

ACKNOWLEDGEMENTS AND CREDITS

ILLUSTRATIONS BY MARK A. HICKS.
WWW.MARKIX.NET

CONDOR, COYOTE, AND ACORN WOODPECKER LOGOS BY CAMERON FITCH.

ACTIVITIES BY PINNACLES NATIONAL PARK STAFF.

REVISED AND EDITED BY GUADALUPE ZARAGOZA, 2013.

PINNACLES NATIONAL PARK WOULD LIKE TO THANK SARAH KATE PETHAN FOR HER WORK WITH THIS BOOKLET, AND TEACHERS TINA PLUNKETT, CANDACE BREWEN, AND TIMOTHY WILLIAMS FOR REVIEWING THE ACTIVITIES.



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TO LEARN MORE ABOUT THE ONLINE NPS JUNIOR RANGER PROGRAM, VISIT WWW.NPS.GOV/WEBRANGERS.





LIKIN' LICHEN

Lichen (like-in) is not a plant, but a fungus and algae living together, helping each other survive. Lichen makes its food from the sunlight and absorbs nutrients from the air and rain water. Lichen looks like splotches of paint on rocks or hairy beards growing on trees.

FIND A ROCK THAT HAS LOTS OF LICHEN ON IT AND DRAW IT HERE!

IT'S EASY TO
CONFUSE LICHEN WITH MOSS.
IF YOU SEE TINY LEAVES,
IT'S PROBABLY MOSS.

WHAT DO THEY FEEL LIKE? _____

WHAT COLORS ARE THEY? _____



ROCK GAWK

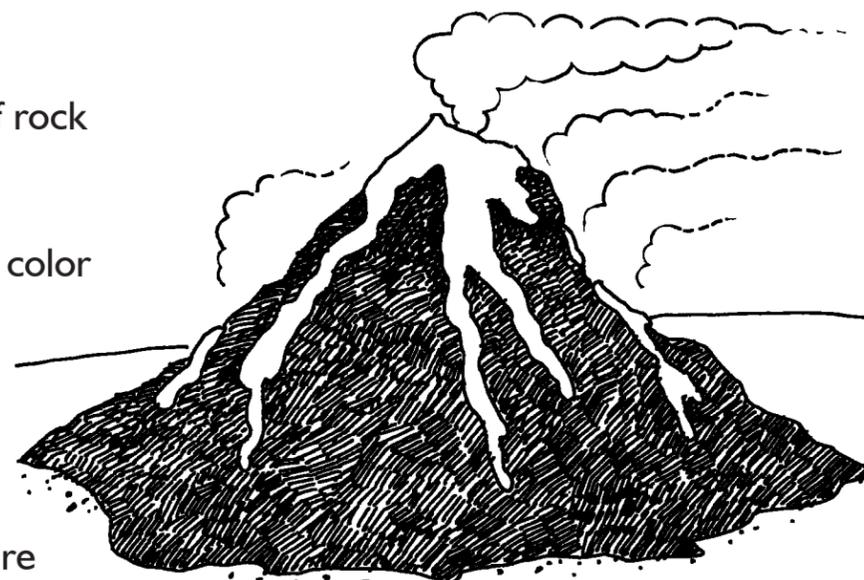


Almost all the rocks you find at Pinnacles came from a huge volcanic field. If you look closely at the rocks, you can find clues that show they are volcanic.

FIND A ROCK TO LOOK AT. EXAMINE YOUR ROCK CLOSELY.

DOES IT HAVE...

- | YES | NO | |
|--------------------------|--------------------------|-----------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | small chunks of rock inside |
| <input type="checkbox"/> | <input type="checkbox"/> | more than one color |
| <input type="checkbox"/> | <input type="checkbox"/> | wavy lines |
| <input type="checkbox"/> | <input type="checkbox"/> | rough bumps |
| <input type="checkbox"/> | <input type="checkbox"/> | a smooth texture |



WHAT COLOR IS IT?

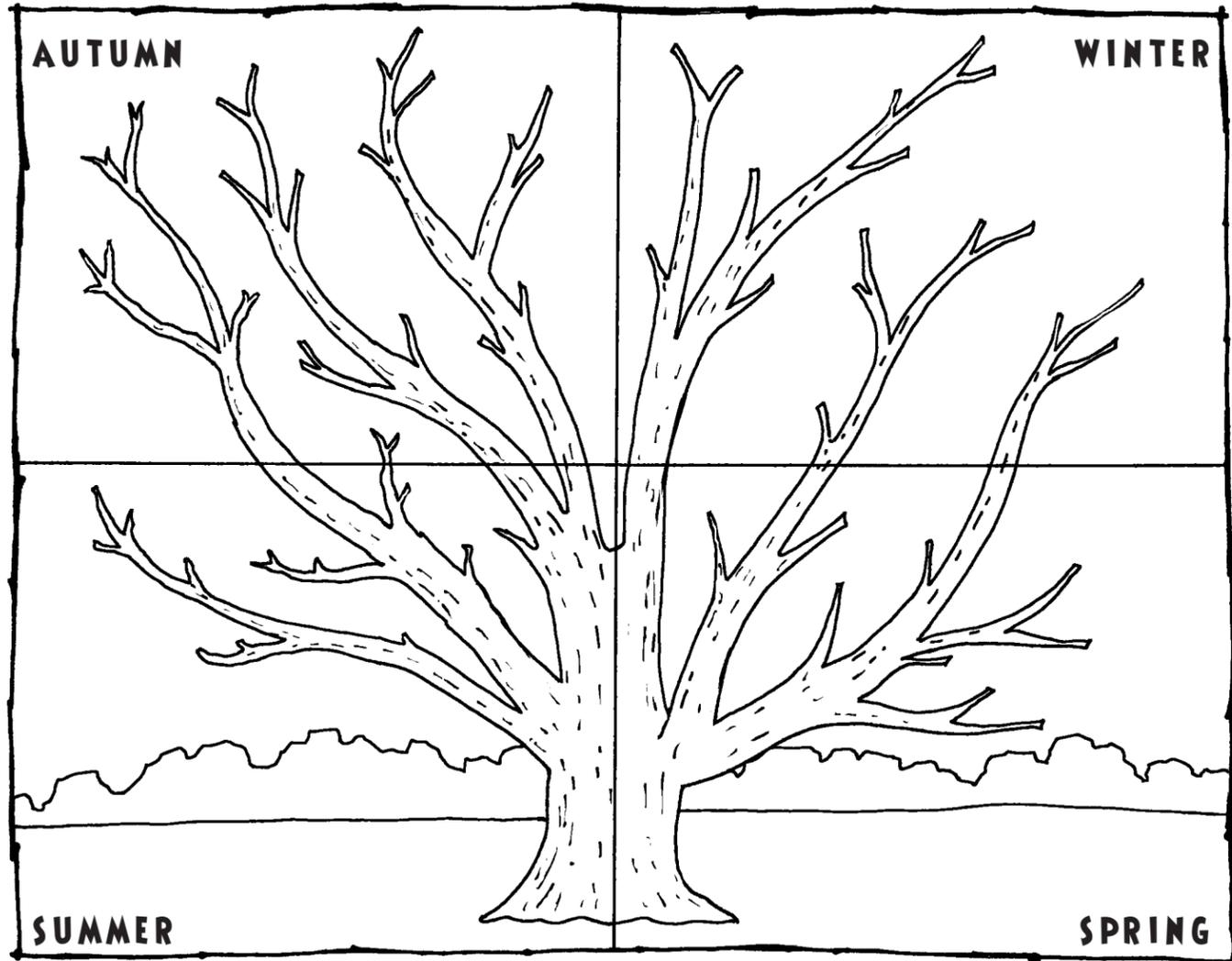
WHY SHOULD YOU NOT TAKE THE ROCK WITH YOU?

DRAW YOUR ROCK HERE



BUCKEYE SEASONS

California buckeyes have adapted to the hot, dry summers of Pinnacles. They lose their leaves in summer to save water. In autumn, buckeye nuts hang from the bare branches. After winter rains come, new leaves sprout. The nuts fall to the ground to sprout roots and grow into new trees.



DRAW BUCKEYE NUTS HANGING FROM THE BRANCHES IN AUTUMN



DRAW LEAVES BEGINNING TO GROW IN WINTER



DRAW FLOWERS ON THE SPRING BUCKEYE

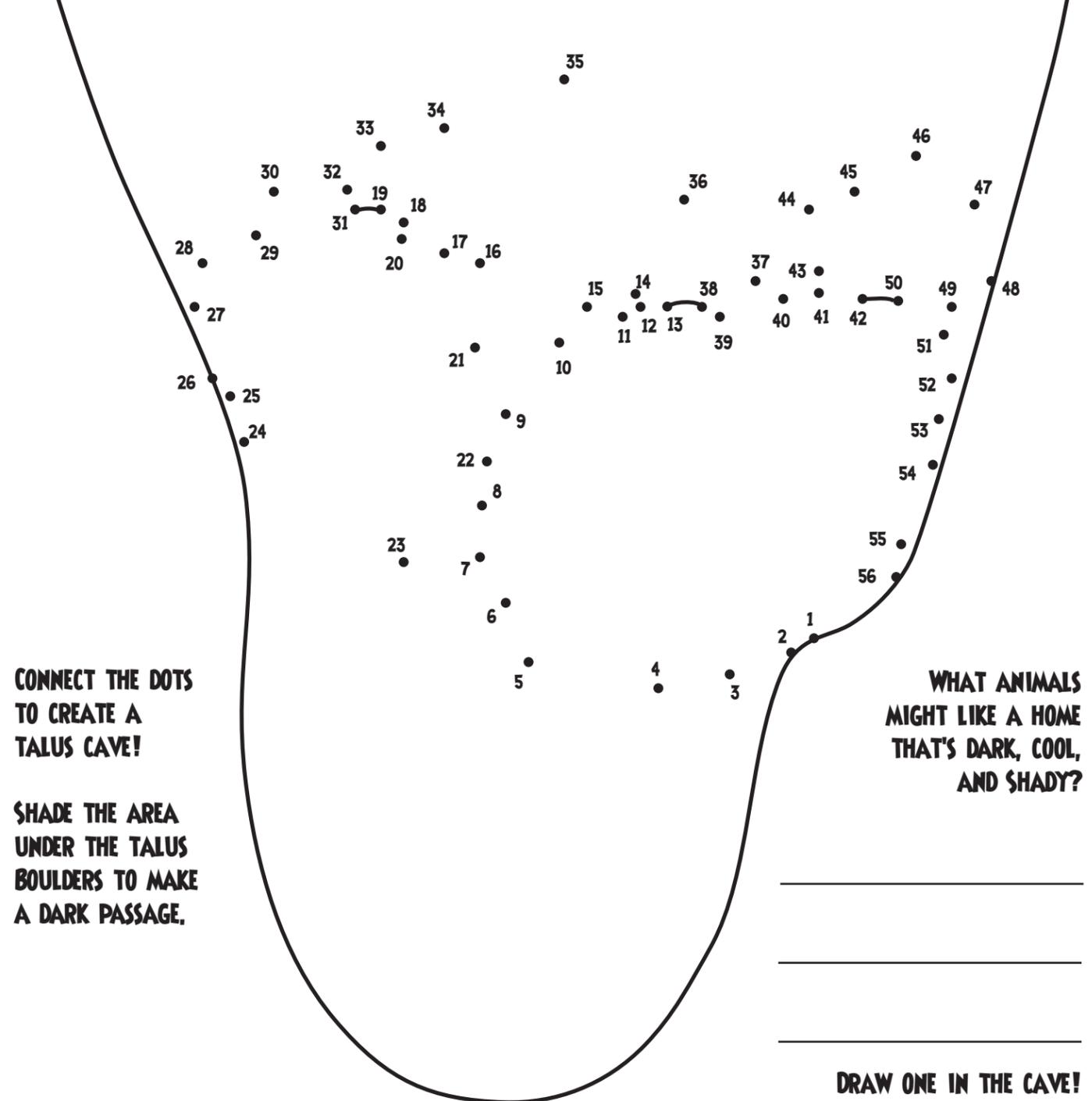


DRAW FALLEN LEAVES BELOW THE TREE IN SUMMER.



BUILD A TALUS CAVE

The caves at Pinnacles were made when boulders fell down into narrow canyons and got stuck. Jumbles of fallen rock are called talus. This makes dark, quiet passages that are important habitats for some animals.



CONNECT THE DOTS TO CREATE A TALUS CAVE!

SHADE THE AREA UNDER THE TALUS BOULDERS TO MAKE A DARK PASSAGE.

WHAT ANIMALS MIGHT LIKE A HOME THAT'S DARK, COOL, AND SHADY?

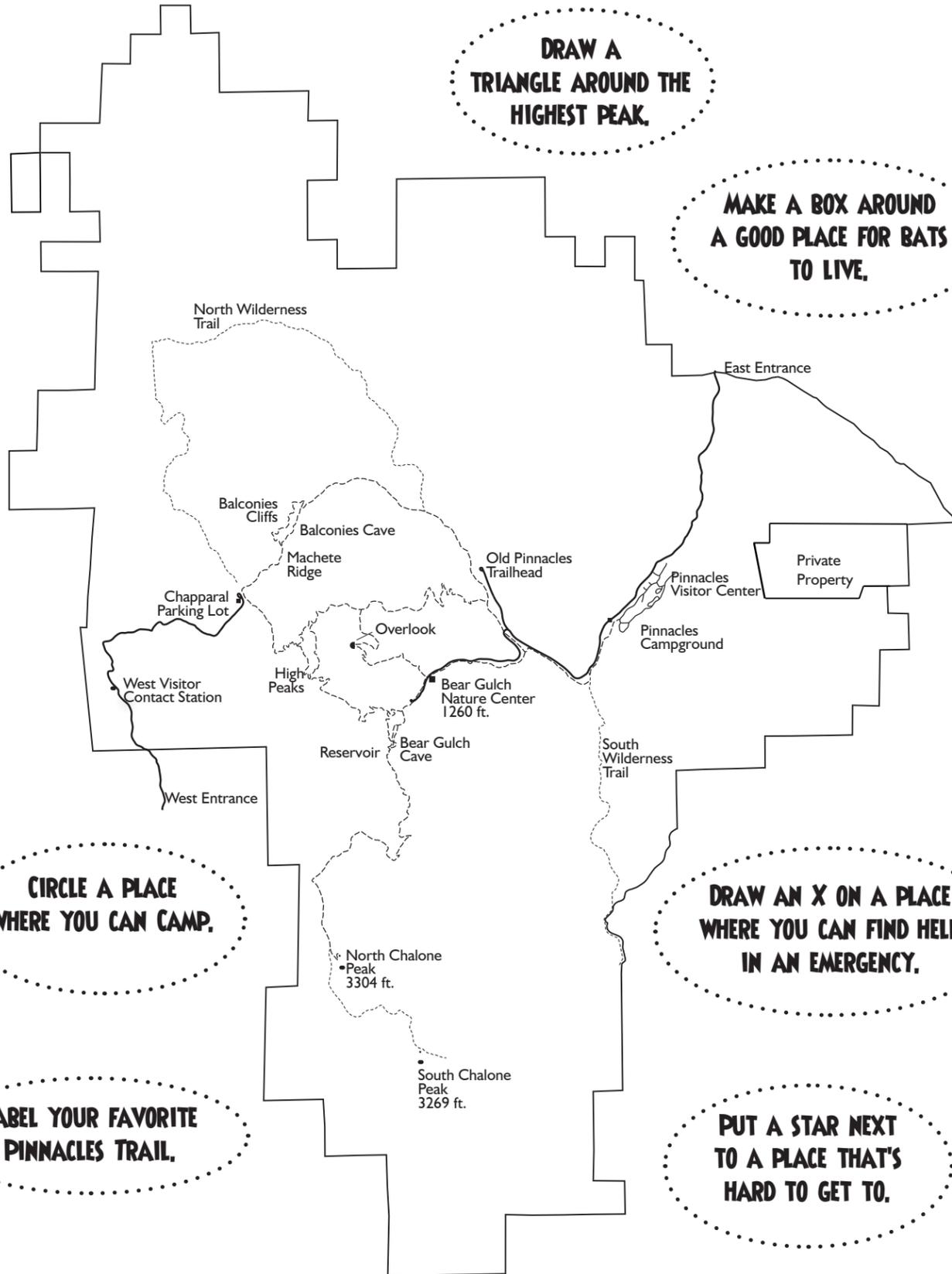
DRAW ONE IN THE CAVE!



DISCOVER PINNACLES

DRAW A TRIANGLE AROUND THE HIGHEST PEAK.

MAKE A BOX AROUND A GOOD PLACE FOR BATS TO LIVE.



CIRCLE A PLACE WHERE YOU CAN CAMP.

DRAW AN X ON A PLACE WHERE YOU CAN FIND HELP IN AN EMERGENCY.

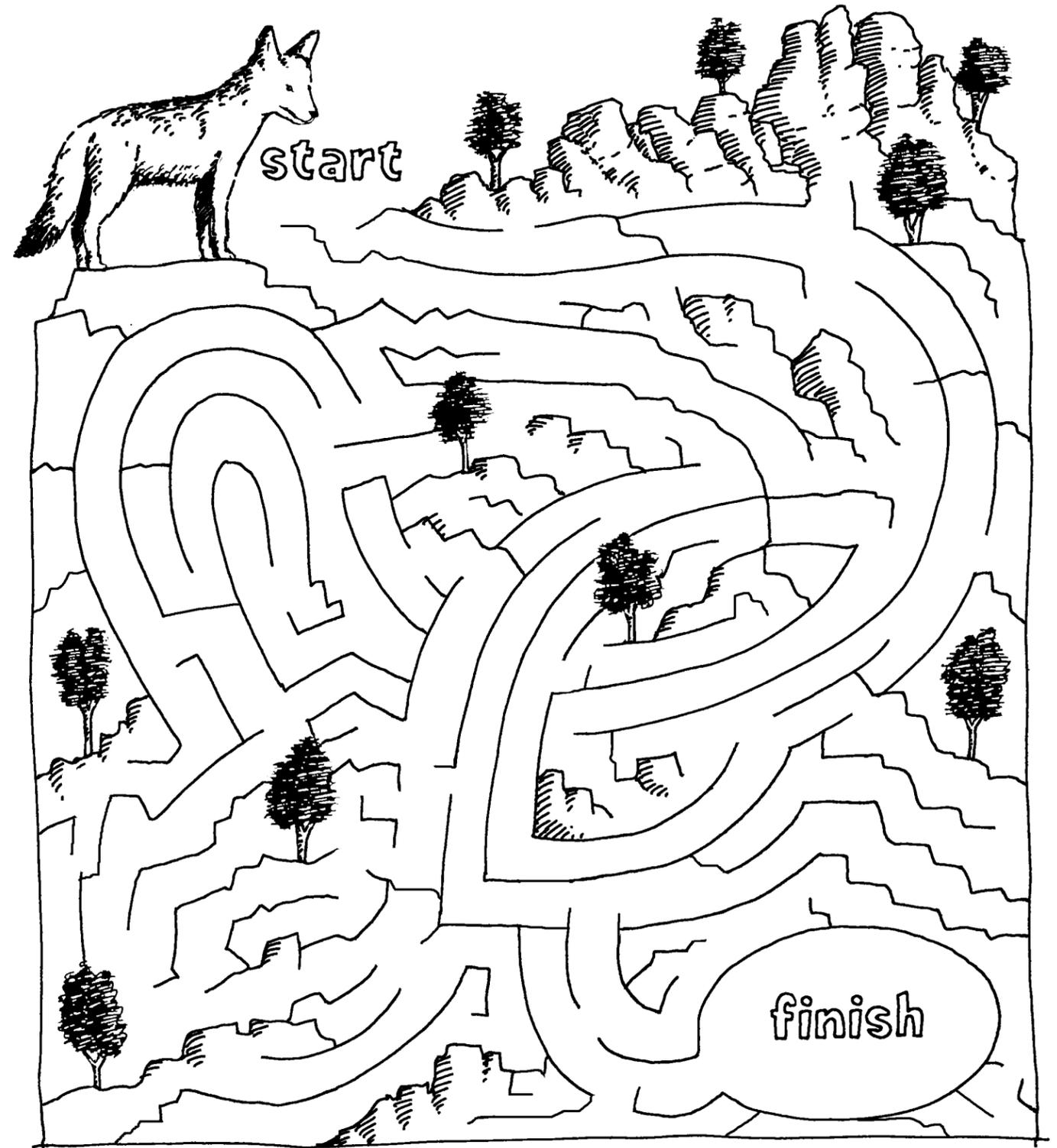
LABEL YOUR FAVORITE PINNACLES TRAIL.

PUT A STAR NEXT TO A PLACE THAT'S HARD TO GET TO.



COYOTE MAZE

COYOTES CAN RANGE UP TO 40 MILES AWAY FROM THEIR DEN TO LOOK FOR FOOD. THIS COYOTE HAS TRAVELED TOO FAR. HELP THE COYOTE FIND ITS WAY BACK.



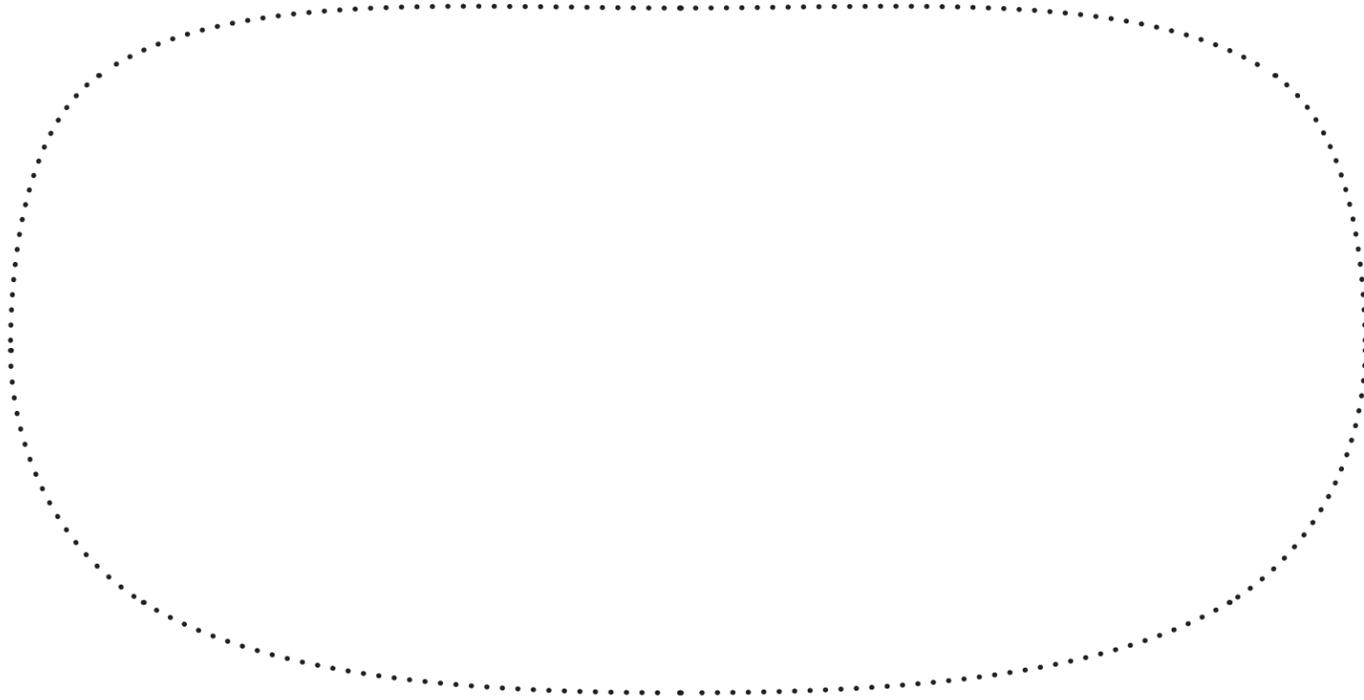


MICRO HIKE

Sometimes we're so busy hiking, we forget to stop and look at the small things. Small animals and plants can be interesting, even though they're tiny. You may be surprised at how much life there is in a small area!

Find a place outdoors where it's comfortable to sit. Choose an area as wide and far as you can reach, and mark it with a few twigs or stones.

MAKE A SKETCH OF YOUR AREA:



WHAT DID YOU FIND?

Four sets of horizontal lines for writing answers.

WERE YOU SURPRISED BY HOW MUCH YOU FOUND?

Two horizontal lines for writing answers.



MAP SYMBOLS

MATCH EACH SYMBOL WITH ITS MEANING:

Dogs must be on a leash



Outdoor exhibit



Amphitheater



Park information



Campground



Watch for falling rocks



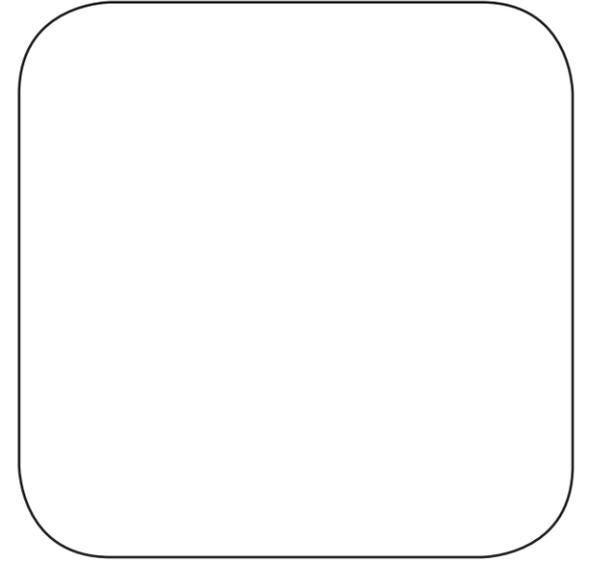
Drinking water



Recycling location



DRAW YOUR OWN SYMBOL:



WHAT DOES IT MEAN?

Four horizontal lines for writing the meaning of the symbol.

WHAT DO THESE SYMBOLS MEAN?



Horizontal line for writing the meaning.



Horizontal line for writing the meaning.



Horizontal line for writing the meaning.

ADVANCED: WHY DO PARKS USE SYMBOLS ON THEIR SIGNS AND MAPS?

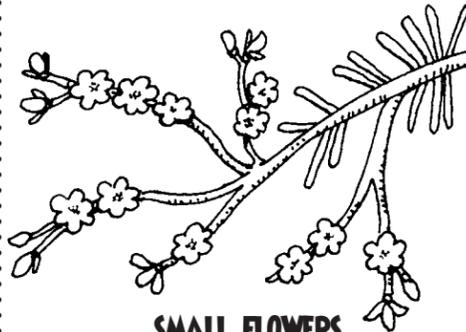
Two horizontal lines for writing the answer.



CHAPARRAL BINGO

Look for chaparral anywhere in the park. It's not a single plant, but a name for many kinds of shrubby trees with small, leathery leaves. Chaparral plants grow in areas where summers are hot and dry, and they have many tricks to help them live through many months without rain.

**LOOK AT SOME OF THE WAYS THAT CHAPARRAL SHRUBS KEEP COOL.
DRAW THE PLANTS YOU FIND TO FILL IN THE BLANK SQUARES. TRY TO FIND THREE IN A ROW!**

<p>TINY LEAVES</p>	 <p>SMALL FLOWERS</p>	<p>LEATHERY LEAVES</p>
<p>WAXY LEAVES</p>	<p>SPINY LEAVES</p>	<p>FUZZY PLANTS</p>
 <p>LOSES LEAVES IN SUMMER</p>	<p>"NEEDLE" LEAVES</p>	<p>PALE LEAVES</p>



USEFUL PLANTS

The plants at Pinnacles were used for human remedies long before the area became a national park. For nearly 10,000 years, the Mutsun and Chalone people lived seasonally at Pinnacles to dance, pray, and gather plants for human use. Today, the park works with tribal people to restore traditional practices and work cooperatively to restore habitats.

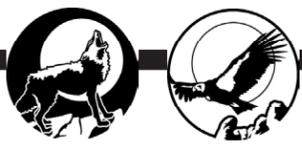
BELOW IS A LIST OF HUMAN NEEDS AND THE MATCHING PLANTS THE MUTSUN USED AS REMEDIES. WHAT DO YOU USE TODAY FOR THOSE SAME NEEDS?

HUMAN NEEDS	MUTSUN PLANT REMEDY	WHAT DO YOU USE?
Wash Hair	Bracken fern paste	
Cure a stomachache	Basket plant	
Cure sore throat	Honeysuckle fruit paste	
Wash laundry	Soap root bulb foam	
Treat painful scrapes	Violet plant juice	
Treat infected wounds	Cordage plant	

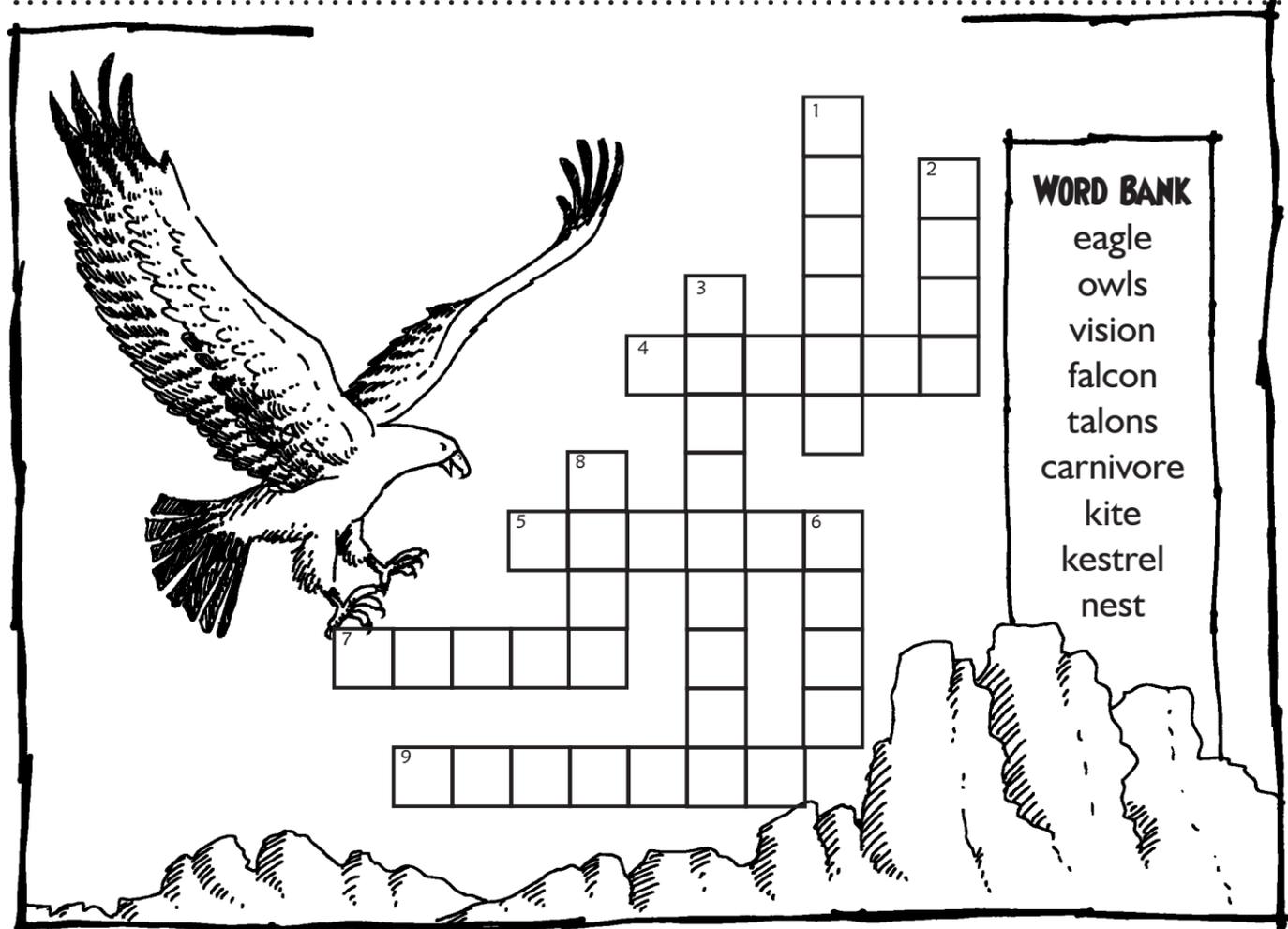
CAN YOU THINK OF ANY OTHER PINNACLES PLANTS THAT CAN BE USED BY HUMANS?

PLANT	USE
_____	_____
_____	_____

REMEMBER: PLANTS ARE PROTECTED AT PINNACLES. DON'T PICK OR EAT RANDOM PLANTS!



SKY PREDATORS

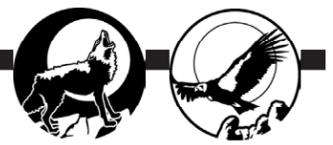


ACROSS

- These claws at the ends of a raptor's foot help in hunting prey.
- Raptors use this sense to locate prey from over a mile away.
- This large raptor has feathers all the way down its legs to its talons.
- This is the smallest type of falcon at Pinnacles.

DOWN

- This raptor has pointed wings and is the fastest creature in the world.
- These birds are the only nocturnal raptors.
- This word describes raptors because they eat only meat.
- A raptor builds this on the cliffs at Pinnacles to raise its young.
- This raptor hovers steadily, then dives from mid-air to catch rodents.



SENSATIONAL HIKE

The animals of Pinnacles use their senses in different ways than humans. For example, raptors have terrific eyesight and see moving prey easily. Bats find food by using their large ears to listen for the echoes of their chirps. Coyotes have a keen sense of smell and rely on it to find food.

USE YOUR SENSES TO GET AN ANIMAL EXPERIENCE. CHOOSE ANY PLACE IN THE PARK THAT'S OUTSIDE. YOU CAN BE ON A TRAIL, AT YOUR CAMPSITE, OR IN ANY QUIET SPOT.

BAT EARS

Close your eyes and listen. What sounds do you hear? From which direction is it coming from? Is the wind causing the noise? Can you hear humans? Animals?



RAPTOR VISION

Be still and look around you. What do you see moving? If it's an animal, where do you think it's going and why? If it's not an animal, what's causing the movement?

COYOTE NOSE

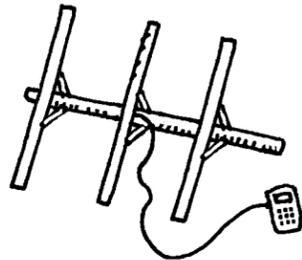
Make sure you're sitting down! Close your eyes and breathe deeply through your nose. What do you smell? Can you tell what the weather is like by the smells in the air? How would it smell if it was raining? Hot and sunny?



CONDOR COMEBACK

Pinnacles National Park is a release site for the endangered California condor. Biologists at Pinnacles do everything they can to help these birds thrive in the wild. Careful monitoring is needed to understand how these birds live.

All these tools are used to track condors and keep them healthy. Can you match the tool with its use?

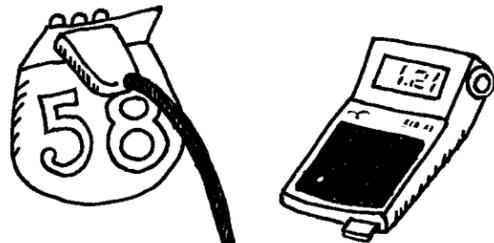


FLIGHT DIVERTER

The power lines near Pinnacles are fitted with these curly wires to keep condors from flying into them.

YAGI ANTENNA

Biologists use these large, handheld antennas to locate free-flying condors.



WING TAG AND TRANSMITTER

Every wild condor wears a numbered tag, a radio, and a GPS so biologists can track and locate the bird.



FIELD BLOOD LEAD TEST KIT

Lead is the number one danger for wild condors. Each bird is tested often for lead poisoning.

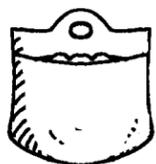
MOCK POWER POLE

Young condors are taught to avoid power poles with a fake pole that gives a mild shock.



LITTER BAG

Keeping chicks healthy can be as simple as picking up trash so parent condors don't mistake it for food.



LEAD FREE BULLET

Park neighbors who use lead-free bullets for hunting help keep condors and other wildlife from eating lead bullet fragments.



HEY, RANGER!

You've just been hired as a national park ranger at Pinnacles National Park. Here are the first four questions you get asked. What are your answers?

HEY, RANGER!

Can I feed this friendly squirrel?

YES NO

WHY?

HEY, RANGER!

What made the rock formations?

HEY, RANGER!

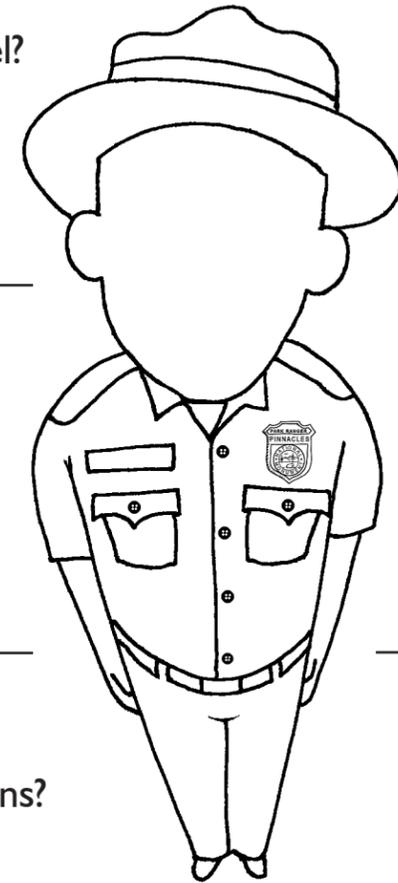
Can I pick the flowers?

YES NO

WHY?

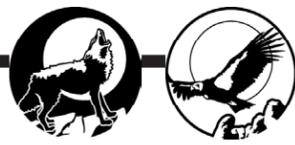
HEY, RANGER!

What's your favorite trail?



DRAW YOUR FACE ON THE RANGER!





SENSITIVE SPECIES

Find the animal names that are hidden in this word search. Each species is specially protected here and is dependent on the unique habitats found at Pinnacles National Park.

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

BADGER
GOLDEN EAGLE
PALLID BAT
RED-LEGGED FROG

BIG-EARED BAT
HORNED LIZARD
PEREGRINE FALCON
SALAMANDER

CONDOR
LEGLESS LIZARD
PRAIRIE FALCON
SPADEFoot TOAD

At Pinnacles National Park, we work to protect animals and plants that are in decline. We help them by making sure they have the right habitat to survive. You can protect them too. Enjoy wild animals from a distance and never feed them. Let plants and flowers grow so they can spread their seeds for next year. The sensitive species of Pinnacles thank you for your help!



TIC TAC VOLCANO

The rock spires that give Pinnacles its name were once part of a huge volcanic field. To create a volcanic field that big you need.

magma (molten rock), then pressure, then eruptions.

DRAW A STRAIGHT LINE THROUGH THE THREE STEPS IN ORDER TO WIN AT TIC TAC VOLCANO!

After all the magma erupted, the volcanic field became extinct and began to break down. To erode a volcanic field that large, you need:

water, freezing temperatures, and time.

EACH GRID HAS A WINNING COMBINATION!

