

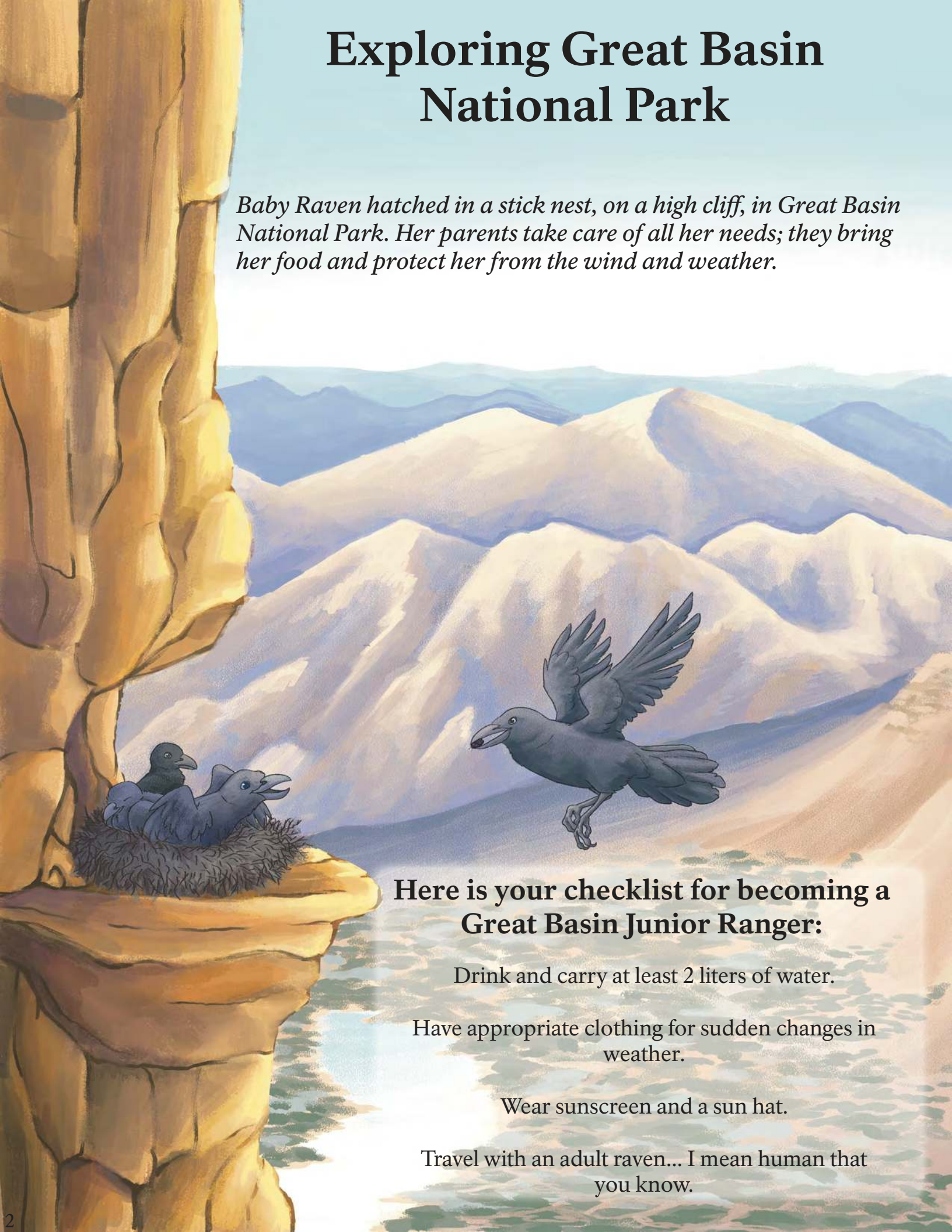
Great Basin National Park Junior Ranger Book

This Book Belongs to



Exploring Great Basin National Park

Baby Raven hatched in a stick nest, on a high cliff, in Great Basin National Park. Her parents take care of all her needs; they bring her food and protect her from the wind and weather.



Here is your checklist for becoming a Great Basin Junior Ranger:

Drink and carry at least 2 liters of water.

Have appropriate clothing for sudden changes in weather.

Wear sunscreen and a sun hat.

Travel with an adult raven... I mean human that you know.

Map Your Visit

Soon Baby Raven must leave the nest. Her parents will teach her about the high desert of the Great Basin. But first she must gather her courage to jump from the nest... and fly!



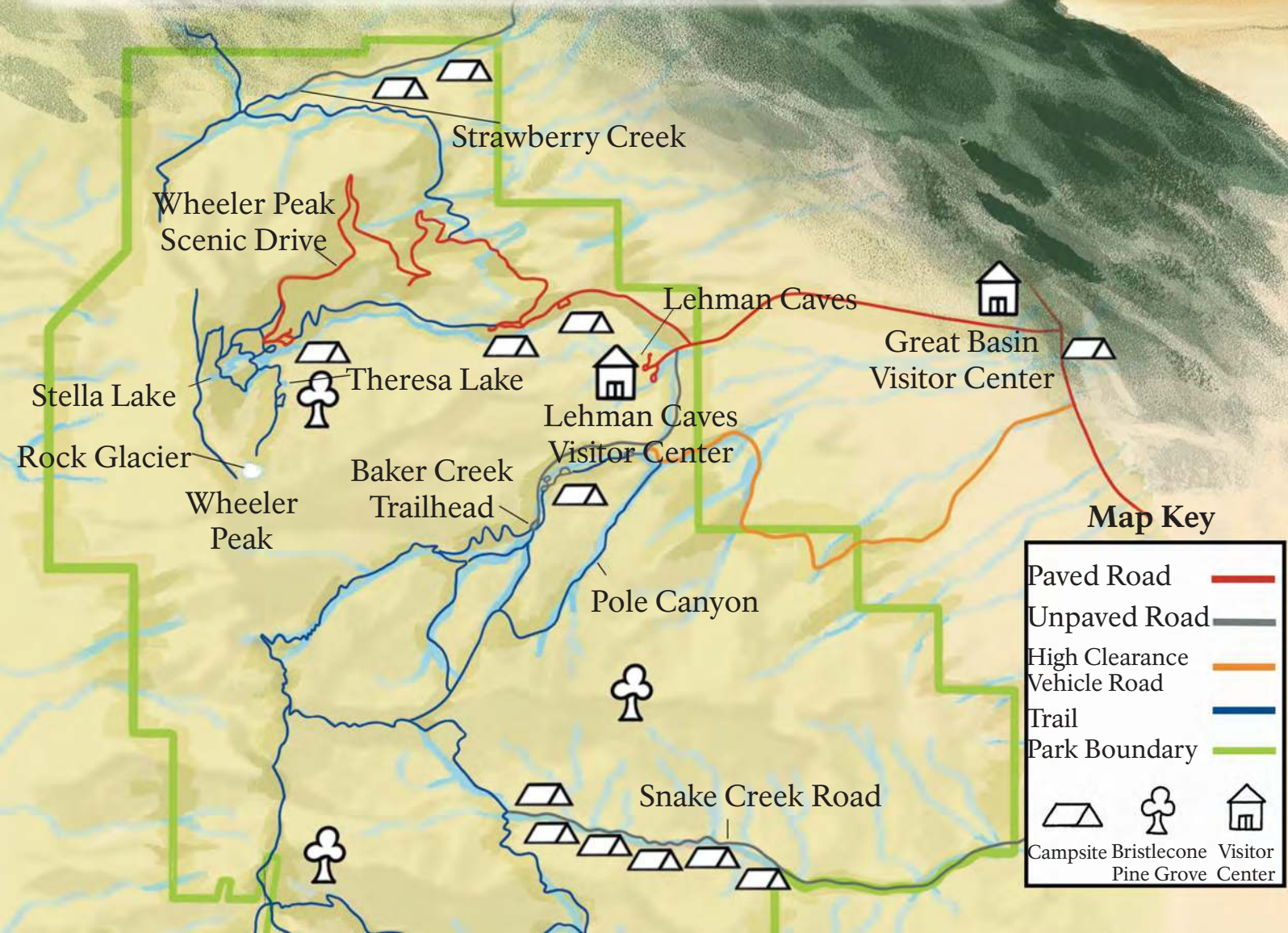
Do This:

Draw a line to show where you have traveled. _____

Draw a dotted line to show where you hiked. _____

Use pictures, words or symbols to show what you did or saw along the way.

Examples:



Who Are You?

Baby Raven is afraid to leave the nest. Her parents encourage her by describing all the wonderful sights she will see, the new friends she will make—friends who are waiting to meet her!

Who might you meet today, as you explore Great Basin National Park?



Part One: Write the name of each animal under its picture.

Bighorn Sheep: I love to graze here and take shelter on the *rocky cliffs above*.

Burrowing Owl: I hatched in a burrow. My parents hunted *the desert* for scorpions and mice to feed me!

Clark's Nutcracker: I eat and bury *pinyon nuts*. In this way, I plant the forest that feeds me. Listen for my call!

Great Basin Rattlesnake: If you hear my rattle in the *sagebrush*, I'm warning you not to step on me! Be careful!

Red Fox: I live high on the *mountains* and have wide furry red paws for deep snow.

Bonneville Cutthroat Trout: I once lived in ice age lakes that covered the desert, but now I swim in mountain *streams*.

Desert Shrub Life Zone
5,000-6,000 feet
elevation

Hot temperatures, salty soil and little rain challenge all life in the desert. Hardy shrubs like shadescale, saltbush and greasewood provide food and shelter for desert animals.

Sagebrush Life Zone:
6,000-7,000 feet
elevation

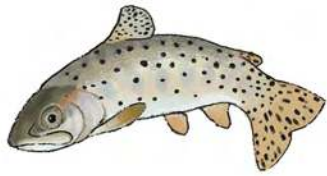
Sagebrush grows upon sediments washed down from the Snake Range, providing hiding places and food for many species.

Pinon-Juniper Life Zone:
7,000-8,000 feet
elevation

Single-leaf pinon pine and Utah juniper grow in this zone. Pinon pine seeds nourish and sustain many Great Basin residents.

Where Do You Live?

Part Two: Using hints found in the animal descriptions, draw a line from each animal to the Life Zone where it is often found in the park.



Streams & Riparian Zones:

Ten streams flow year-round from Great Basin National Park. Thirty miles of aquatic and riparian habitat support a diversity of life, including one native fish species.

Montane Life Zone: 8,000-11,000 feet elevation

Watered by melting snow, fir, spruce and pine trees are abundant here. Look for ancient bristlecone pines at the highest and harshest elevations. Mountain mahogany and aspen also grow in this life zone.

Alpine Life Zone: 11,000-13,000 feet elevation

Above the tree line, snow covers the highest slopes for much of the year. Low growing plants, and the animals that eat them, can live here.

Great Basin Bingo

These are some of the discoveries waiting for Baby Raven and for you!
Look for these things as you explore Great Basin. When you find one, make an X through the box.

- If you find 4 in a row (Bingo!), you are a raven.
- If you find 4 corners, you are a mule deer.
- If you find everything, you are a mountain lion!



The Lessons of the Bristlecone Pines

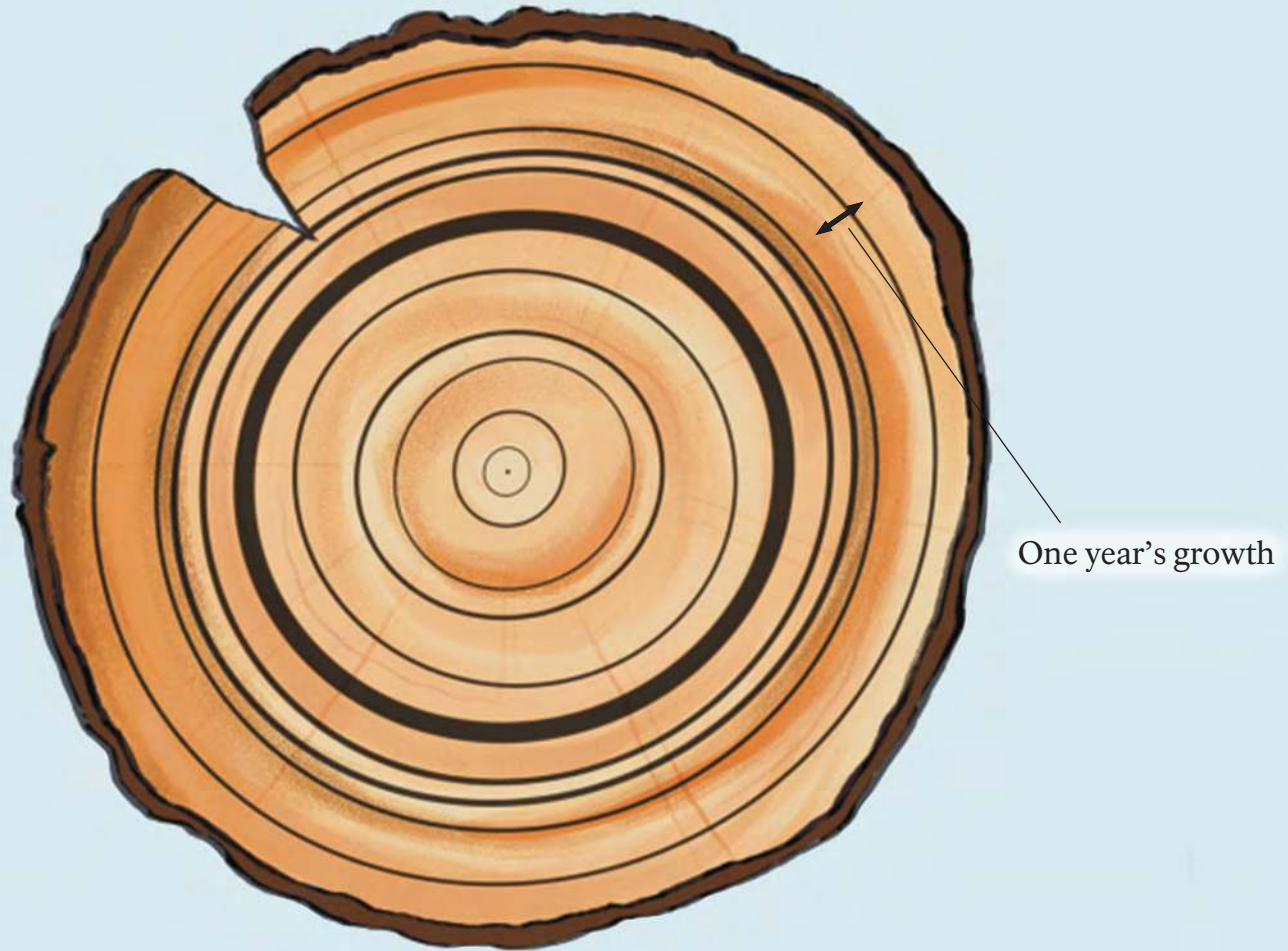
Baby Raven was born near the tree line. The weather is so severe that most types of animals and trees cannot survive the winter here. But bristlecone pines can live and thrive in these conditions for thousands of years!

If you hike above 10,000 feet, to the bristlecone pine grove, be sure to touch the ancient trees...gently. Feel the dense wood of the age-old trees. It is so hard that it can resist fungus, insects and rot. Some of these trees are over 3,000 years old. Even the needles can be up to 45 years old.

Activity: Add your own bristlecone pine tree to this ancient grove.



Where the Bristlecone Pines Grow



Today is the day! Baby Raven is ready to leave the nest! She has been flapping her wings to grow strong and get ready to fly! With her parents nearby, she opens her wings, catches the wind and steps into the sky!

Do you keep a journal to remember days like today? Bristlecone pine trees do!

Trees record special events and the story of their lives within their trunks. Each growth ring between the darker lines represents one year of this tree's life. Look closer to read this tree's story.

Complete the activities below:

- A narrow ring represents a dry year when the tree didn't grow much. With your pencil, fill in a ring representing a dry year.
- A wide ring represents a wet year, good for growth. Draw a zig-zag line on a ring representing a wet year.
- A dark line on a ring represents a fire. How old was this tree when it survived a fire? _____
- How old was this tree when it died? _____
- If the tree died this year, which ring represents the year you were born? Draw an arrow to it. _____

What's on the Menu?

Baby Raven flies with her parents, while they search for food in the Great Basin. To survive, she must learn what to eat and where to find it. Luckily, ravens are 'omnivores' and eat just about anything. This helps them thrive wherever they live.

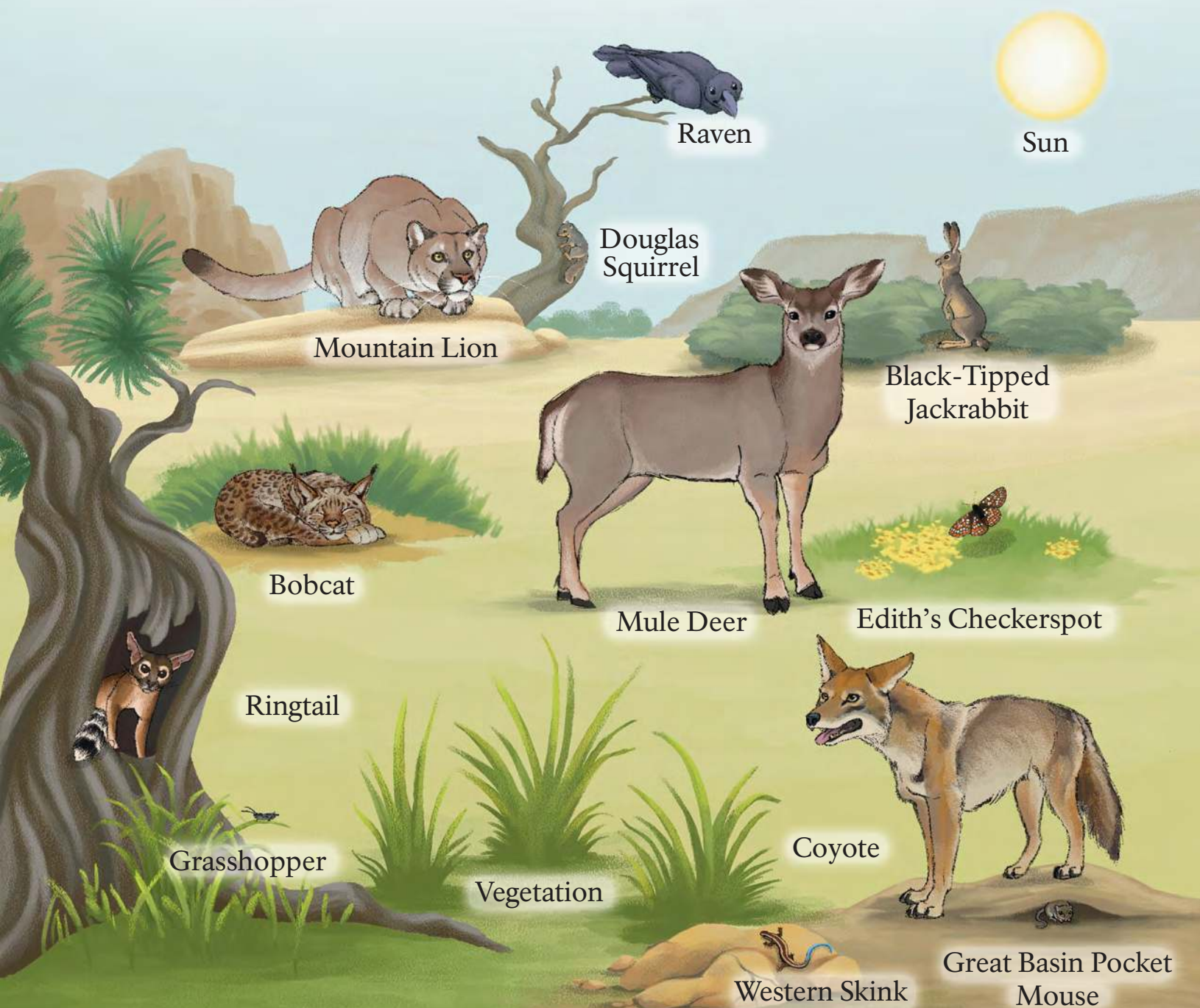
Life needs energy to survive. Plants (producers) use the sun for energy.

Consumers (including ravens and Junior Rangers) eat other organisms for energy.

There are three different kinds of Consumers:

Herbivores eat only plants. **Carnivores** eat only animals. **Omnivores** eat both plants and animals.

Draw a line or lines from each organism to the thing(s) that it eats or uses for energy.



The Marks of People Upon the Great Basin

Baby Raven learns that people often change the land in some way. Many of these changes are enjoyed by ravens. Cows and sheep stir up grasshoppers and lizards to catch. Old mines provide homes for her friends the bats. Towns can provide tasty tidbits for a watchful raven.

What kinds of people have left their marks upon the Great Basin Region?

Draw a line between the person and the mark they have left upon this land:



Miners



Ranchers



Sheep Herders



Indigenous Peoples



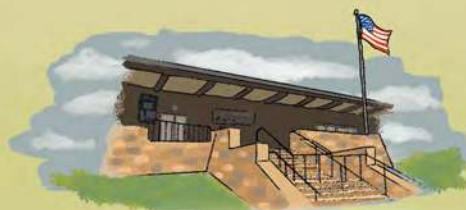
Visitors



Park Rangers



Camp Sites



Visitor Centers



Mines



Arborglyphs



Pictographs



Fences/Livestock

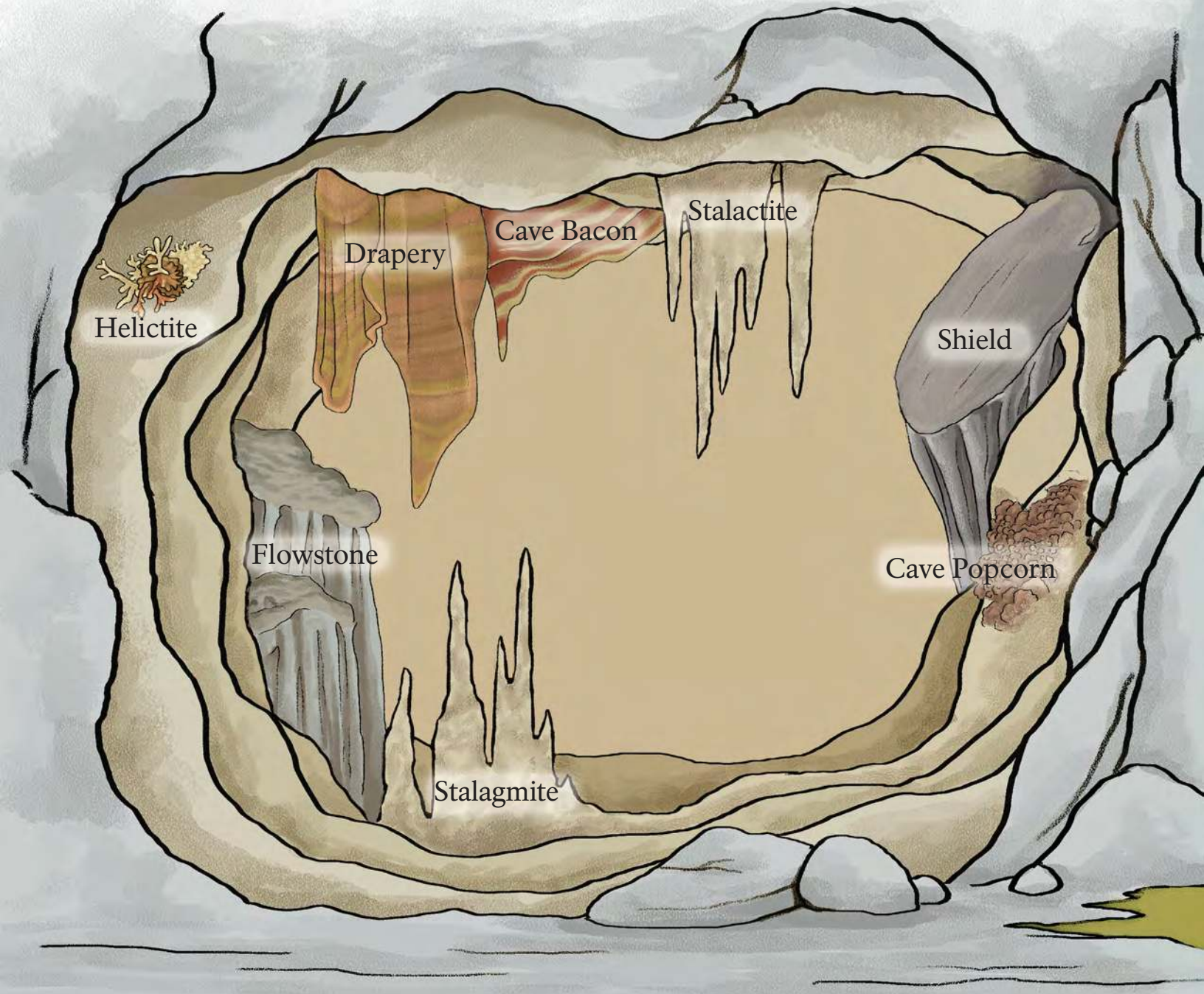
Baby Raven Meets Baby Bat

Baby Raven is curious about the barrier which covers the natural entrance to Lehman Caves. She squeezes between its slats only to fall down into the dark world of bats. Luckily, Baby Bat is just as curious as Baby Raven, and they quickly become friends. Baby Bat is proud to share the mysterious beauty of his cave.

Junior Rangers can make these same discoveries by taking a guided cave tour, viewing Lehman Caves Visitor Center exhibits, or watching the Lehman Caves Virtual Cave Tour on our website: <https://nps.gov/grba/learn/photosmultimedia/virtual-cave-tour.htm>

Cave Formations = Speleothems

Decorate the cave with more speleothems! Which speleothem is your favorite?



Life Underground

“Who lives here?” Baby Raven peers into the dimly lit cave. Baby Bat whispers that park rangers are working in the cave and have turned the lights on. Baby Bat can find his way in the dark using ‘echolocation’, but he notices Baby Raven needs light to see.

“Before they turn the lights off,” says Baby Bat, “come meet my underground neighbors!”

Great Basin



Psuedoscorpion

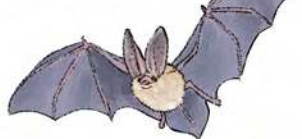
Troglobites live their whole lives in caves and are often sightless. They use their other senses to find food in the cave.



Cave Cricket

Troglophiles love caves but can live above ground too.

Townsend's



Big-eared Bat

Trogloxenes only use caves to hibernate, nest, or give birth.



Baby Raven

Accidentals are creatures that live above ground but have ventured (or fallen) into a cave.

Draw your own cave creature.



Crack the Code

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

A S B

D R K E L R J

Q I Q P

B O N M L K B K J

H B B A

I

D I G B

D K E D C B A

The Sense-ational Great Basin

Baby Raven says good-bye to her new friend, Baby Bat. She has learned that cave life and nocturnal animals use their senses of hearing, taste, smell and touch, much more than their sense of sight. As Baby Raven flies back to her family, she decides to practice using all her senses to learn more about the world she lives in.

As Junior Rangers, let's explore Great Basin National Park using *all* five of our senses.

To work towards your badge, complete the following activities:

What does Great Basin National Park SOUND like? Find a quiet place to sit in the park. Close your eyes. Listen. Listen closer, until you hear five different sounds in nature. Write down what you hear.

- 1.
- 2.
- 3.
- 4.
- 5.



Nature has so much to teach us! To learn its lessons, all we need to do is pay attention!



LOOK around you. What do you SEE? Write it down. Look again. Write down something you didn't see the first time.

- 1.
- 2.



Now use your nose. What can you SMELL? What do those smells reveal about where you are? Write it down.

1.

2.

3.

Our skin helps us explore the world through TOUCH. Touch different kinds of surfaces; pinecones, rocks, bushes. What do they feel like? Describe how they are different. Be careful! Many desert plants have thorns for protection.

1.

2.

3.



Extra Credit:

SMELL & TASTE: Many desert plants attract 'pollinators' to their flowers with strong scents. Use the drawings below to locate sagebrush or juniper. Rub or gently scratch the leaves, needles or berries to release their odors. [Both sagebrush and juniper are used to flavor foods.] **Describe the smells you discover. Do you like them?**



Observing the Night Sky

In the silence of winter, Baby Raven spends long hours in the darkness, under a twinkling clear sky, roosting in a tall spruce with her family. She loves to watch the stars, which are so bright and plentiful.

Have you noticed how dark the night is at Great Basin National Park? We protect this darkness against light pollution. Great Basin has been designated as an International Dark Sky Park and is home to the first research-grade observatory in a National Park—The Great Basin Observatory.

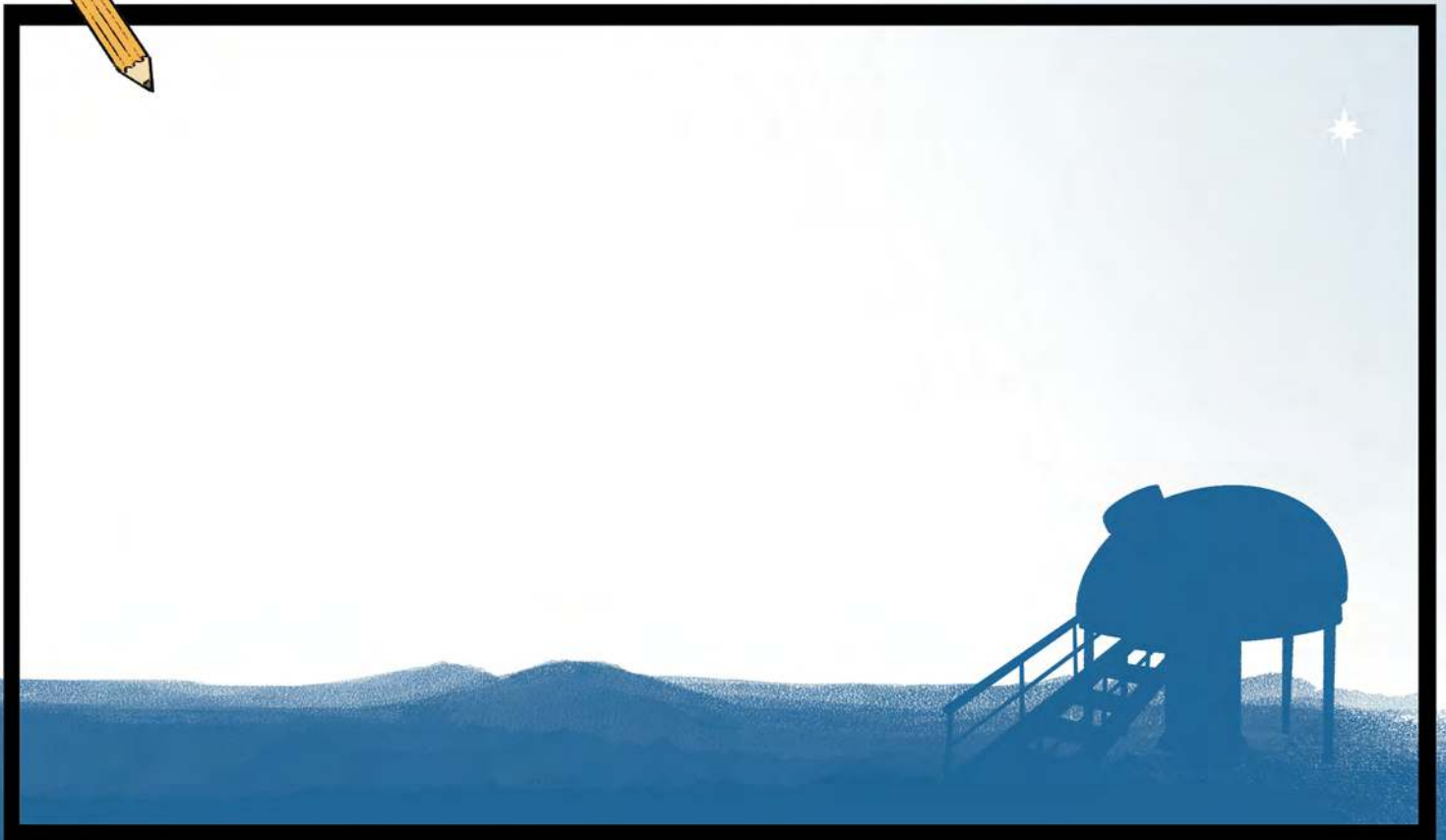
Create Your Own Constellation: Daytime Activity

Imagine pictures in the stars. For thousands of years, human beings have identified the shapes in groups of stars that remind us of heroes, animals and objects. These shapes are called constellations, and they can help us find our way at night or know what season it is. Create your own constellation in the box below! What will you name it?

Create Your Own Constellation: Nighttime Activity

Go outside at night, away from any lights, to study the stars. In the box below, draw a pattern of stars that you see. What shape do they remind you of? You can connect the stars with lines or add other lines to complete your constellation! What will you name it?

Only one activity is required to complete this page



Polaris: The North Star

*A deep hooting breaks the silence. A dark shadow alights near Baby Raven's branch.
"Hoo Hoooo!" says Owl, who is teaching Baby Raven about the night sky.*

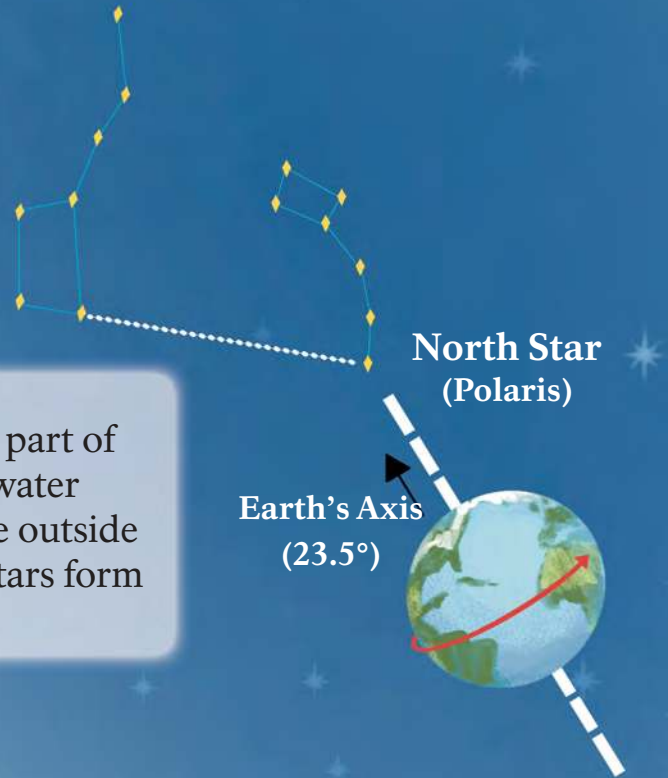
The North Star

You can always find your direction at night if you can find the North Star.

Because the Earth spins, the stars appear to move across the sky. Polaris (the North Star) is aligned with the Earth's axis so it is always found in the same spot in the North.

How to find the North Star

Look northward to find the Big Dipper, which is part of the constellation Ursa Major. It looks just like a water dipper with a handle. Notice the two stars on the outside of the scoop, away from the handle. These two stars form a line pointing to Polaris.



Answer these questions:

Did you find Polaris?

Was it easy or hard to find?

Is it the brightest star in the sky?



Great Basin or Basin and Range?

Baby Raven will spend her life exploring where bristlecones grow, to the valleys below. She will use her skills and keen senses to thrive in the high desert. But undetected by her, the Great Basin will slowly continue to be shaped and changed by great forces within the earth.

The Great Basin

Great Basin National Park sits within a larger area called *The Great Basin*. The rain and snow which falls into the Great Basin is 'captured' in 'the basin' and can only sink into the earth or evaporate into the air. This is because there are no rivers draining this region to the sea. The Great Basin stretches from the California Sierra mountains to the Wasatch range in Utah.

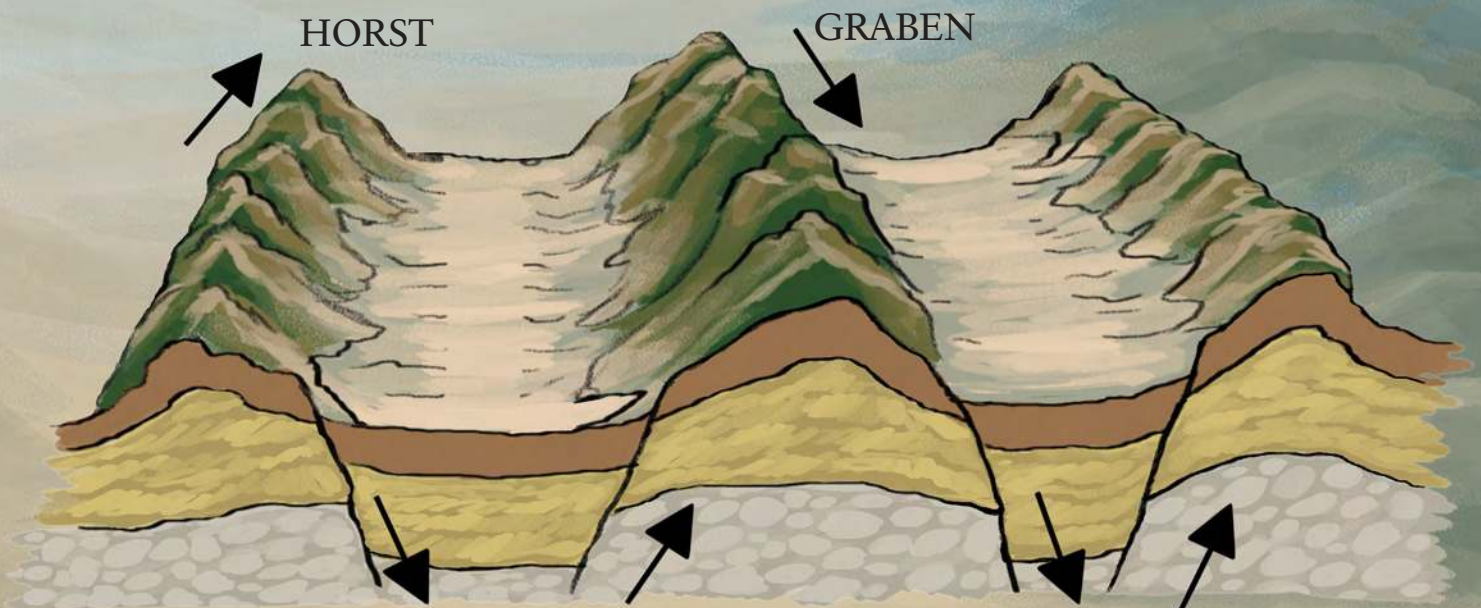
The Basin and Range

To get to Great Basin National Park, Junior Rangers and their families must drive up and down many mountains and valleys. Geologists call this kind of land formation 'Basin and Range'. These side by side mountain ranges occur because the land is slowly being pulled apart by strong forces. Seen from high above, these mountain ranges are said to look like a herd of giant caterpillars crawling toward Mexico!

Horst and Graben

When pulled apart, the Earth's crust fractures into blocks. These blocks can slide up along faults to form mountains (Horst) or slide down to form valleys (Graben). When the Earth moves like this, tremors or earthquakes occur. Have you ever felt an earthquake?

When you look at the Great Basin you are watching a long, slow story told in geologic time. Some Junior Rangers grow up to be geologists and spend their lives reading the story of our planet in its rocks.



Word Search

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

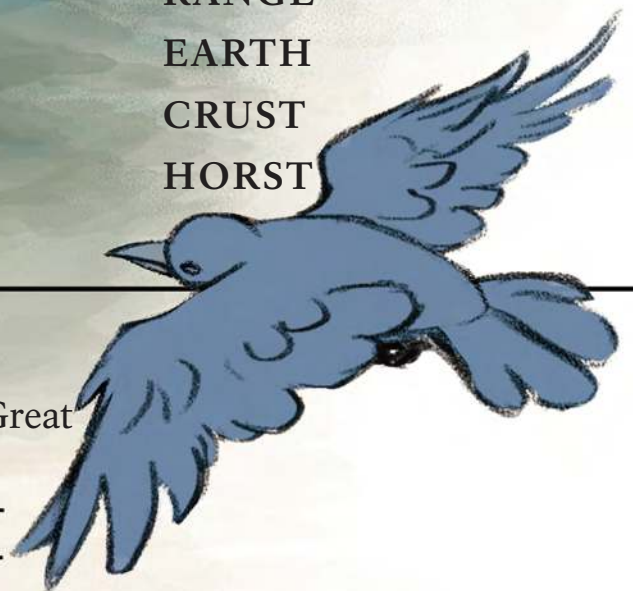
EVAPORATE
 FRACTURES
 TECTONIC
 VALLEYS
 TREMORS
 WASATCH
 FAULTS

JUNIOR RANGERS
 CATERPILLARS
 EARTHQUAKE
 GREAT BASIN
 GEOLOGISTS
 MOUNTAINS
 FORMATION

GRABEN
 SIERRA
 RANGE
 EARTH
 CRUST
 HORST

Your Turn

What was the most memorable part of exploring Great Basin National Park? **Write it here:**



Junior Ranger Pledge

I am proud to be a Junior Ranger at Great Basin National Park. I will continue to learn about nature and all people so we can work together to protect national parks and the places we live.

Junior Ranger Signature

Ranger Signature

Become a Junior Ranger! Earn a Badge!

Do these activities to explore Great Basin National Park.

5 years old and under: Complete 3 activities

6 to 9 years old: Complete 5 activities

10 years old and up: Complete 7 activities

And do at least one of these activities:

- Attend a Ranger Program
- Interview a Park Ranger
- Take a Cave Tour or Scan the QR Code Below to Watch our Virtual Cave Tour



Then bring us your completed work!

The book was developed by the interpretive staff at Great Basin National Park with help from the Great Basin National Park Foundation, the official nonprofit partner of Great Basin National Park. Please join us in being a Guardian of Great Basin! Learn more at www.GreatBasinFoundation.org

Illustrated by Robin Vance www.RobinVanceArt.com

