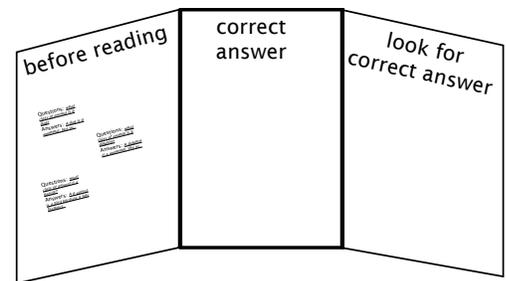
Do the children have any more questions about the subject? If so, write them down to see if they are answered in the book.

After reading the book, go back to the questions and answers and determine whether the children’s answers were correct or not.

If the answer was correct, move that card to the “correct answer” panel. If the answer was incorrect, go back to the book to find the correct information.

If the children have more questions that were not answered, they should look them up.

When an answer has been found and corrected, the card can be moved to the “correct answer” panel.



# Pre-Reading Questions

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1. Describe what a forest is.
2. Do you think there could really be a hidden forest in some trees? Why or why not?
3. Do you think trees can only grow in the ground? If not, where else do you think trees might grow?
4. Where do coast redwood trees grow?
5. How tall can coast redwood trees grow?
6. How old might some of these trees be?
7. What are scientists who study trees and plants called?
8. How do you think those scientists can study life in the top (canopy) of these tall trees?
9. What are some animals that live in forests with coast redwoods?
10. What are some other plants that live in forests with coast redwoods?

# Comprehension Questions & Writing Prompts

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*Ask and answer questions about key details in a text read aloud or information presented orally or through other media.*

1. Where do coast redwoods grow?
2. Describe what a coast redwood tree looks like?
3. Describe or draw a picture to show how trees grow on branches of the coast redwoods. What's the word to describe that?
4. What is the forest canopy?
5. Where does the soil in the canopy come from and how deep can it be?
6. What are some animals that live in the canopy of a coast redwood forest?
7. What are some plants that grow in the canopy of a coast redwood forest?
8. If you were walking through a coast redwood forest in the middle of the day, would you be likely to see a Humboldt flying squirrel? Why or why not?
9. How do scientists know what the coast redwood canopy looks like?
10. Why do scientists use lichen to monitor air quality and climate change?
11. Write a pretend journal imagining that you are a botanist climbing high into the canopy of the coast redwood forest.
12. Describe what you think it looks like high in the redwood canopy.

# Observation Skills: Art Scavenger Hunt

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*Objective Core Language Arts Integration of Knowledge and Ideas: Use information gained from illustrations (e.g., maps, photographs) and the words in a text to deExplain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).*

*Use illustrations and details in a story to describe its characters, setting, or events.*

Each illustration relates to the text or the item being introduced. Author and illustrator Connie McLennan sneaks in some of the plants or animals before readers are introduced.

For example, the last page shows a female murrelet (a type of auk) sitting on a nest. Find the male murrelet carrying a fish in another illustration. In how many illustrations do you see the bird flying?

How does the illustrator show us how small people are compared to the trees?

In how many illustrations do you see the squirrel?

In how many illustrations do you see the owl?

In how many illustrations do you see the salamander?

How many butterflies can you find?

How does the illustrator indicate that it's foggy? Do you know why fog is important to the climate where these trees grow?

Find illustrations that show water on leaves so we know the climate is wet.

How does the illustrator show us that it's night when the owl is flying?

Why are some illustrations looking at the forest from "afar" but other illustrations are "close up?"

# Cross-Curricular Vocabulary Activities

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## *Objective Core Language Arts:*

*Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content.*

*Identify new meanings for familiar words and apply them accurately (e.g., duck is a bird & the verb to duck).*

*Use words & phrases acquired through conversations, reading/being read to, and responding to texts.*

*Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade-level topic or subject area.*

*Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.*

*Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.*

*Use frequently occurring adjectives.*

**Vocabulary Game:** This activity is a very general idea and is designed to get children thinking of vocabulary words that will then be used as the beginning vocabulary list for a science lesson.

Select an illustration from the book and give the children a specific length of time (five minutes?) to write down all the words they can think of about the particular subject. It is helpful to project an illustration on a whiteboard. Use eBook or book preview found at [www.ArbordalePublishing.com](http://www.ArbordalePublishing.com).

The children's word list should include anything and everything that comes to mind, including nouns, verbs, and adjectives. At the end of the time, have each child take turns reading a word from his/her list. If anyone else has the word, the reader does nothing. However, if the reader is the only one with the word, he/she should circle it. While reading the list, one person should write the word on a flashcard or large index card and post it on a bulletin board or wall.

At the end, the child with the most words circled "wins." And you have a start to your science vocabulary list. Note: if a child uses an incorrect word, this is a good time to explain the proper word or the proper usage.

**Glossary/Vocabulary Words:** Word cards may be used (see Appendix) or have children write on index cards, a poster board, or on a chalkboard for a "word wall." If writing on poster board or chalkboard, you might want to sort words into nouns, verbs, etc. right away to save a step later if using for Silly Sentences (on the next page). Leaving the words posted (even on a refrigerator at home) allows the children to see and think about them frequently.

**Using the Words:** The following activities may be done all at once or over a period of several days.

- Sort vocabulary words into nouns, verbs, adjectives, etc. and write what they are on the backs of the cards. When the cards are turned over, all you will see is "noun," etc. (these can then be used for the "silly sentences" on the next page).
- After the cards have been sorted, go over the categories to ensure that all cards have been placed correctly. (Mistakes are a great opportunity to teach!)
- Choose two words from each category and write a sentence for each word.
- Write a story that uses at least ten vocabulary words from the word sort.
- Have children create sentences using their vocabulary words. Each sentence could be written on a separate slip of paper. Have children (individually or in small groups) sort and put sentences into informative paragraphs or a story. Edit and re-write paragraphs into one informative paper or a story.

**Silly Sentence Structure Activity:** This "game" develops both an understanding of sentence structure and the science subject. Use words from the "word wall" to fill in the blanks. After completing silly sentences for fun, have children try to fill in the proper words by looking for the correct information in the book.

# Word Bank

Build a word bank using words found in the story or For Creative Minds.

Adjective		Noun		Verb
big	sensitive	auks	mites	attach
broken	shallow	beetles	moss/mosses	breathe
decaying	small	black bears	murrelet	climb
decomposing	soaked	botanists	native	crawl
first	soft	burls	nest	die
fledgling	southern	bushes	night	discover
flying	sponge-like	California	nutrients	flap
hanging	tail-like	canopy	ocean	fly
healthy	tall	climate	Oregon	glide
heavier	temperate	cone	organisms	grow
hidden	tiny	current	parent	hide
huge	top	day	perch	jump
inland	tropical	debris	predator	live
large	understory	drought	prey	monitor
living	wild	elderberry	rain	nest
main		epiphytes	reiterations	plants
moist		fairy ring	salmonberry	produce
narrow		ferns	scientists	rise
nonliving		fire	seabirds	sleep
northern		fog	shade	sprout
old		forest	soil	study
organic		gooseberry	spotted owls	
Pacific		huckleberry	sprout	
		humus	stump sprouts	
		insects	talons	
		lichen	trees	
		limbs	trunk	
		mats	wind	



# Science Journal (Vocabulary)

---

## reiteration

my definition

my drawing

## humus

my definition

my drawing

# botanist

my definition

my drawing

# fairy ring

my definition

my drawing

# True or False?

---

*Objective: Critical thinking skills*

Circle whether you think the statement is true or false:

1. T/F Coast redwoods grow all over North America.
2. T/F Coast redwoods need dry, cool air to grow.
3. T/F Coast redwoods are the tallest trees in the world.
4. T/F Some coast redwoods are over 2,500 years old.
5. T/F Many coast redwood trees are taller than the Statue of Liberty or 30-story buildings.
6. T/F Many animals live in the canopy of coast redwoods.
7. T/F Trees and bushes grow out of limbs of the coast redwoods.
8. T/F Botanists climb high into the canopy to study these trees.
9. T/F Plants that grow on other plants are called epiphytes.
10. T/F Huge masses of hanging ferns are called fern masses.

# Math: Measuring (compare & contrast)

*Objective Core Mathematics Measurement*

What standard measuring tool would you use to measure something in:

Inches or centimeters  
Feet or meters

Try to imagine how big or small something is compared to something you know.

What are some other things about the same size?

How tall are the coast redwood trees?

The tallest redwood known is nearly 379 feet tall or as tall as a 37-story building! Most of the trees rise 250 feet before the first limbs appear.

To understand how tall these trees are, draw a chalk line (on the playground or sidewalk) that is 10 feet long. How many of those lines would you need to equal 250 feet or 379 (say 380 feet)?

Most buildings use 10 feet per story. If you live in a two-story house or go to a school that is two-stories, that house or school is probably 20 feet high. How many two-story houses or schools would have to be on top of each other to equal a 300-foot coast redwood tree?

The Statue of Liberty is 305-feet tall. Is that taller than or shorter than the tallest redwood tree?

What's the tallest building near where you live and how many stories does it have? Is it taller than or shorter than a 300-foot tree? Is it taller than or shorter than the 379-foot redwood tree?

How tall are the trees growing out of the limbs?

Most trees growing in the canopy are small but scientists have found a 40-foot tall hemlock and an eight-foot spruce growing on the limbs of a redwood.

Measure out 40 feet and 8 feet and identify things that are similar in height or length.

How tall is an adult in your family? Is that adult taller or shorter than the spruce growing on the limb?

How far can you jump? Can you jump as far as either of these trees are tall?



### How many reiterations?

When the top of a redwood dies or breaks off in a storm, new trunks may sprout up from large limbs, or out from the trunk, and grow upward like the main tree. All these new trees growing from the old tree are called reiterations. One of the biggest redwoods contains 220 trunk reiterations! Gather together 220 small items (counting bears, pennies, etc.) and lay them out next to each other. Now imagine that each one of those items is a tree! How big do you think the limb is that those trees are growing out of?

### How far can the squirrel glide?

Humboldt flying squirrels don't really fly. They jump from the trees and sail like gliders as far as 150 feet!.

How far can you jump? Measure out how many jumps it would take you to jump as far as the Humboldt flying squirrel can glide.

Measure out 150 feet. How many steps does it take you to walk that distance?

The average school bus is 45-feet long. Approximately how many school buses can fit into the length that these squirrels can glide?

### How far do the birds fly?

A murrelet sometimes flies as far as 50 miles (80 km) inland to nest and brings fish to its chick several times a day for a month.

How many miles is it from your house to school?

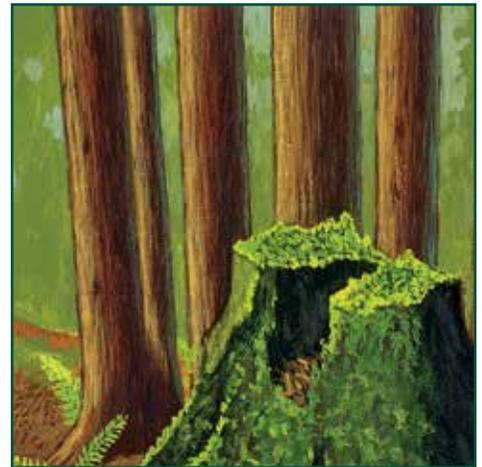
If you are in a car driving down a highway at 60 miles an hour, it will take you 50 minutes to drive 50 miles. Does that seem like a short or long distance?

Could you walk that far?

# Memory Game

*Objective: critical thinking*

**Memory Card Game:** Using a heavy paper or card stock, make two copies of the images below and cut out the cards. Mix them up and place them face down on a table. Taking turns, each player should turn over two cards so that everyone can see. If the cards match, he or she keeps the pair and takes another turn. If they do not match, the player should turn the cards back over and it is another player's turn. The player with the most pairs at the end of the game wins.



# Map Activity

Objective: reading maps, geography, know that plants and animals live in different locations



Using this map as a reference and the map in Appendix C:

- Color the area green where coast redwoods are found.
- Find the state in which you live and color it yellow.
- Are coast redwoods native to the state in which you live?
- If not, draw a line from where you live (approximately) to where the coast redwoods grow.

Can you find the location on a globe? If so:

- Do the trees grow more in the middle (tropical near the equator), at the top/bottom of the globe (polar regions), or in between (temperate region)?
- Does that location tell you anything about the temperature (climate) where these trees grow well?

On which coast (Atlantic or Pacific) are coast redwoods found?

In which two states do these trees grow?

What do you notice about where the trees grow?

Map credit: By Griensteidl - based on en:Map of USA with county outlines.png from the English Wikipedia, uploaded by Wapcaplet from a public-domain map courtesy of the U.S. Census Bureau website; Data of Distribution taken from: Peter Schütt et al.: Lexikon der Nadelbäume. Nikol, Hamburg 2004, ISBN 3-933203-80-5, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=734946>

# Origami Owl Bookmarks

**Materials:** Light weight craft paper cut into 7-inch squares

Construction paper: dark brown, light brown, yellow and white

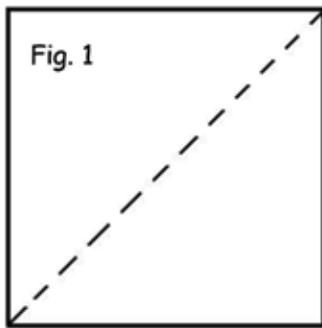
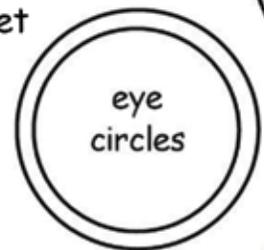
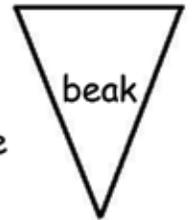
Wiggle eyes or black marker; glue stick; white glue;

brown and white paint pens (optional)

From dark brown paper, cut a  $3\frac{3}{8}$ -inch square and two  $1\frac{1}{4}$ -inch circles

Cut two white 1-inch circles and yellow triangle for beak.

Cut wing from light brown paper. Reverse pattern and cut second wing.



1. Fold craft paper square in half diagonally. Turn so long, folded edge is at bottom. (Fig. 1)

2. Fold the lower right corner up to meet the top right-angled corner. (Fig. 2, 3)

3. Repeat for the left side. (Fig. 2, 3)

4. Fold these two back open. (Fig 3)

5. Flip ONE of the top corners down to bottom edge and crease. Trim bottom corners. (Fig 4)

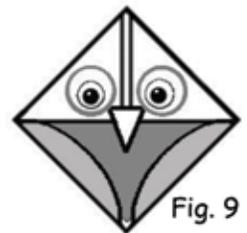
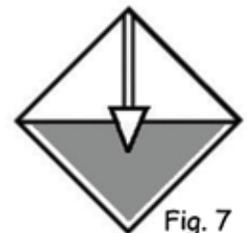
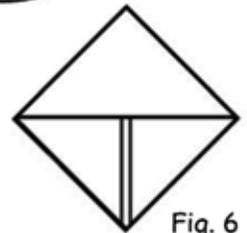
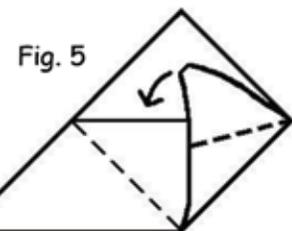
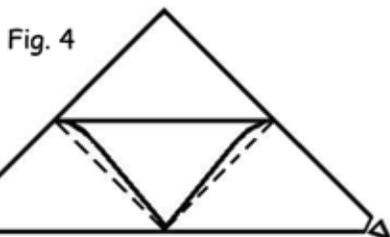
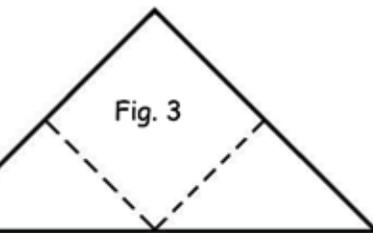
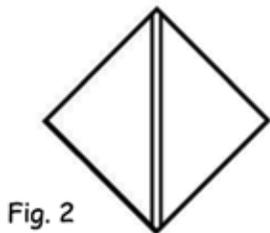
6. Fold the flaps you created back up and tuck inside, behind edge of folded down top flap. (Figs. 5, 6)

7. Use glue stick to glue sides of brown square inside bookmark, lining up edges. Glue top edge of yellow triangle in place. (Fig 7)

8. Use glue stick to glue white circles inside brown circles, and glue both in place for eyes. Use white glue to add wiggle eyes inside white circles, or draw eyes with black marker. (Fig. 8)

9. Glue wings in place with glue stick, lining up straight edges with sides. (Fig. 9)

10. If desired, use paint pens or markers to add spots or feathers on head and wings.

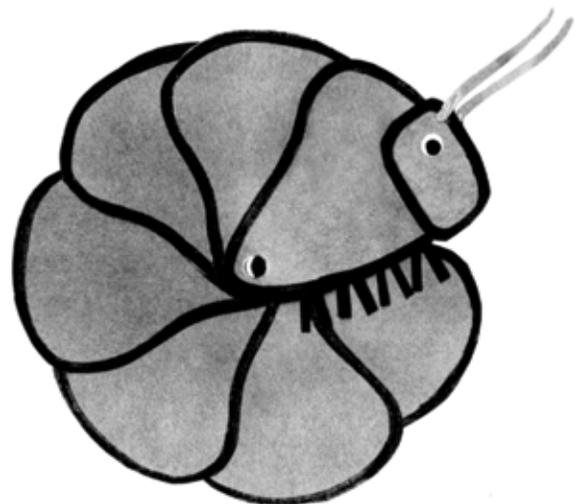
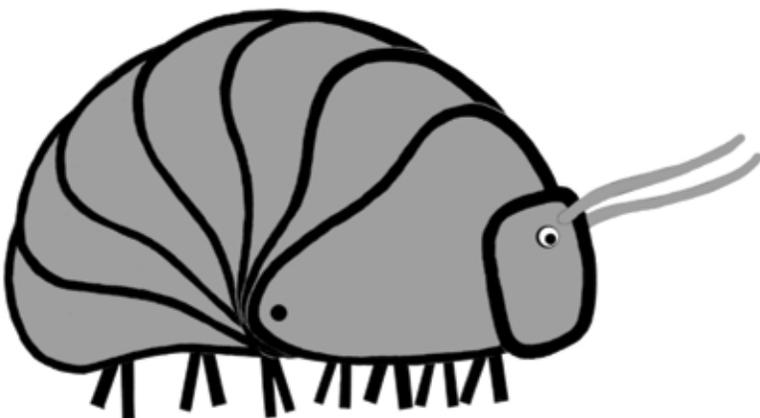
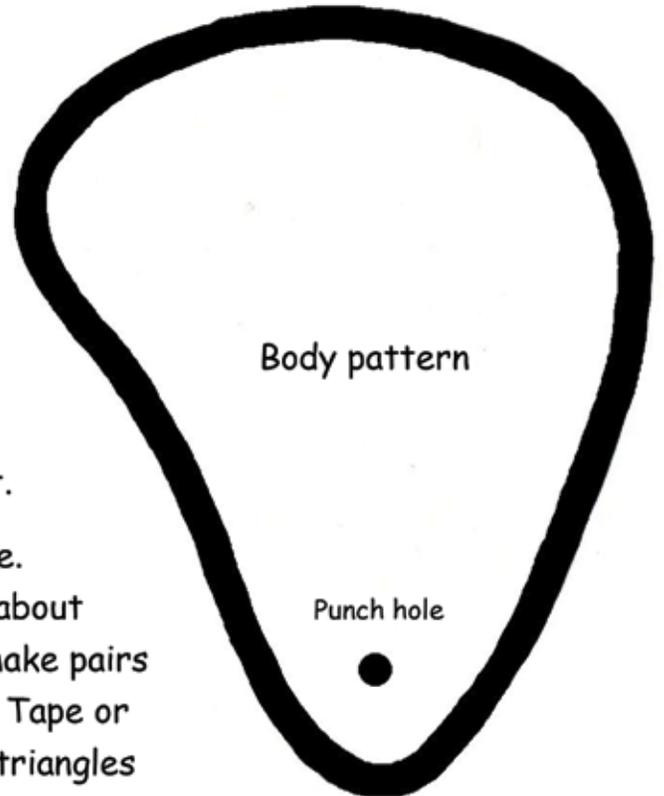


# Roly Poly Paper Craft

## Materials:

Construction paper: brown or gray for body, black for legs  
Wide black marker  
Hole punch  
Small brass fastener  
Craft glue  
Wiggle eyes

1. Trace one head and eight body patterns on brown construction paper. Outline with wide black marker and cut out, leaving wide black line around edge.
2. Punch holes in bottoms of body parts. Stack all the body parts and secure with brass fastener through the holes.
3. Glue head on top right side of top body part.
4. Spread triangles to make the roly poly shape. Cut thin strips of black construction paper about two inches long. Fold in half at an angle to make pairs of legs. Roly polies have seven pairs of legs. Tape or glue them to the back of the first and last triangles in the pile. Use two more strips of construction paper for the antennae. Glue on wiggle eyes.





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# Forest Tree Vocabulary Bingo Game

marbled murrelet	This bird nests in coast redwood trees, and the parents fly 50 miles to bring fish from the ocean.
fairy ring	A circle of trees that grew from stump sprouts on burls at the bottom of a redwood that died.
burl	A knobby outgrowth on the tree trunk from which new trees may sprout.
cone	A mature redwood makes up to 100,000 of these each year, but few of the seeds ever grow into new trees.
Humboldt flying squirrel	This mammal doesn't really fly but can glide up to 150 feet from one tree to the next.
wandering salamander	A type of amphibian that lives in the coast redwood forest and breathes through its skin and mouth instead of lungs.
canopy	The branches and leaves that grow at the top of a forest, forming a type of roof.
fern mat	Huge masses of hanging ferns that grow in canopy humus.
humus	Sponge-like mats of soil.
Pacific Ocean	The redwoods grow along the coast of this ocean.
botanist	Scientists who climb and study trees.
379 feet	The height of the tallest coast redwood known.
reiterations	Trunks that grow from limbs growing from the main tree trunk.
epiphytes	Plants that attach themselves to other plants to grow.
shrubs	Botanists sometimes eat fruit from these plants growing high in the canopy.
Northern spotted owl	A type of bird (raptor) that nests in tree cavities, broken treetops, and the old nests of hawks, eagles, and squirrels.
temperate	A climate that is neither very hot (tropical) nor very cold (polar).
moist	The required amount of water-related climate the trees need to grow.
lichens	Two organisms that grow together and are used to monitor air quality and climate change.
pill bugs	These small crustaceans roll themselves into balls when disturbed.
two	The number of states where coast redwoods grow: California and Oregon
250 feet	The height at which limbs start to appear.
ropes	Things botanists use to climb high into the trees.
talons	What Northern spotted owls (and other raptors) use to grab prey.
tallest	Coast redwoods are the (blank) trees in the world.

B	I	N	G	O
tallest	cone	fern mat	379 feet	temperate
marbled murrelet	two	humus	reiterations	ropes
epiphytes	wandering salamander	<b>FREE</b>	fairy ring	lichens
burl	canopy	botanist	shrubs	250 feet
pill bugs	Humboldt flying squirrel	talons	Northern spotted owl	moist

B	I	N	G	O
wandering salamander	shrubs	canopy	burl	lichens
epiphytes	fern mat	botanist	fairy ring	humus
379 feet	temperate	<b>FREE</b>	cone	talons
250 feet	reiterations	ropes	Pacific Ocean	marbled murrelet
Northern spotted owl	moist	two	tallest	pill bugs

B	I	N	G	O
fairy ring	Pacific Ocean	epiphytes	moist	ropes
canopy	reiterations	wandering salamander	lichens	talons
humus	379 feet	<b>FREE</b>	fern mat	tallest
shrubs	pill bugs	temperate	two	marbled murrelet
Humboldt flying squirrel	Northern spotted owl	cone	250 feet	burl

B	I	N	G	O
wandering salamander	shrubs	canopy	burl	lichens
epiphytes	fern mat	botanist	fairy ring	humus
379 feet	temperate	<b>FREE</b>	cone	talons
250 feet	reiterations	ropes	Pacific Ocean	marbled murrelet
Northern spotted owl	moist	two	tallest	pill bugs

B	I	N	G	O
temperate	tallest	moist	shrubs	cone
marbled murrelet	wandering salamander	talons	humus	reiterations
pill bugs	fairy ring	<b>FREE</b>	lichens	botanist
burl	canopy	379 feet	two	Humboldt flying squirrel
ropes	250 feet	fern mat	epiphytes	Pacific Ocean

B	I	N	G	O
fairy ring	two	reiterations	tallest	shrubs
canopy	cone	moist	Pacific Ocean	379 feet
ropes	Northern spotted owl	<b>FREE</b>	250 feet	marbled murrelet
humus	pill bugs	botanist	epiphytes	temperate
fern mat	Humboldt flying squirrel	talons	wandering salamander	burl

B	I	N	G	O
Pacific Ocean	two	Humboldt flying squirrel	ropes	temperate
epiphytes	botanist	burl	moist	wandering salamander
fern mat	shrubs	<b>FREE</b>	talons	fairy ring
humus	lichens	250 feet	379 feet	cone
reiterations	tallest	Northern spotted owl	marbled murrelet	pill bugs

B	I	N	G	O
cone	tallest	fern mat	379 feet	temperate
two	marbled murrelet	humus	reiterations	ropes
wandering salamander	epiphytes	<b>FREE</b>	fairy ring	lichens
canopy	burl	botanist	shrubs	250 feet
Humboldt flying squirrel	pill bugs	talons	Northern spotted owl	moist

B	I	N	G	O
epiphytes	fern mat	botanist	fairy ring	humus
wandering salamander	shrubs	canopy	burl	lichens
379 feet	temperate	<b>FREE</b>	cone	talons
250 feet	reiterations	ropes	Pacific Ocean	marbled murrelet
Northern spotted owl	moist	two	tallest	pill bugs

B	I	N	G	O
Humboldt flying squirrel	Northern spotted owl	cone	250 feet	burl
fairy ring	Pacific Ocean	epiphytes	moist	ropes
canopy	reiterations	<b>FREE</b>	lichens	talons
humus	379 feet	wandering salamander	fern mat	tallest
shrubs	pill bugs	temperate	two	marbled murrelet

B	I	N	G	O
tallest	temperate	moist	shrubs	cone
wandering salamander	marbled murrelet	talons	humus	reiterations
fairy ring	pill bugs	<b>FREE</b>	lichens	botanist
canopy	burl	379 feet	two	Humboldt flying squirrel
250 feet	ropes	fern mat	epiphytes	Pacific Ocean

B	I	N	G	O
canopy	cone	moist	Pacific Ocean	379 feet
fairy ring	two	reiterations	tallest	shrubs
ropes	Northern spotted owl	<b>FREE</b>	250 feet	marbled murrelet
humus	pill bugs	botanist	epiphytes	temperate
fern mat	Humboldt flying squirrel	talons	wandering salamander	burl

B	I	N	G	O
reiterations	tallest	Northern spotted owl	marbled murrelet	pill bugs
Pacific Ocean	two	Humboldt flying squirrel	ropes	temperate
epiphytes	botanist	<b>FREE</b>	moist	wandering salamander
fern mat	shrubs	burl	talons	fairy ring
humus	lichens	250 feet	379 feet	cone

B	I	N	G	O
tallest	cone	fern mat	temperate	379 feet
marbled murrelet	two	humus	ropes	reiterations
epiphytes	wandering salamander	<b>FREE</b>	lichens	fairy ring
burl	canopy	botanist	250 feet	shrubs
pill bugs	Humboldt flying squirrel	talons	moist	Northern spotted owl

B	I	N	G	O
wandering salamander	shrubs	canopy	burl	lichens
epiphytes	fern mat	botanist	fairy ring	humus
379 feet	temperate	<b>FREE</b>	cone	talons
Northern spotted owl	moist	two	tallest	pill bugs
250 feet	reiterations	ropes	Pacific Ocean	marbled murrelet

B	I	N	G	O
fairy ring	Pacific Ocean	epiphytes	moist	ropes
Humboldt flying squirrel	Northern spotted owl	cone	250 feet	burl
canopy	reiterations	<b>FREE</b>	lichens	talons
humus	379 feet	wandering salamander	fern mat	tallest
shrubs	pill bugs	temperate	two	marbled murrelet

B	I	N	G	O
temperate	tallest	moist	cone	shrubs
marbled murrelet	wandering salamander	talons	reiterations	humus
pill bugs	fairy ring	<b>FREE</b>	botanist	lichens
burl	canopy	379 feet	Humboldt flying squirrel	two
ropes	250 feet	fern mat	Pacific Ocean	epiphytes

B	I	N	G	O
fairy ring	two	reiterations	tallest	shrubs
canopy	cone	moist	Pacific Ocean	379 feet
ropes	Northern spotted owl	<b>FREE</b>	250 feet	marbled murrelet
fern mat	Humboldt flying squirrel	talons	wandering salamander	burl
humus	pill bugs	botanist	epiphytes	temperate

B	I	N	G	O
Pacific Ocean	two	Humboldt flying squirrel	ropes	temperate
reiterations	tallest	Northern spotted owl	marbled murrelet	pill bugs
epiphytes	botanist	<b>FREE</b>	moist	wandering salamander
fern mat	shrubs	burl	talons	fairy ring
humus	lichens	250 feet	379 feet	cone

B	I	N	G	O
tallest	cone	fern mat	temperate	379 feet
marbled murrelet	two	humus	ropes	reiterations
epiphytes	wandering salamander	<b>FREE</b>	lichens	fairy ring
burl	canopy	botanist	250 feet	shrubs
pill bugs	Humboldt flying squirrel	talons	moist	Northern spotted owl

B	I	N	G	O
epiphytes	fern mat	botanist	fairy ring	humus
wandering salamander	shrubs	canopy	burl	lichens
379 feet	temperate	<b>FREE</b>	cone	talons
Northern spotted owl	moist	two	tallest	pill bugs
250 feet	reiterations	ropes	Pacific Ocean	marbled murrelet

B	I	N	G	O
fairy ring	Pacific Ocean	epiphytes	moist	ropes
Humboldt flying squirrel	Northern spotted owl	cone	250 feet	burl
canopy	reiterations	<b>FREE</b>	lichens	talons
shrubs	pill bugs	temperate	two	marbled murrelet
humus	379 feet	wandering salamander	fern mat	tallest

B	I	N	G	O
temperate	tallest	moist	cone	shrubs
marbled murrelet	wandering salamander	talons	reiterations	humus
pill bugs	fairy ring	<b>FREE</b>	botanist	lichens
burl	canopy	379 feet	Humboldt flying squirrel	two
ropes	250 feet	fern mat	Pacific Ocean	epiphytes

B	I	N	G	O
canopy	cone	moist	Pacific Ocean	379 feet
fairy ring	two	reiterations	tallest	shrubs
ropes	Northern spotted owl	<b>FREE</b>	250 feet	marbled murrelet
fern mat	Humboldt flying squirrel	talons	wandering salamander	burl
humus	pill bugs	botanist	epiphytes	temperate

B	I	N	G	O
Pacific Ocean	two	Humboldt flying squirrel	ropes	temperate
reiterations	tallest	Northern spotted owl	marbled murrelet	pill bugs
epiphytes	botanist	<b>FREE</b>	moist	wandering salamander
humus	lichens	250 feet	379 feet	cone
fern mat	shrubs	burl	talons	fairy ring

B	I	N	G	O
marbled murrelet	two	humus	ropes	reiterations
tallest	cone	fern mat	temperate	379 feet
epiphytes	wandering salamander	<b>FREE</b>	lichens	fairy ring
burl	canopy	botanist	250 feet	shrubs
pill bugs	Humboldt flying squirrel	talons	moist	Northern spotted owl

B	I	N	G	O
250 feet	reiterations	ropes	Pacific Ocean	marbled murrelet
wandering salamander	shrubs	canopy	burl	lichens
379 feet	temperate	<b>FREE</b>	cone	talons
Northern spotted owl	moist	two	tallest	pill bugs
epiphytes	fern mat	botanist	fairy ring	humus

B	I	N	G	O
fairy ring	Pacific Ocean	epiphytes	ropes	moist
Humboldt flying squirrel	Northern spotted owl	cone	burl	250 feet
canopy	reiterations	<b>FREE</b>	talons	lichens
shrubs	pill bugs	temperate	marbled murrelet	two
humus	379 feet	wandering salamander	tallest	fern mat

B	I	N	G	O
marbled murrelet	wandering salamander	talons	reiterations	humus
temperate	tallest	moist	cone	shrubs
pill bugs	fairy ring	<b>FREE</b>	botanist	lichens
burl	canopy	379 feet	Humboldt flying squirrel	two
ropes	250 feet	fern mat	Pacific Ocean	epiphytes

B	I	N	G	O
humus	pill bugs	botanist	epiphytes	temperate
fairy ring	two	reiterations	tallest	shrubs
ropes	Northern spotted owl	<b>FREE</b>	250 feet	marbled murrelet
fern mat	Humboldt flying squirrel	talons	wandering salamander	burl
canopy	cone	moist	Pacific Ocean	379 feet

# Answers

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## Silly Sentences

A mature coast redwood makes up to 100,000 small cones in a year. Each cone is about an inch long (2.5 cm) and has 50 to 100 tiny seeds (about the size of tomato seeds). Few of its seeds ever grow into new trees because the dense forest is too dark and crowded.

Most coast redwoods reproduce by stump sprouts growing out of large outgrowths on the tree trunk called burls. When a coast redwood tree is stressed by fire, drought, wind or human activity, the burl sends out shoots that are copies of the parent tree!

If these burls grow all around the tree, and the parent tree dies, the remaining circle of trees is called a fairy ring.

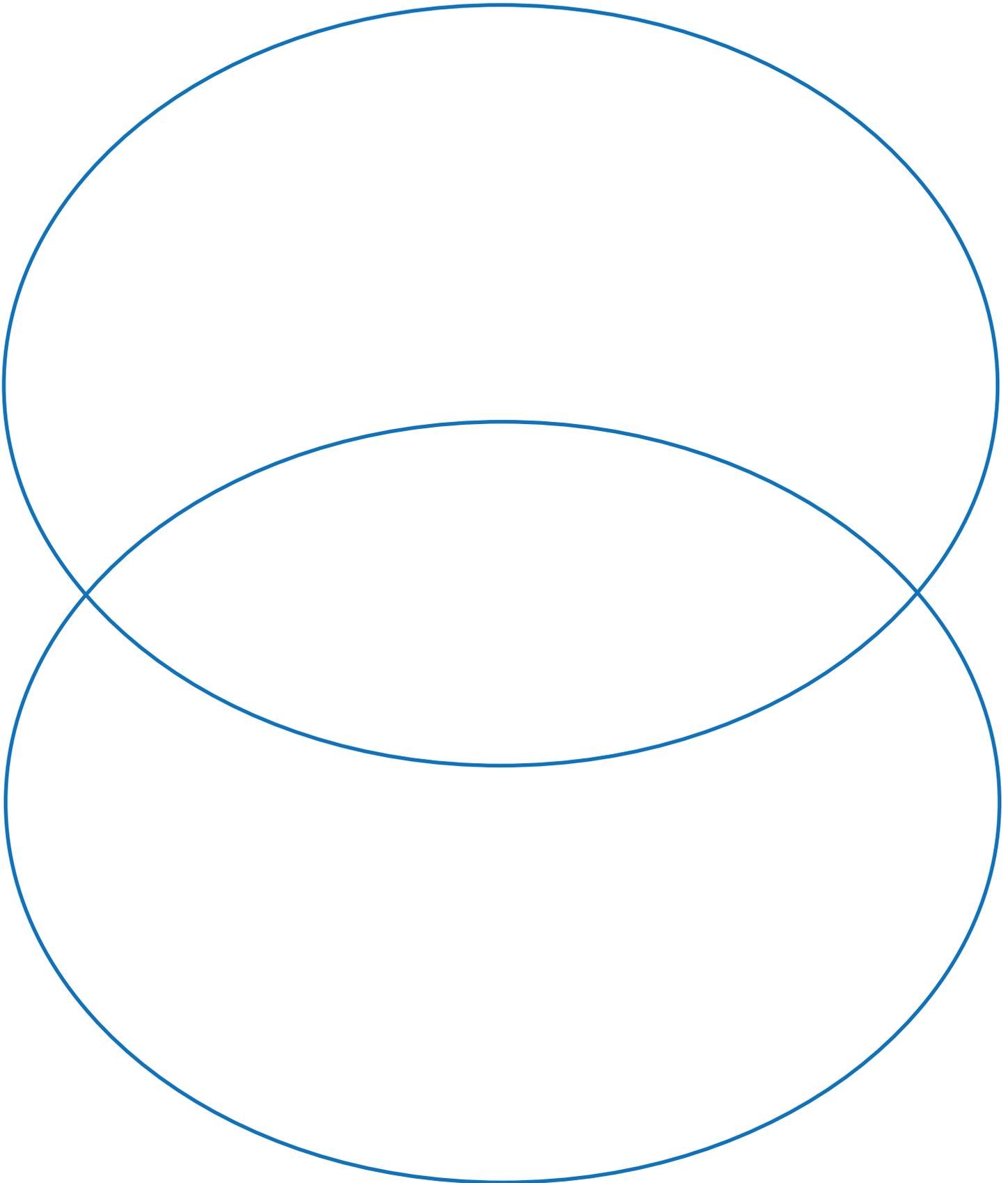
## True/False

1. T/F Coast redwoods grow all over North America. **False. They grow in a narrow strip along the Pacific Ocean.**
2. T/F Coast redwoods need dry, cool air to grow. **False. They need a moist climate.**
3. T/F Coast redwoods are the tallest trees in the world. **True**
4. T/F Some coast redwoods are over 2,500 years old. **True**
5. T/F Many coast redwood trees are taller than the Statue of Liberty or 30-story buildings. **True**
6. T/F Many animals live in and around the canopy of coast redwoods. **True**
7. T/F Trees and bushes grow out of limbs of the coast redwoods. **True**
8. T/F Botanists climb high into the canopy to study these tall, tall trees. **True**
9. T/F Plants that grow on other plants are called epiphytes. **True**
10. T/F Huge masses of hanging ferns grown in canopy humus are called fern masses. **False. They are called Fern mats.**



# Appendix B—Venn Diagram

Compare and contrast coast redwood trees to another type of tree



# Appendix C—U.S. Map

