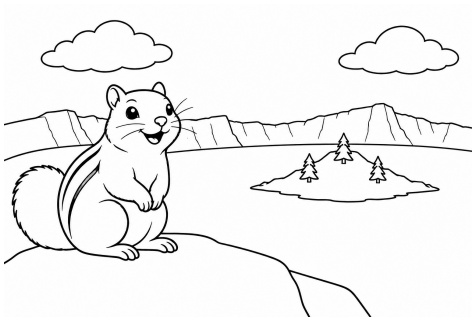
THREE PARKS MANY DISCOVERIES

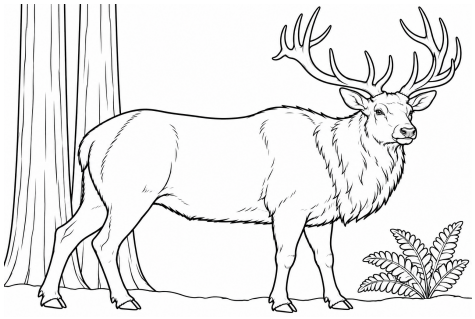
FAMILY GUIDE

Volcanoes and Giant Trees

A Wild Base Family activity book for ages 4-6, 7-9 and 10+







PRINT BY AGE | PAGE RANGES

Ages 4-6: activities 3-14; answers 39-41.
Ages 7-9: activities 15-26; answers 42-44.
Ages 10+: activities 27-38; answers 45-47.
Shared family guidance and sources: 48-50.

This book belongs to

FAMILY PRINT GUIDE **FAMILY GUIDE**

Choose your discoveries

Choose a comfortable challenge. Read aloud when helpful. Each separate packet contains its own activities, answers and family notes.

AGES 4-6 | ACTIVITIES 3-14 | ANSWERS 39-41

Picture stories, counting, matching, coloring and a broad-passage shaped maze.

AGES 7-9 | ACTIVITIES 15-26 | ANSWERS 42-44

Process stories, food webs, landscape math, a word search, a crossword, history and a family strategy game.

AGES 10+ | ACTIVITIES 27-38 | ANSWERS 45-47

Illustrated mysteries, evidence puzzles, a changing model, a code, a challenging crossword and an independent Sudoku.

PRINT AND PACK | FAMILY NOTES AND SOURCES 48-50

Print US Letter at actual size, or fit to A4. All clues work in grayscale. Pack a pencil, crayons and a clipboard.

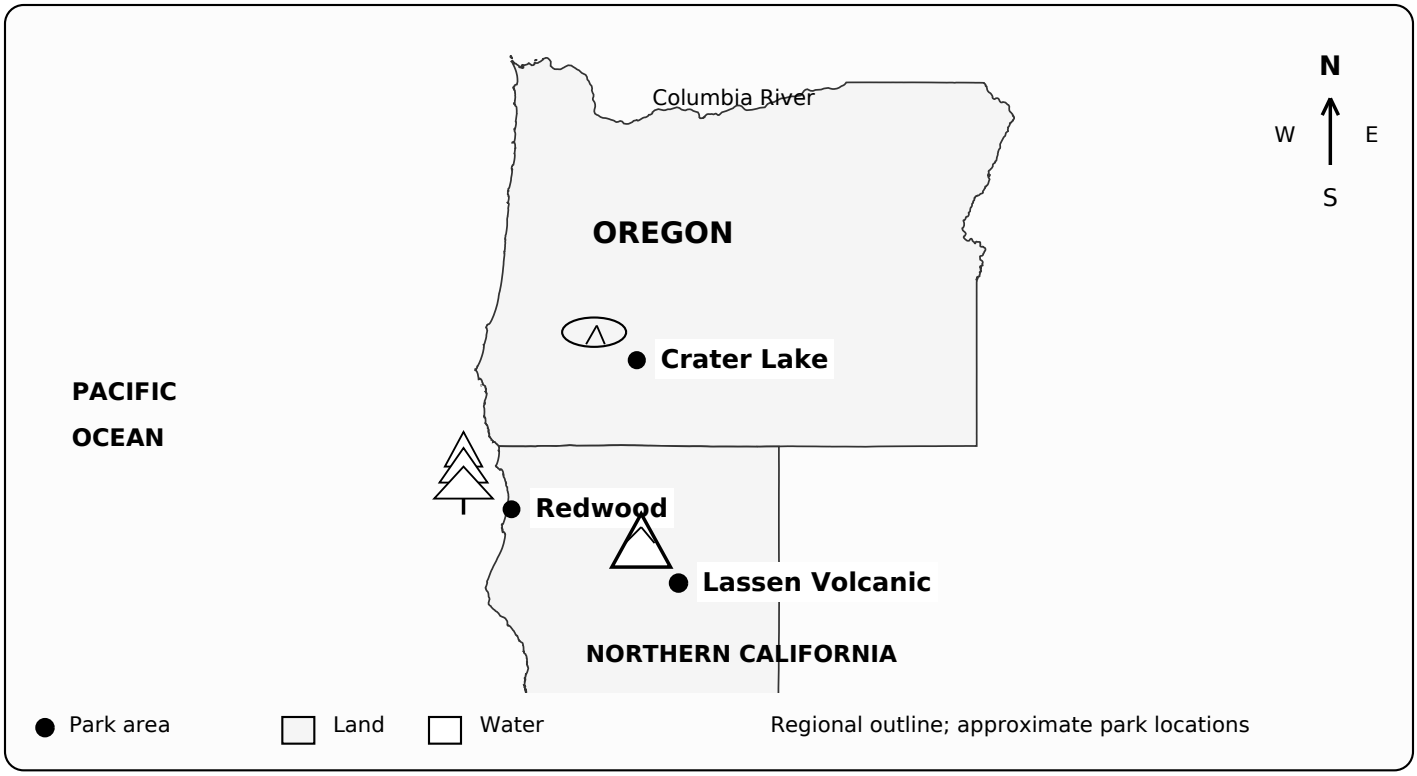
Separate 18-page packets: activities 1-12; answers 13-15; family notes and sources 16-18. Each answer names its activity title and local page. Codes are only secondary labels.

For the drive: passengers play; keep the driver free to concentrate.

START YOUR EXPLORER PACKET **AGES 4-6**

Three parks three kinds of change

Find three parks on the map. Circle Crater Lake. Put a star beside Redwood.



MEET THE PLACES

Crater Lake: rain and snow filled part of a collapsed volcanic basin. Redwood: coast redwoods grow in moist coastal forests. Lassen: lava and rock fragments built several volcano shapes.

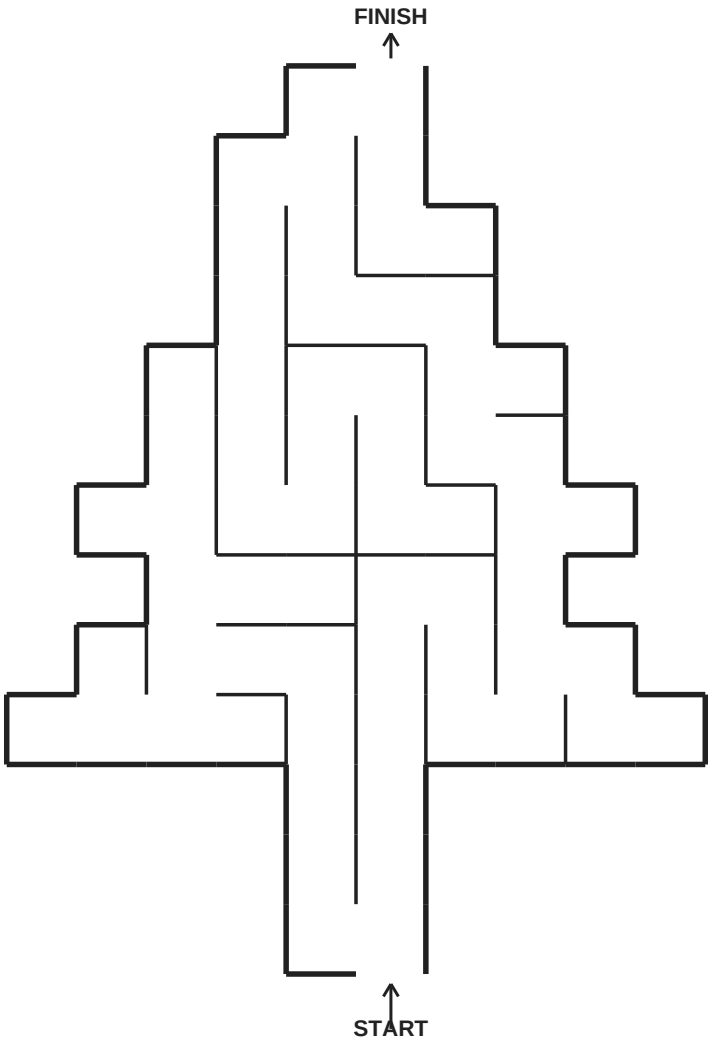
Point to the park farthest north. Which side has the ocean?

Activities 3-14; answers 39-41. Family notes and sources 48-50. Pack a pencil, crayons and a clipboard.

SHAPED MAZE | GENTLE **AGES 4-6**

Through a redwood

Trace one route from START to FINISH. Stay between the walls.



A SHAPE WITH A STORY

Coast redwoods are the tallest tree species. Their tall crowns rise above a forest that also includes fallen wood and new sprouts.

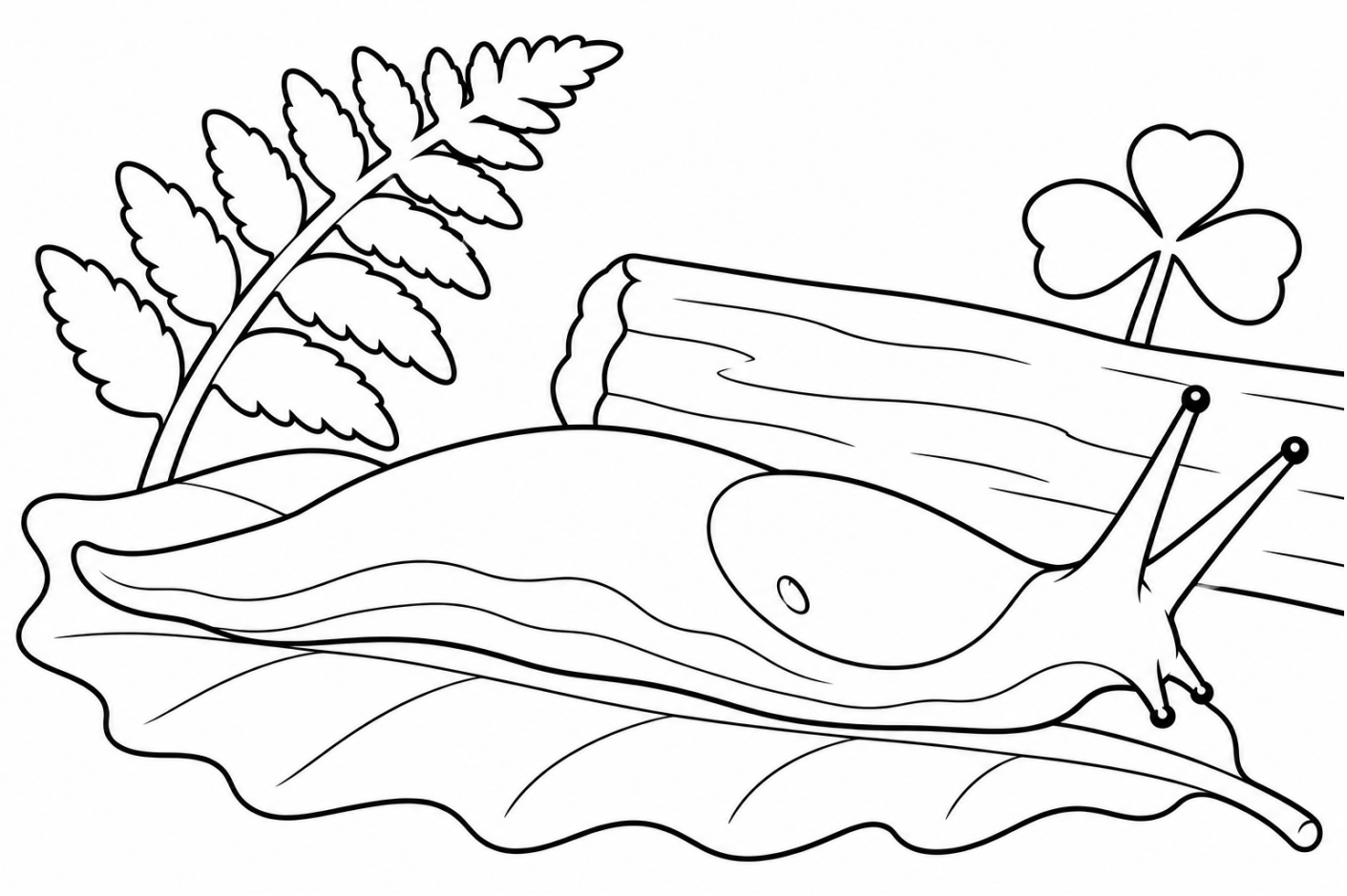
NOTICE AND CONNECT

Point to the trunk and crown. How does a tree provide places for other living things?

COLOR AND DISCOVER AGES 4-6

A tiny forest recycler

Color the banana slug. Find its soft body and feelers. Add two fallen leaves.



LOOK CLOSELY

Banana slugs help break down fallen plant material. The materials can return to soil. A slug has no legs.

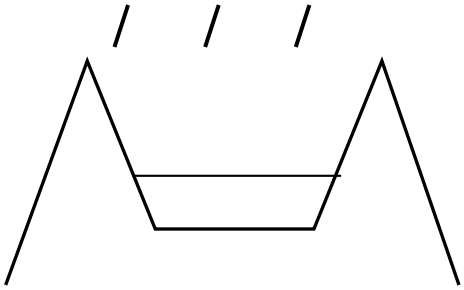
Point to the body part that helps it explore its surroundings.

PUT A STORY IN ORDER **AGES 4-6**

A mountain becomes a lake

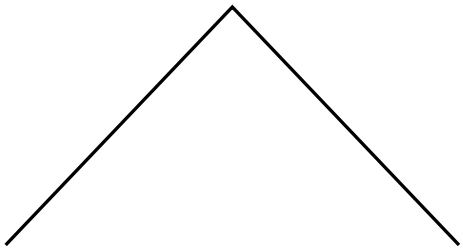
Point to what happens first. Write 1, 2, 3 and 4 in the circles.

A



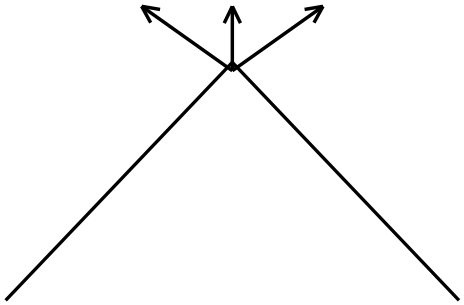
Rain and snow fill the basin.

B



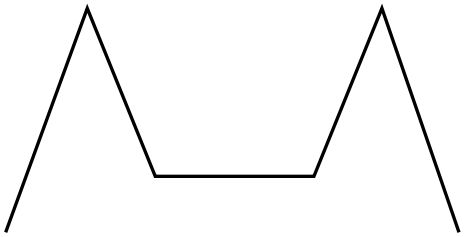
A mountain stands.

C



An eruption empties rock below.

D



The top collapses.

DISCOVERY

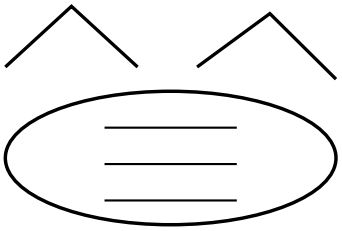
An eruption and collapse made the basin of Crater Lake. Rain and snow supplied its water.

MATCH AND DRAW **AGES 4-6**

Water and land shapes

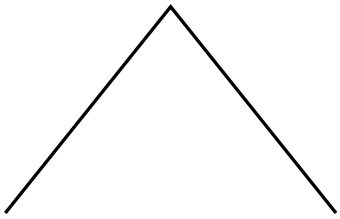
Match each clue to a picture. Then draw an arrow showing where the water goes.

A



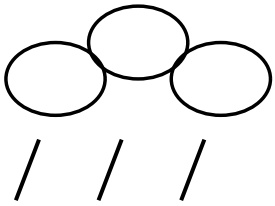
A basin holds water.

B



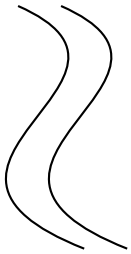
Rock rises in a cone.

C



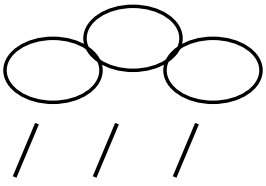
Water falls from clouds.

D

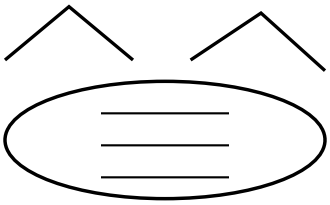


Water keeps moving.

Lake ___ Mountain ___ Rain ___ River ___



RAIN AND SNOW



LAKE

Draw water going from rain and snow into the lake.

WILDLIFE SORTING **AGES 4-6**

What is for lunch

Draw a line from each food picture to the animal that eats it.

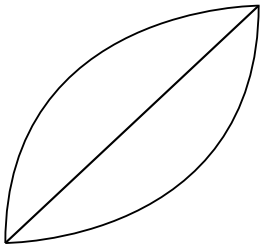
Banana slugs eat fallen leaves. Black bears eat berries and insects.



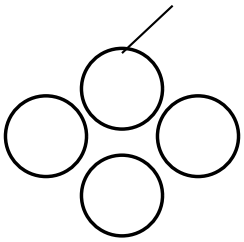
BANANA SLUG



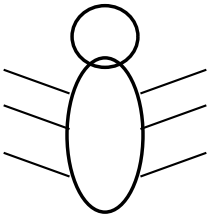
BLACK BEAR



FALLEN LEAF



BERRIES



INSECT

COUNT AND CIRCLE

How many food pictures? _____

Circle the foods that come from plants.

PICTURE PATTERNS **AGES 4-6**

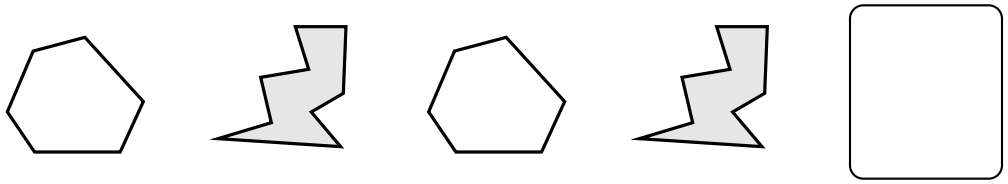
Rock lava cone dome

Draw the missing picture in each repeating pattern.

READ ALOUD

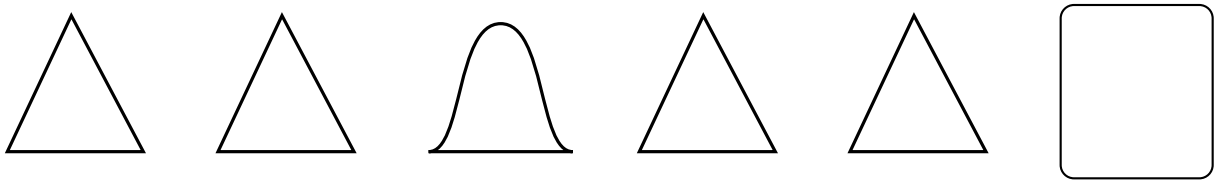
Lava is melted rock at the surface. A cone has sloping sides. A dome is a steep mound. Say the picture names together.

1



ROCK LAVA ROCK LAVA

2



CONE CONE DOME CONE CONE

Draw two pairs of rocks. How many pictures? _____

TWO PAIRS

PEOPLE AND HISTORY **AGES 4-6**

A place with a long story

Indigenous communities have long relationships with the redwood region. These relationships continue today.

LONG AGO

People lived with these lands and waters long before the national parks were created.

IN 1968

Redwood National Park was established to protect coast redwood forests.

TODAY

Tolowa and Yurok communities continue their cultures and care for their homelands.

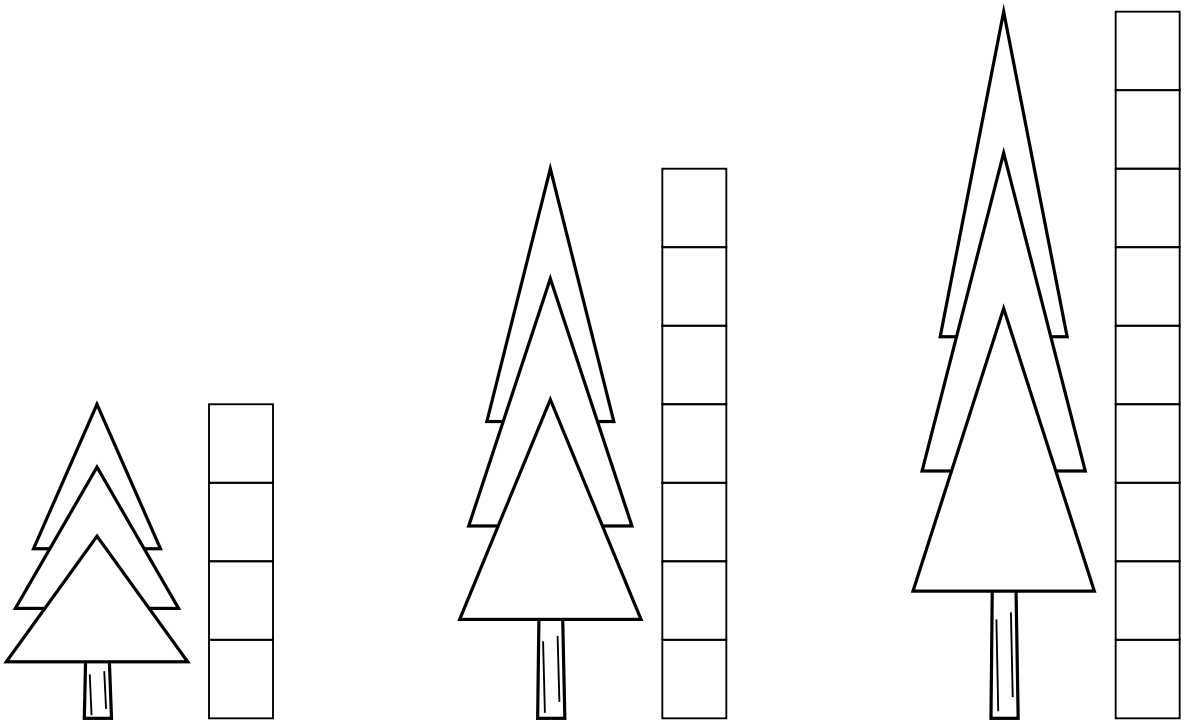
Point to the earliest part. Circle TODAY. Tell one way to care for a place.

MY CARE FOR A PLACE IDEA

COUNT AND BUILD **AGES 4-6**

Count beside the trees

Color the model trees. Count the equal blocks and circle the tallest.



A **B** **C**

A TREE IN A SMALL MODEL
Equal blocks let us compare the heights of these model trees.

Tree B has _____ blocks. B has _____ more than A.

Draw 2 blocks, then 3 more. How many? _____

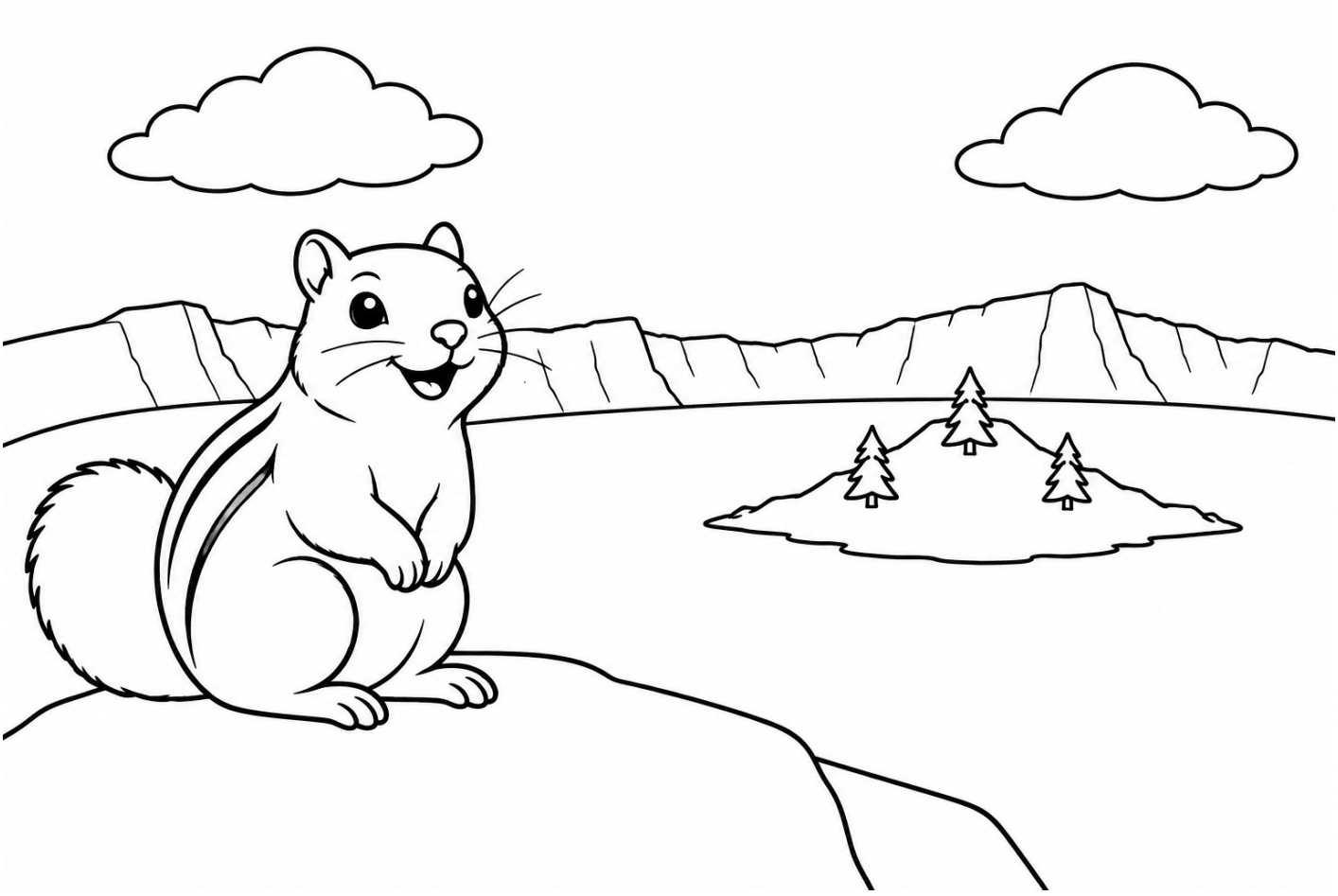
2 + 3

4 + 2 = _____ 6 - 1 = _____

COLOR AND LOOK CLOSELY **AGES 4-6**

Look into the caldera

Color the lake scene. Find the rim, the lake and Wizard Island. A rim is the high edge around the basin.



CRATER LAKE

Rain and snow fill the lake inside its high rim. Later eruptions built Wizard Island.

Trace the rim. Draw a raindrop and a snowflake.

FAMILY ROAD BREAK AGES 4-6

Guess my park clue

Take turns choosing a place, plant or animal from this packet. Describe it without saying its name.

GIVE A HELPFUL CLUE

Try a shape, a home or something it does.
The other players may ask three yes-or-no questions.

DRAW A CLUE WITHOUT WRITING ITS NAME

CHANGE ROLES

When someone guesses, invite that person to give the next clue. Help each other make clues more useful.

REMEMBER AND SHARE **AGES 4-6**

My park discoveries

Choose something from your visit or this book. Draw it and tell someone about it.

A PLACE THAT SURPRISED ME

AN ANIMAL OR PLANT I LEARNED ABOUT

My new park word is

One thing I can explain now is

NOTICE AND CONNECT
Show a favorite page. Ask someone what they learned too.

START YOUR EXPLORER PACKET **AGES 7-9**

Three parks three kinds of change

Crater Lake is in Oregon. Redwood and Lassen Volcanic are in northern California. Explore a lake inside a collapsed volcano, a tall coastal forest and volcanoes with different shapes.



MEET THE PLACES

Crater Lake: rain and snow filled part of a collapsed volcanic basin. Redwood: coast redwoods grow in moist coastal forests. Lassen: lava and rock fragments built several volcano shapes.

1. Which park is farthest west? _____

2. Which park is farthest north? _____

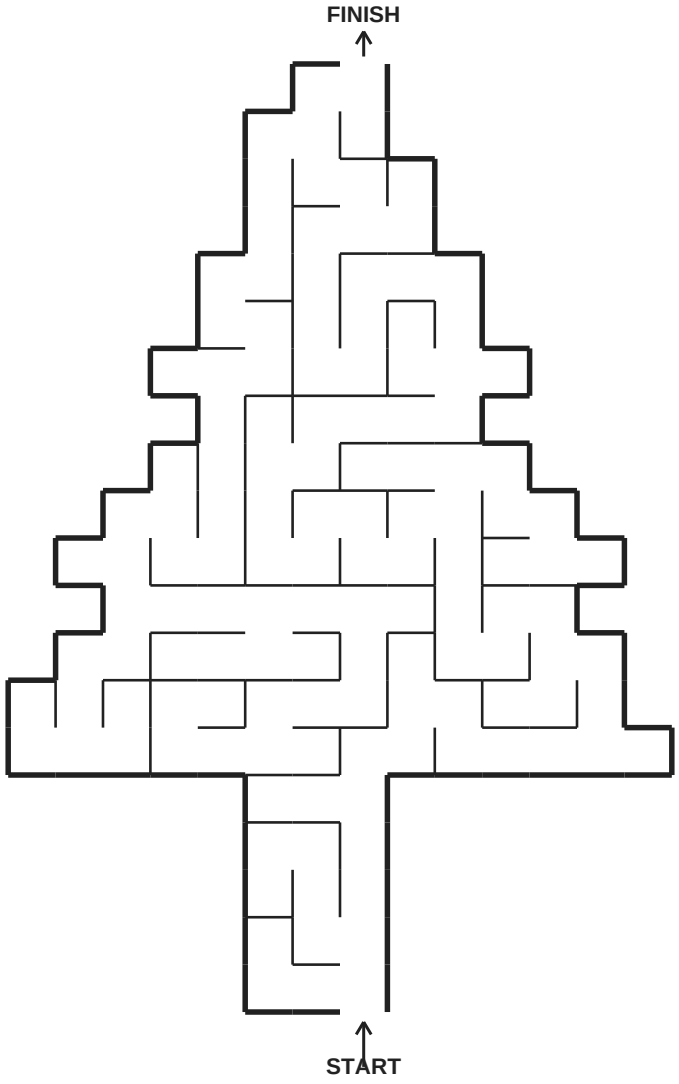
3. Which state contains two park dots? _____

Activities 15-26; answers 42-44. Family notes and sources 48-50. Pack a pencil, crayons and a clipboard.

SHAPED MAZE | MODERATE **AGES 7-9**

Through a redwood

Find the route from START to FINISH. Stay between the walls. Look ahead at each fork before choosing a branch.



A SHAPE WITH A STORY

Coast redwoods are the tallest tree species. Their tall crowns rise above a forest that also includes fallen wood and new sprouts.

NOTICE AND CONNECT

Point to the trunk and crown. How does a tree provide places for other living things?

SEQUENCE AND EXPLAIN AGES 7-9

Build a caldera story

Put this process in order. Start before the basin formed.

A
Rain and snow slowly collect in the new basin.

B
A large eruption removes material from below the mountain.

C
A mountain grows above the surrounding land.

D
The mountain top collapses into the emptied space.

E
Later eruptions build Wizard Island while water continues gathering.

Write the letters in order: ____ > ____ > ____ > ____ > ____

NOTICE AND CONNECT
Which process can continue while Wizard Island grows? Explain how two changes can overlap.

BUILD A FOOD WEB **AGES 7-9**

Connections in a forest

Plants use sunlight. Elk eat grasses. Black bears eat berries. Banana slugs eat fallen plant material. Food arrows point from the food to its eater.

BUILD THE CONNECTIONS

Draw five arrows using the reading. Begin with sunlight reaching plants. Keep arrowheads clear.

SUN

GRASS

ELK

BERRY PLANTS

BLACK BEAR

FALLEN LEAVES

BANANA SLUG

Trace one energy path from sunlight to an animal.

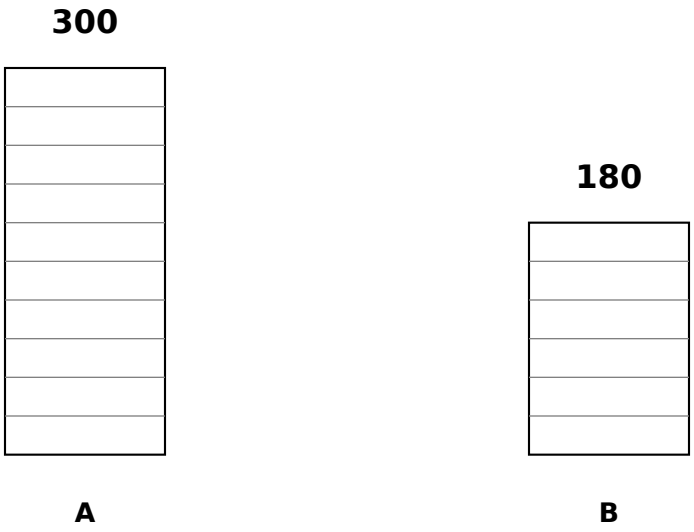
NOTICE AND CONNECT

Which foods in this web come from living plants? Explain why more than one link can reach an animal.

COMPARE AND CALCULATE **AGES 7-9**

Giant trees in a small model

One model block represents 30 feet. Tree A is 300 feet tall; Tree B is 180 feet tall.



1 COMPARE THE HEIGHTS

How many feet taller is A than B? Show your subtraction.

2 COUNT THE MODEL BLOCKS

How many blocks represent A? _____ How many represent B? _____

3 CHANGE THE UNIT

How many 6-foot lengths make 300 feet? _____

NOTICE AND CONNECT

How does using equal units make a fair comparison?

WORD SEARCH AND SORT **AGES 7-9**

Words from fire and forest

Redwoods can begin from seeds or sprouts: new shoots from existing trees. Find six words running right, down or diagonally down-right. No word runs backward. Then connect their meanings.

O	L	L	A	V	A	J	H	U	U	Y
L	A	Q	J	T	M	A	N	E	F	Z
C	P	N	C	F	K	X	D	R	X	P
I	K	W	O	C	O	S	X	R	V	W
I	B	G	N	L	A	Y	R	T	Y	I
T	S	M	E	A	S	L	E	V	X	G
P	H	E	O	W	P	T	D	B	V	S
I	J	H	E	S	R	J	W	E	Q	P
P	M	Q	D	D	O	H	O	V	R	W
Z	V	R	P	H	U	P	O	C	R	A
L	W	P	K	V	T	X	D	B	L	E

FIND THESE

CALDERA REDWOOD LAVA
CONE SEED SPROUT

Volcanic features or material: _____

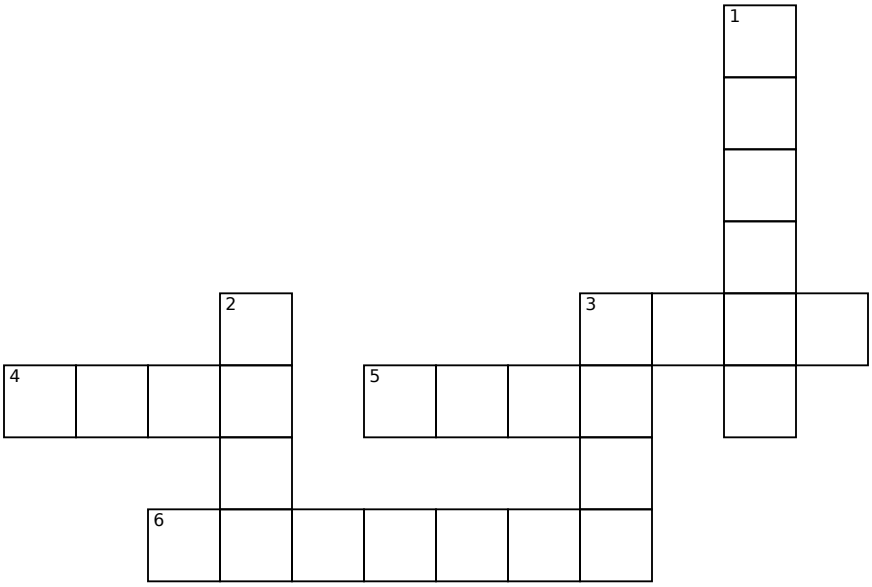
A tree: _____

Ways a new tree begins: _____

CROSSWORD | MODERATE **AGES 7-9**

Words that explain these parks

Use clues and discoveries from this packet. Write one letter in each square.



ACROSS

3. Soft-bodied recycler with no legs. (4)
4. Melted rock at the surface. (4)
5. Volcano shape with sloping sides. (4)
6. Very tall coastal tree. (7)

DOWN

1. New shoot from an existing tree. (6)
2. Water gathered in a basin. (4)
3. One beginning for a new plant. (4)

Choose one word and point to a picture that explains it.

DEDUCE FROM EVIDENCE AGES 7-9

The missing field labels

Four field notes A-D lost their labels. Each uses a different name. Restore all four and record a useful clue.

THE FOUR FEATURES

Shield: broad slopes built by fluid lava. Dome: steep mound of sticky lava. Cinder cone: loose erupted fragments. Composite: layers of lava and fragments.

1. Neither A nor C is a sticky mound or a loose-fragment cone.

2. B is built from loose erupted fragments.

3. D is a steep mound of sticky lava.

4. C has alternating lava and fragment layers.

Note	Feature	Clue that helped
A		
B		
C		
D		

How did identifying B and D make A easier to solve?

TIMELINE AND PERSPECTIVE **AGES 7-9**

A long history of these places

Indigenous communities have long relationships with the redwood region. These relationships continue today.

1968
Redwood National Park is established.

1902
Crater Lake National Park is established.

1916
Lassen Volcanic National Park is established.

1. Write the three dates from earliest to latest.

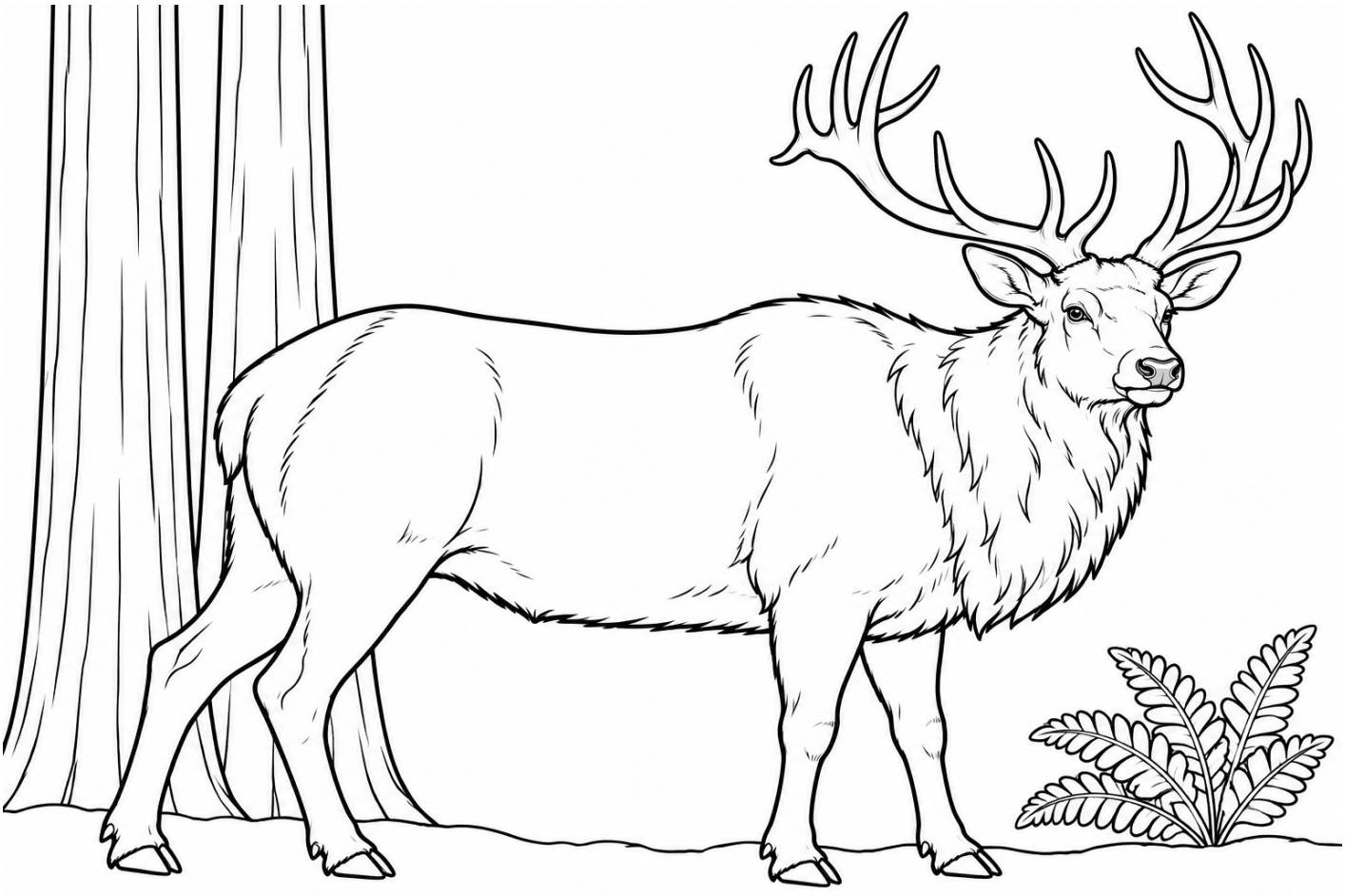
2. How many years separate the earliest and latest dates? Show your work.

THINK BEYOND THE DATES
Why would a history starting at the first date shown leave out an important part of the story?

COLOR AND COMPARE **AGES 7-9**

Observe like a naturalist

Color the elk. Compare its legs and body with the banana slug described below.



LOOK FOR EVIDENCE

Roosevelt elk have hooves and long legs. Male elk have branching antlers. A banana slug has a soft body and no legs.

One visible difference is _____

A question I would investigate is _____

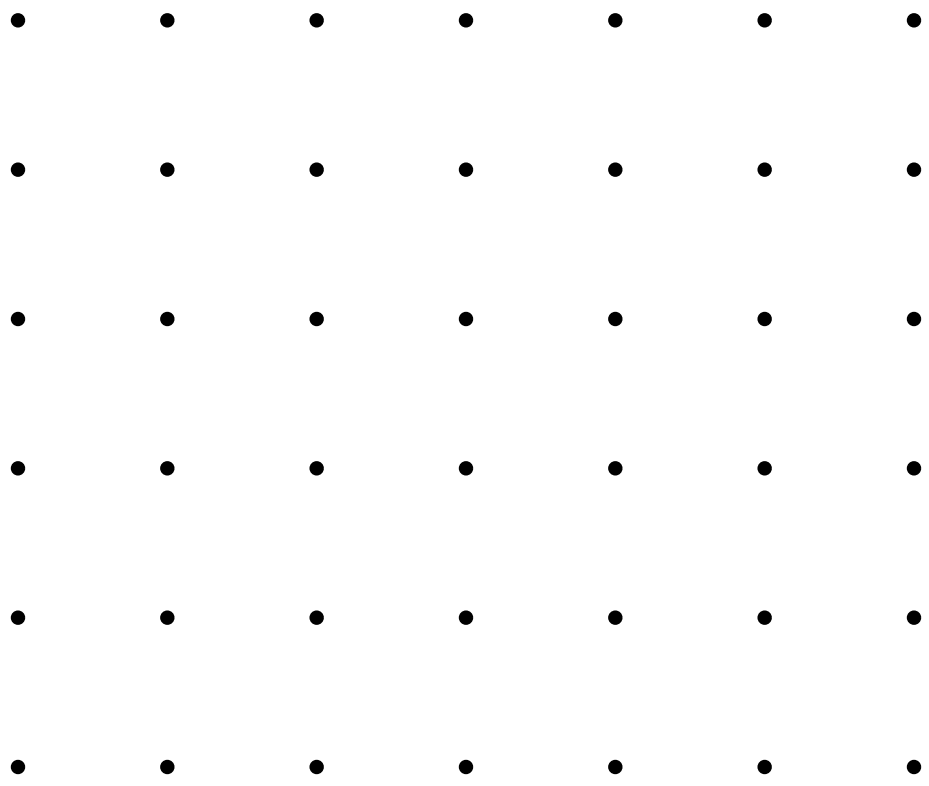
FAMILY ROAD BREAK | TWO PLAYERS **AGES 7-9**

Dots boxes and a pause

Take turns joining two neighboring dots with one horizontal or vertical line. No diagonals and no repeated lines.

HOW TO PLAY

Complete a box? Write your initial inside and take another turn. If one line completes two boxes, claim both. Play until all 30 boxes are claimed. Most boxes wins; equal scores tie.



Players: _____ and _____

Final score: _____ to _____

After the game: each player shares one discovery from this packet.

REMEMBER AND SHARE **AGES 7-9**

My evidence and memories

Connect a discovery with something you observed or learned.

My discovery

The evidence that helps explain it

DRAW A DETAIL YOU WANT TO REMEMBER

One question I still have

START YOUR EXPLORER PACKET **AGES 10+**

Three parks three kinds of change

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MEET THE PLACES

Crater Lake: rain and snow filled part of a collapsed volcanic basin. Redwood: coast redwoods grow in moist coastal forests. Lassen: lava and rock fragments built several volcano shapes.

1. Which park is farthest west? _____

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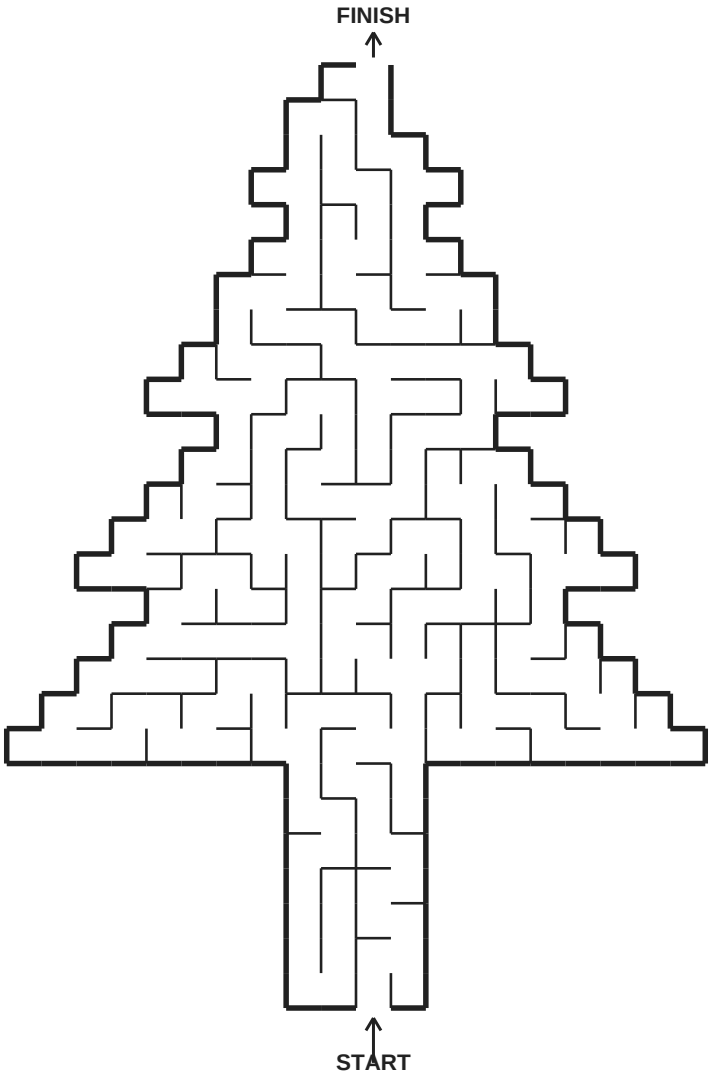
3. Which state contains two park dots? _____

Activities 27-38; answers 45-47. Family notes and sources 48-50. Pack a pencil, crayons and a clipboard.

SHAPED MAZE | CHALLENGING **AGES 10+**

Through a redwood

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A SHAPE WITH A STORY

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NOTICE AND CONNECT

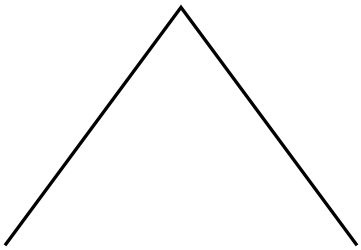
Point to the trunk and crown. How does a tree provide places for other living things?

ILLUSTRATED SCIENCE MYSTERY **AGES 10+**

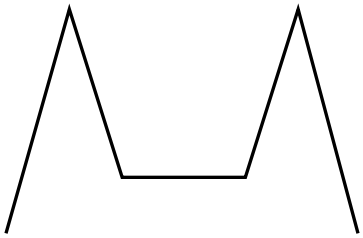
Catch the caldera mix up

Match three label cards to the three scenes. Cross out the one false card. A caldera is a basin left by volcanic collapse.

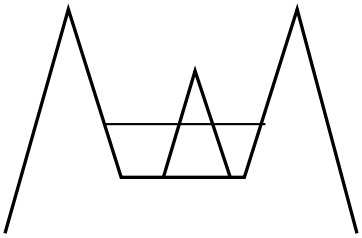
1



2



3



A | SCENE ____
Later eruptions build an island while water gathers.

B | SCENE ____
A mountain stands before the large eruption.

C | SCENE ____
Rainwater freezes and pushes the entire mountain into the sky.

D | SCENE ____
The mountain collapses after a large eruption removes material below.

Which visible clue helped you reject the false card?

BUILD AND QUESTION A FOOD WEB **AGES 10+**

Connections in a forest

Plants use sunlight. Elk eat grasses. Black bears eat berries. Banana slugs eat fallen plant material. Food arrows point from the food to its eater.

BUILD THE CONNECTIONS

Draw five arrows using the reading. Begin with sunlight reaching plants. Keep arrowheads clear.

SUN

GRASS

ELK

BERRY PLANTS

BLACK BEAR

FALLEN LEAVES

BANANA SLUG

Trace one energy path from sunlight to an animal.

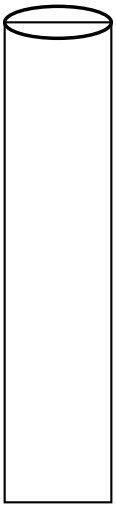
EVIDENCE OR OVERREACH

If one food becomes scarce, must every animal population change by the same amount? Circle YES or NO. Name another factor that could matter.

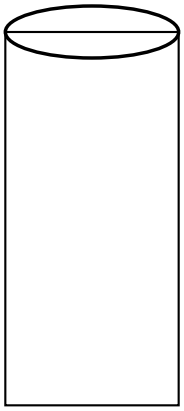
COMPARE THE CLUES **AGES 10+**

Tall is not always massive

Two trunk models have different dimensions. Compare the pictures, then use the model to test which has more volume.



A 100 tall, radius 2



B 80 tall, radius 3

MODEL RULE

Compare radius x radius x height. The same constant is omitted from both scores. Real trunks taper and branch.

1. Score A: _____ Score B: _____

2. Which is taller? _____ Which has more model volume? _____

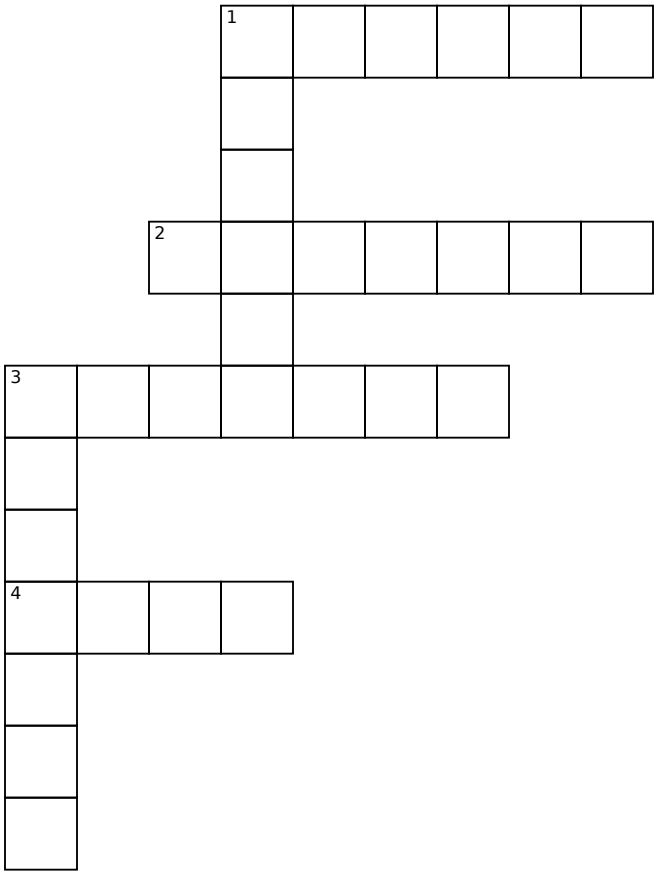
3. B has how many times A's score? _____

Optional: explain one limitation of this model.

CROSSWORD | CHALLENGING **AGES 10+**

Fire and forest crossword

A shield is broad; a dome is a steep lava mound. Cinders are loose erupted fragments. Use these ideas and the discoveries in this packet.



ACROSS

1. New shoot growing from an existing tree. (6)
2. Tallest tree species: coast ___. (7)
3. Large volcanic basin left by collapse. (7)
4. Steep pile built by sticky lava. (4)

DOWN

1. Broad volcano made by flowing lava. (6)
3. Loose erupted fragments that can build a cone. (7)

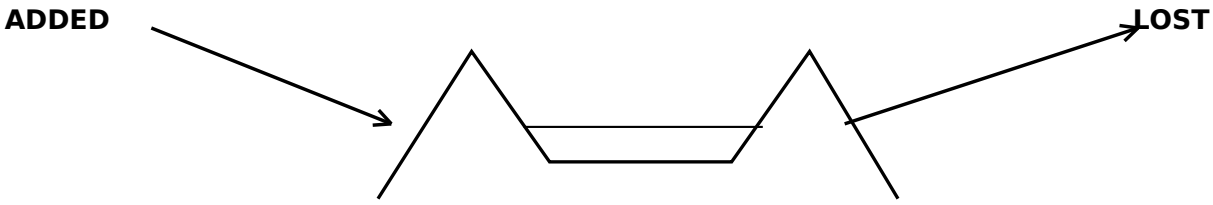
CHANGING MODEL | MULTI STEP REASONING **AGES 10+**

A lake keeps a water budget

Rain and snow add water to Crater Lake; evaporation and seepage remove it. Use model units to track storage.

MODEL RULES

End = start + added - lost. The next round begins with the previous end. Complete one round at a time.



Round	Start	Added	Lost	End
1	40	8	5	
2		3	7	
3		9	4	
4		2	8	
5		6	3	
6		4	6	

A. Final storage: _____ Change from the first start: _____

B. Which round loses the most stored water? _____

C. If the last round repeats twice, what will storage become? _____

WATER ROUTES AND A CODE AGES 10+

Follow water through the land

Water can move through very different systems. Read these routes, then decode a landscape message.

TWO WATER SYSTEMS

Crater Lake: rain and snow -> lake storage -> evaporation and seepage. No river flows out of the lake.

Coastal forest: rain and fog -> forest and soil -> streams and the Pacific Ocean.

1. Which system has no surface river outlet? _____

2. Explain one connection between stored water and moving water.

DECODE THE MESSAGE

Each coded letter is 4 places AFTER its real letter. To read it, move back 4. For example, E means A and A means W. Spaces stay in place.

AEXIV GSRRIGXW PMZMRK XLMRKW

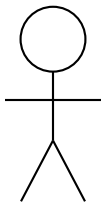
Explain how your decoded message connects to one route above.

MATCH EXHIBITS AND LABELS **AGES 10+**

The museum label mix up

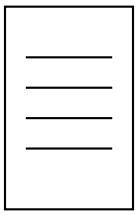
Read the exhibit clues. Match each exhibit to the best label, then choose the most accurate headline.

A



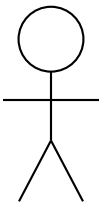
Tolowa and Yurok peoples have long relationships with redwood homelands.

B



In 1968, Redwood National Park was established.

C



Today, community educators share their own knowledge and perspectives.

LABELS

1 Continuing relationships and care
2 A long history before the dated event
3 A change in public protection or restoration

Exhibit A -> label _____ B -> label _____ C -> label _____

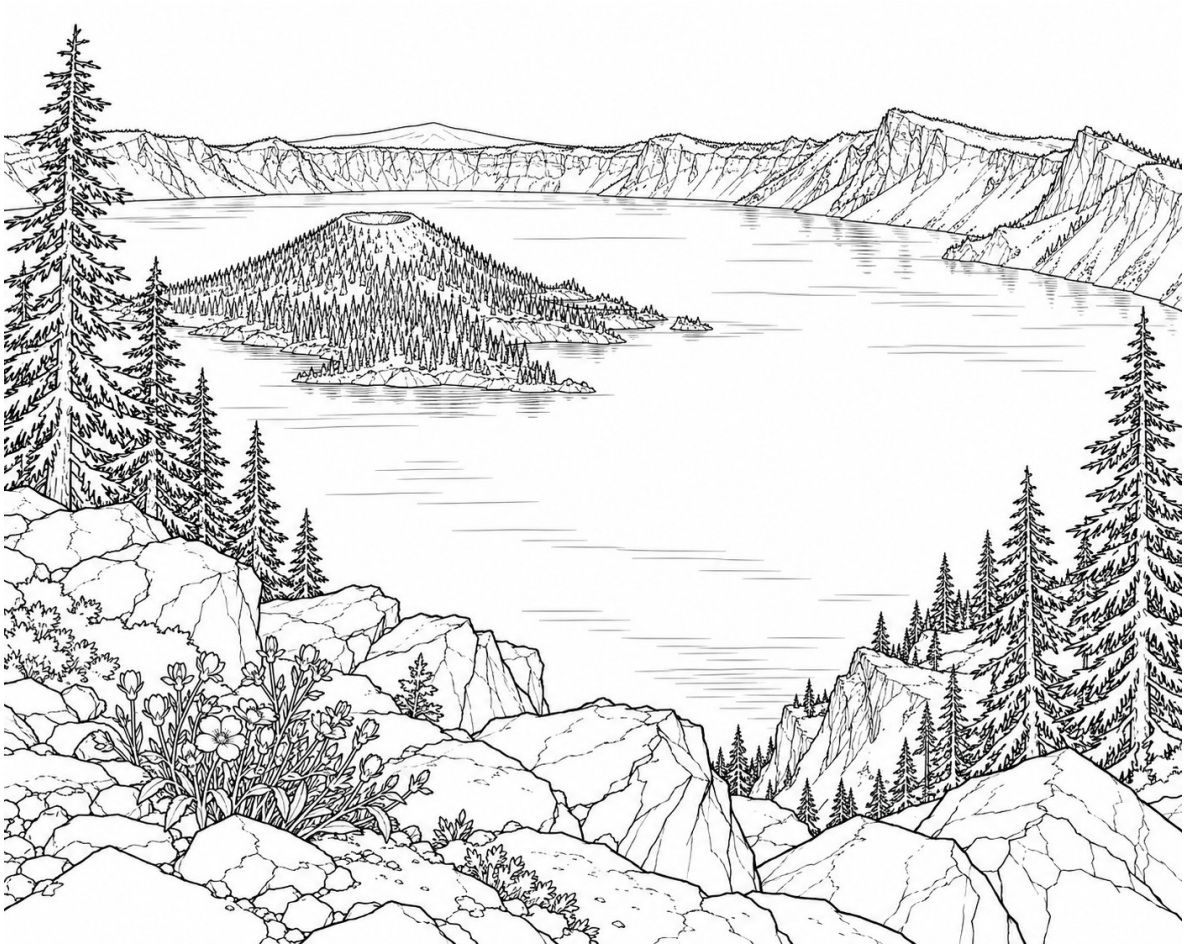
CHOOSE THE MUSEUM HEADLINE

Circle the best fit: HISTORY STARTS AT THE DATED EVENT / A LONG PAST AND CONTINUING CONNECTIONS

NATURALIST COLOR STUDY **AGES 10+**

Observe the basin and its rim

Use line, shading or color to distinguish the lake surface, high rim and island. Add arrows linking the features to their formation story.



Label the caldera rim and Wizard Island.

Add one arrow for water arriving and one for erupted material building the island.

OPTIONAL TALK OR WRITE

Which part of the drawing records collapse, and which records construction?

FAMILIAR ROAD BREAK **AGES 10+**

The number rest stop

Place 1-9 in every row, column and bold 3 x 3 box. Each number appears once in each. Work independently with a pencil.

	6							8
5	9	8	4		6		2	
1								3
			2		3	9	7	1
2	3		9			6	8	
9		1		5		2	3	
	5	6			4	8		
		2		9	1	3		
			3					

A WAY IN

Find a row, column or box with few gaps. List its missing digits, then eliminate choices using the crossing row and column.

Afterward, teach someone one deduction you made without guessing.

SYNTHESIZE AND REMEMBER **AGES 10+**

Make a discovery worth sharing

Choose a question about these parks that you can now explain. Support your answer with two details from this packet or your observations.

My question

My explanation and two supporting details

DRAW A MODEL OR DETAIL THAT HELPS EXPLAIN YOUR IDEA

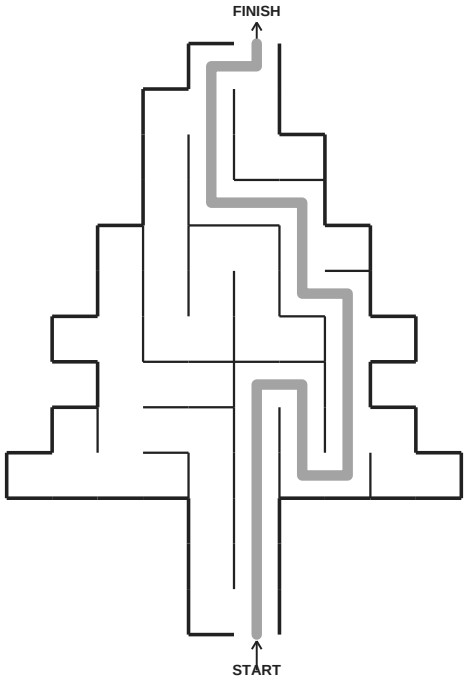
One thing I want my family to remember

ANSWER KEY 1 OF 3 **AGES 4-6**

Routes and discoveries

Try a small hint first. These answers refer to the activity pages in the PDF you are reading.

Page 4 Through a redwood



Page 3 Three parks three kinds of change

Crater Lake is farthest north; Redwood is farthest west. California contains Redwood and Lassen. The Pacific Ocean is on the left (west). Circle Crater Lake and star Redwood.

Page 5 A tiny forest recycler

Colors vary. Add two fallen leaves. The feelers help a slug sense its surroundings. It has no legs; its soft body moves along the ground.

Page 6 A mountain becomes a lake

Order B, C, D, A. Card numbers: A=4, B=1, C=2, D=3. Collapse left a basin; rain and snow supplied the water.

ANSWER KEY 2 OF 3 **AGES 4-6**

Answers to small discoveries

Invite the child to point, say or show an answer.

Page 7 Water and land shapes

Lake A; mountain B; rain C; river D. The arrow goes from the rain/snow picture toward the lake. Crater Lake has no surface river outlet.

Page 8 What is for lunch

Fallen leaf to banana slug; berries and insect to black bear. There are 3 food pictures. Circle leaf and berries. These are parts of the animals' varied diets.

Page 9 Rock lava cone dome

Pattern 1: ROCK. Pattern 2: DOME. Two pairs contain 4 pictures. Accept recognizable drawings.

Page 10 A place with a long story

LONG AGO is earliest. Circle TODAY. Accept care ideas such as staying on trails, leaving plants and rocks, keeping wildlife wild, and carrying litter away. Indigenous communities belong to the present as well as the past.

ANSWER KEY 3 OF 3 AGES 4-6

Answers and family conversations

For drawings and conversations, welcome different ideas that connect to the place.

Page 11 Count beside the trees

A has 4 blocks, B has 7, and C has 9. Circle C. B has 3 more than A. 2+3=5; 4+2=6; 6-1=5. Blocks are equal-sized model units.

Page 12 Look into the caldera

The rim surrounds the basin; Wizard Island is the cone within the lake. Rain and snow supply lake water. Drawings and colors vary.

Page 13 Guess my park clue

Many rounds are possible. A useful clue identifies a feature, habitat or process learned in the packet; celebrate a clear explanation rather than speed.

Page 14 My park discoveries

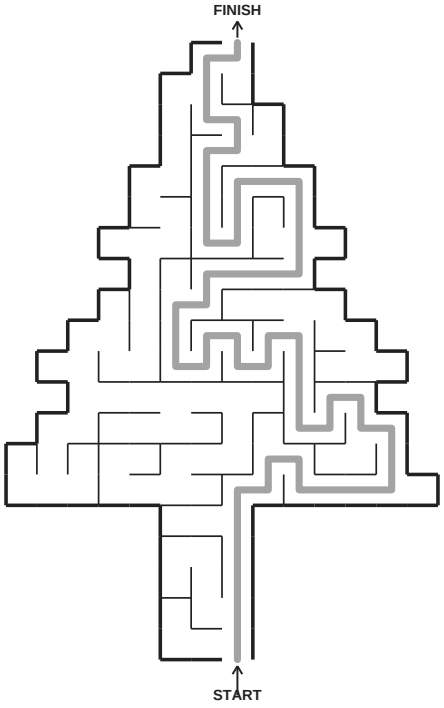
Drawings and wording vary. Look for a clear discovery and a connection to the place. Invite the child to explain the drawing.

ANSWER KEY 1 OF 3 **AGES 7-9**

Routes and discoveries

Try a small hint first. These answers refer to the activity pages in the PDF you are reading.

Page 16 Through a redwood



Page 15 Three parks three kinds of change

Crater Lake is farthest north; Redwood is farthest west. California contains Redwood and Lassen. The Pacific Ocean is on the left (west).

Page 17 Build a caldera story

C, B, D, A, E. Mountain, large eruption, collapse, water gathering, later island building. Water collection continues during island building; the last processes overlap.

Page 18 Connections in a forest

SUN to GRASS; SUN to BERRY PLANTS; GRASS to ELK; BERRY PLANTS to BLACK BEAR; FALLEN LEAVES to BANANA SLUG. Grass and berries come from living plants. Fallen leaves and remains can also supply food.

ANSWER KEY 2 OF 3 **AGES 7-9**

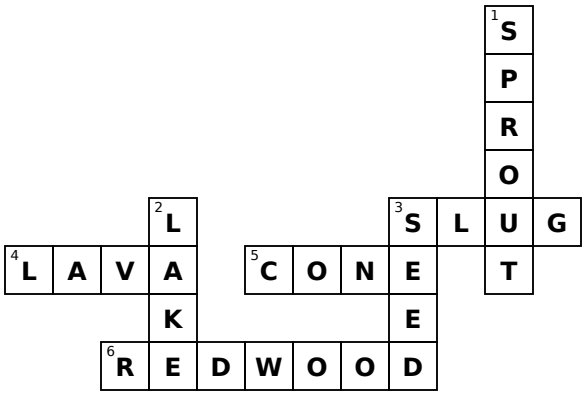
Words numbers and evidence

Page 19 Giant trees in a small model: 300-180=120 feet. A: 300/30=10 blocks. B: 180/30=6 blocks. 300/6=50 six-foot lengths. Equal units allow heights to be compared consistently.

Page 20 Words from fire and forest

O	L	L	A	V	A	J	H	U	U	Y
L	A	Q	J	T	M	A	N	E	F	Z
C	P	N	C	F	K	X	D	R	X	P
I	K	W	O	C	O	S	X	R	V	W
I	B	G	N	L	A	Y	R	T	Y	I
T	S	M	E	A	S	L	E	V	X	G
P	H	E	O	W	P	T	D	B	V	S
I	J	H	E	S	R	J	W	E	Q	P
P	M	Q	D	D	O	H	O	V	R	W
Z	V	R	P	H	U	P	O	C	R	A
L	W	P	K	V	T	X	D	B	L	E

Page 21 Words that explain these parks



Page 20 Words from fire and forest

Volcanic: CALDERA, LAVA, CONE. Tree: REDWOOD. New-tree beginnings: SEED, SPROUT. The marked grid shows every location.

Page 22 The missing field labels

A shield; B cinder cone; C composite; D dome. Clue 2 fixes B, clue 3 fixes D, and clue 4 fixes C. Shield remains for A; clue 1 cross-checks A and C.

Crossword answers are shown in the filled grid above.

ANSWER KEY 3 OF 3 AGES 7-9

History observation and play

Reward a reasonable explanation supported by the facts and pictures.

Page 23 A long history of these places

1902, 1916, 1968. 1968-1902=66 years. These park dates leave out long Indigenous histories and do not replace continuing community relationships.

Page 24 Observe like a naturalist

Elk have legs, hooves and (in this male) branching antlers; slugs have soft bodies and no legs. Colors and questions vary.

Page 25 Dots boxes and a pause

No fixed winner. The 6-by-7 dot array makes 5 x 6 = 30 boxes. Scores should total 30; 15-15 is a tie. A move completing a box earns another turn.

Page 26 My evidence and memories

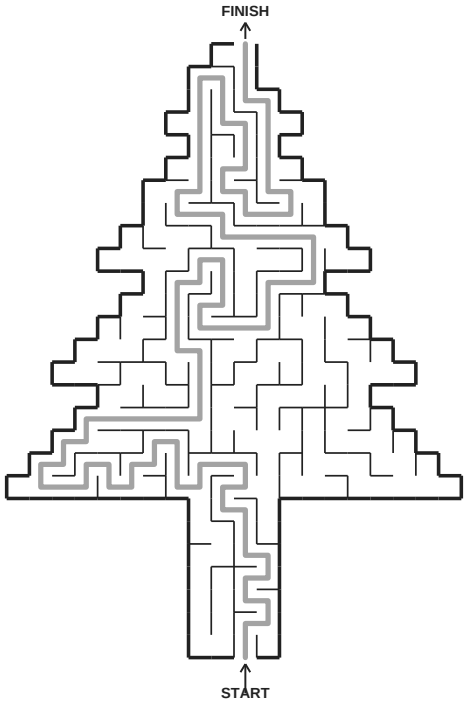
Answers vary. Look for a discovery supported by evidence, a useful drawing and a genuine new question.

ANSWER KEY 1 OF 3 **AGES 10+**

Routes and discoveries

Try a small hint first. These answers refer to the activity pages in the PDF you are reading.

Page 28 Through a redwood



Page 27 Three parks three kinds of change

Crater Lake is farthest north; Redwood is farthest west. California contains Redwood and Lassen. The Pacific Ocean is on the left (west).

Page 29 Catch the caldera mix up

Scene 1 B; scene 2 D; scene 3 A. Cross out C. Collapse follows loss of material beneath the mountain; rain and snow later add lake water.

Page 30 Connections in a forest

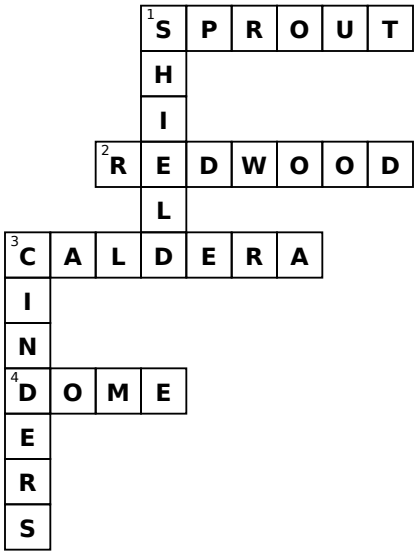
SUN to GRASS; SUN to BERRY PLANTS; GRASS to ELK; BERRY PLANTS to BLACK BEAR; FALLEN LEAVES to BANANA SLUG. NO. This web does not prove equal population changes. Weather, other foods, movement, births and deaths may also matter.

ANSWER KEY 2 OF 3 **AGES 10+**

Words models and a code

Page 31 Tall is not always massive: A=2x2x100=400. B=3x3x80=720. A is taller; B has the greater volume score. 720/400=1.8. Real trees taper, branch and have irregular trunks, unlike cylinders.

Page 32 Fire and forest crossword



Page 33 A lake keeps a water budget

Rd	Start	Add	Lost	End
1	40	8	5	43
2	43	3	7	39
3	39	9	4	44
4	44	2	8	38
5	38	6	3	41
6	41	4	6	39

Page 33 A lake keeps a water budget

Round ends: 43, 39, 44, 38, 41, 39. Final 39; change -1. Round 4 has the largest net loss. Repeating round 6 twice gives 35. Each new start equals the previous end.

Page 34 Follow water through the land

Crater Lake has no river outlet. Water stored there leaves by evaporation or seepage; precipitation supplies it. Code: WATER CONNECTS LIVING THINGS.

Crossword hints: use word lengths and crossings. Filled letters above provide a final check.

ANSWER KEY 3 OF 3 **AGES 10+**

History art and a rest stop

Page 35 The museum label mix up: A -> 2; B -> 3; C -> 1. Circle A LONG PAST AND CONTINUING CONNECTIONS. The dated event is one part of a much longer, continuing history.

Page 37 The number rest stop

4	6	3	1	7	2	5	9	8
5	9	8	4	3	6	1	2	7
1	2	7	5	8	9	4	6	3
6	8	5	2	4	3	9	7	1
2	3	4	9	1	7	6	8	5
9	7	1	6	5	8	2	3	4
3	5	6	7	2	4	8	1	9
7	4	2	8	9	1	3	5	6
8	1	9	3	6	5	7	4	2

Page 36 Observe the basin and its rim

The surrounding rim outlines the collapse basin; Wizard Island records later volcanic construction. Rain or snow arrows supply water to the lake. Shading choices vary; the process labels should distinguish collapse from construction.

Page 38 Make a discovery worth sharing

Answers vary. Look for an explanation of a clear question using two supporting details, with a diagram or drawing that helps explain the idea.

A NOTE ON THE HISTORY DISCUSSION

Connect long histories with continuing relationships. Indigenous communities belong to these places' present as well as their past.

ADULT PLANNING NOTES FAMILY GUIDE

Before your family heads out

Use official park pages for current alerts, road access, weather, permits and seasonal conditions.

PACK LIGHT

Pencil, crayons and a clipboard are enough for every activity. Each age packet includes its own answers and references. Print at actual size on US Letter, or fit to A4.

AT A STOP

Stay on designated paths and follow signs. Observe wildlife without feeding or approaching it. Leave plants, rocks and fallen wood where they belong.

CHECK THE PARKS

Crater Lake: nps.gov/crla
Redwood: nps.gov/redw
Lassen Volcanic: nps.gov/lavo

USE THE BOOK TO START A CONVERSATION

Ask: What did you notice? Which clue helped? What changed your mind? A younger child can dictate answers; an older child can challenge a model.

Artwork combines supplied WBF illustrations, new line art and original diagrams.

REFERENCE 1 OF 2 FAMILY GUIDE

Sources for curious families

These primary sources support the discoveries. Use current official park information for conditions and visitor guidance.

Crater Lake formation and water

https://www.nps.gov/crla/learn/nature/crater-lake.htm

Crater Lake water balance

https://www.nps.gov/places/crater-lake.htm

Lassen volcano types

https://www.nps.gov/lavo/learn/nature/volcanoes.htm

Coast redwood

https://www.nps.gov/articles/000/coast-redwood.htm

Redwood trees and reproduction

https://www.nps.gov/redw/learn/nature/about-the-trees.htm

Banana slugs and recycling

https://www.nps.gov/redw/learn/nature/banana-slug-and-millipede.htm

Map outlines: U.S. Census Bureau cartographic boundaries. Artwork: supplied WBF illustrations with age-appropriate simplified variants. Facts checked October 27, 2026. Detailed puzzle checks and source records accompany the editable edition.

REFERENCE 2 OF 2 FAMILY GUIDE

Sources for curious families

These primary sources support the discoveries. Use current official park information for conditions and visitor guidance.

Redwood bear foods

https://www.nps.gov/redw/planyourvisit/upload/bears-2012-508.pdf

Roosevelt elk

https://www.nps.gov/redw/learn/nature/roosevelt-elk.htm

Redwood establishment and history

https://www.nps.gov/parkhistory/online_books/redw/redw_mmp.pdf

Continuing Tolowa and Yurok communities

https://www.parks.ca.gov/?page_id=28116

Crater Lake park history

https://www.nps.gov/crla/learn/historyculture/index.htm

Lassen park establishment

https://npgallery.nps.gov/LAVO/About

Map outlines: U.S. Census Bureau cartographic boundaries. Artwork: supplied WBF illustrations with age-appropriate simplified variants. Facts checked October 27, 2026. Detailed puzzle checks and source records accompany the editable edition.