



Senior Ranger

Ages 18+



Welcome to Carlsbad Caverns National Park!

Introduce Yourself!

Name: _____

Where are you visiting from?

What is the closest national park to where you live?

What is your favorite National Park Service site and why?

Become a Senior Ranger by completing *10 of the 18* activities listed below in addition to *What I Can Do?* (page 17). Check the box next to each activity you complete. When you are finished, take this booklet to the Information Desk to receive your Senior Ranger Pin.

Activities

- ☐ 1. Preservation for Future Generations (page 1)
- ☐ 2. What Does it Mean? (page 2)
- ☐ 3. History of the Badge (page 3)
- ☐ 4. Hidden Worlds: Park Film (page 4)
- ☐ 5. Take a Hike (page 5)
- ☐ 6. Cavern Development (pages 6–7)
- ☐ 7. Winged Wonders (page 8)
- ☐ 8. Those Who Came Before (page 9)
- ☐ 9. Mapping a Cavern (page 10)
- ☐ 10. Bonkers for Brochures! (page 11)
- ☐ 11. What's the Word? (pages 12–13)
- ☐ 12. Reflections (page 14)
- ☐ 13. Bat Bonanza (page 15)
- ☐ 14. Interview a Ranger (page 16)
- ☐ 15. Hike the Natural Entrance Trail
- ☐ 16. Walk the Big Room Trail
- ☐ 17. Attend a Ranger program or talk
(Have ranger sign here) _____
- ☐ 18. Pick up one bag of litter (see Information Desk for supplies)
- ☐ 19. Drive the Desert Loop Road
- ☐ Required: What Can I Do? (page 17)



Preservation for Future Generations



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What are five ways that we can all help preserve this beautiful resource for future generations?

1. _____

2. _____

3. _____

4. _____

5. _____

What Does It Mean?

Find a picture of the National Park Service emblem and complete the one below.



There are many different types of National Park Service (NPS) sites and not all have mountains or wildlife. There are now over 400 national park units throughout the United States. These include parks, battlefields, monuments, seashores, historic sites, recreation areas, memorials, and historical parks. They all have one thing in common—a mission to conserve America’s cultural and natural resources.

Match the parts of the NPS symbol with what they represent:

Trees

Preservation of natural scenic resources

Mountains

Preservation of plant life

Lake

Preservation of wildlife

Bison

Preservation of historical and cultural resources

Arrowhead

Preservation of recreational resources

History of the Badge

The arrowhead patch has remained the same all throughout the years. However, the badge has changed greatly. The badge has changed six times over its history. Match the park badge with the correct year using the descriptions.

1894–1906 _____

This first park badge was used in the first national park.

1898–1906 _____

The second park badge is unique because at the time the Forest Service was also managed under the Department of the Interior.

1906–1920 _____

The third park badge retained its round shape and has an eagle on it.

1920–1968 _____

The fourth badge was the first time our badge would no longer be round. It changed to the federal shield design, but retained the eagle.

1968–1970 _____

The fifth badge dropped the eagle which had been on the badge since 1906. The round circle represents the sun. The two triangles represent mountains and the small triangles symbolize water surrounded by a pair of hands.

1970–Present _____

The sixth and final badge changed from silver to gold and gained a bison.

A



B



C



D



E



F



Hidden Worlds

Answer the following questions while watching the park film.

1. True / False: The Big Room is the largest cave chamber in the world.
2. How many caves are located within the park's boundaries?
 - a. 1
 - b. 50
 - c. 100+
 - d. 200+
3. What dissolved the limestone to make the caves?
 - a. Sulfuric acid
 - b. Corn syrup
 - c. Water
 - d. Chlorine
4. In what year did the major breakthrough-discovery in Lechuguilla Cave occur?
 - a. 1898
 - b. 1923
 - c. 1986
 - d. 1990
5. True / False: Carlsbad Cavern and Lechuguilla Cave are still being explored.
6. What disease might the bacteria found in caves help cure?
 - a. Polio
 - b. Tuberculosis
 - c. Smallpox
 - d. Cancer
7. What species of bats live in Carlsbad Cavern?
 - a. Vampire Bats
 - b. Brazilian Free-Tailed Bats
 - c. Flying Foxes
 - d. Bumblebee Bats
8. How far do bats have to fly through the Carlsbad Cavern each night before they reach the surface?
 - a. 0.5 kilometers
 - b. 1 kilometer
 - c. 5 kilometers
 - d. 2 kilometers
9. Animals come out at night to:
 - a. Beat the heat
 - b. Conserve water
 - c. Avoid predators
 - d. All of the above
10. Carlsbad Caverns National Park spans _____ acres.
 - a. 100
 - b. 500
 - c. 47,000
 - d. 70,000

Take a Hike

Walk the ½ mile (0.8 km) Nature Trail at the east end of the parking lot. Ask a park ranger for directions.

As you walk around, look at the diversity of plants that are native to the Chihuahuan Desert. Use the signs along the trail to help you identify the plants below, using the word bank at the bottom of the page to help you. Write at least one thing you observed and one thing you learned about each plant.



Name: _____

Observations: _____

Name: _____

Observations: _____

Name: _____

Observations: _____



Name: _____

Observations: _____



Name: _____

Observations: _____



Name: _____

Observations: _____

Name: _____

Observations: _____



Name: _____

Observations: _____



Name: _____

Observations: _____

Word Bank

Cholla

Desert Willow

Juniper

Lechuguilla

Ocotillo

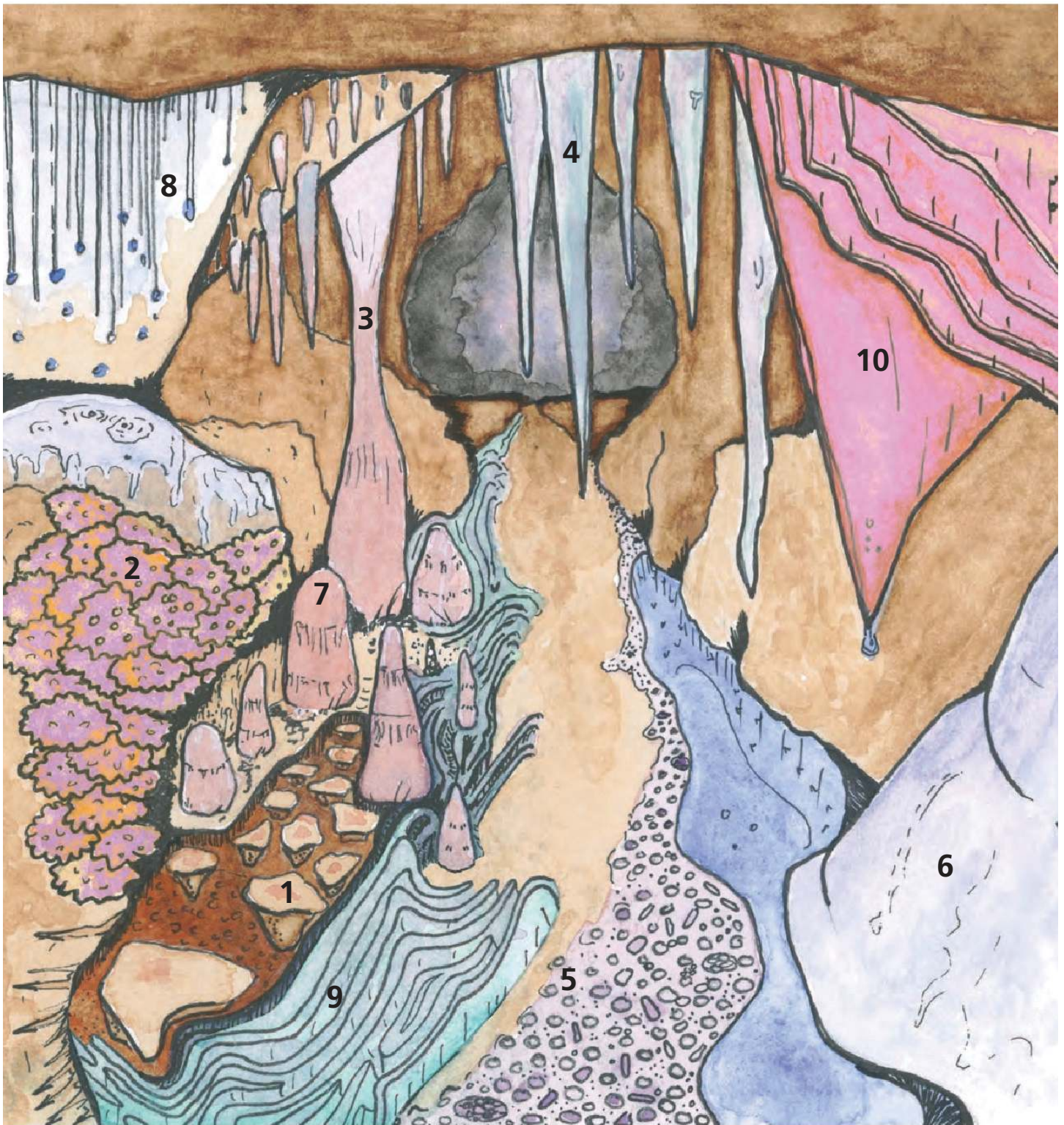
Prickly Pear

Sotol

Yucca

Cavern Development

Match the numbers with the type of formations they represent, then answer the questions on the following page.



Soda Straws ____	Draperies ____	Flowstone ____	Column ____	Stalactite ____
Lily Pads ____	Cave Pearls ____	Popcorn ____	Stalagmite ____	Rimstone Dams ____

NPS / DUSTIN BAKER ILLUSTRATIONS

Answer the following questions based on your observations in Carlsbad Cavern.

Do you think that you can judge how old a cave formation is just by looking at it (size, color, shape, etc.)? Why or why not?

What methods might scientists use to achieve a better understanding of the age and formation process of a speleothem?

How fast do you think speleothems grow? You may notice some formations that are only inches away from touching. Do you think they'll meet in the middle any time soon?

All of the speleothems in Carlsbad Cavern are formed with the help of water depositing calcite. Does that mean all cave formations grow exactly the same way? Choose two of the types of speleothems from the previous page and compare and contrast the ways in which you think they formed.

Winged Wonders

Carlsbad Caverns National Park is home to many species of bats. However, these amazing creatures are often misunderstood. Decide whether each statement below is true or false, then answer the questions at the bottom of the page.

True / False Bats are flying mammals.

True / False Bats like to live in peoples' hair.

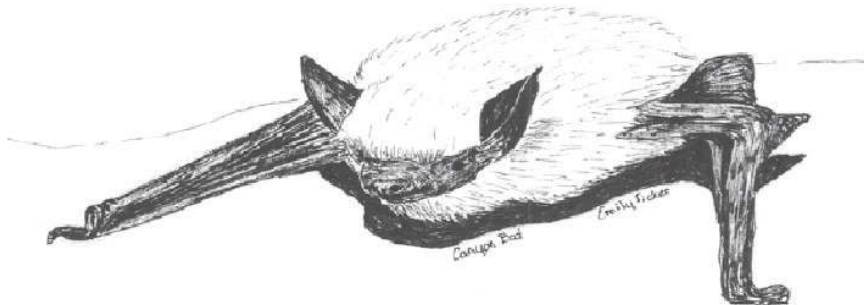
True / False Bats are helpful because some species eat a lot of insects.

True / False All bats have rabies.

True / False Like mice, bats are rodents.

True / False Bats are blind.

True / False All bats are vampires that drink blood.



What are some misconceptions you have had about bats? Have any of your opinions on bats changed after your visit to Carlsbad Caverns National Park?

Those Who Came Before

“Who discovered Carlsbad Cavern?” is a question that many visitors ask, but the real answer is “we don’t know.” The human history of this area spans over 10,000 years. Although artifacts have not been found deep within Carlsbad Cavern, other artifacts near the Natural Entrance suggest that Indigenous Peoples have known about and lived near Carlsbad Cavern for a long time. Even today, many tribes hold a deep connection to this cavern.

Watch the video *Our Sacred Grounds* in the exhibit hall to learn more about the connections that several tribes have to this place and then visit the Natural Entrance. Using these resources, answer the following questions.

From the video or the panel nearby, name at least four of the 14 tribes that acknowledge affiliations with Carlsbad Caverns National Park:

How did the Mescalero Apache get their name?

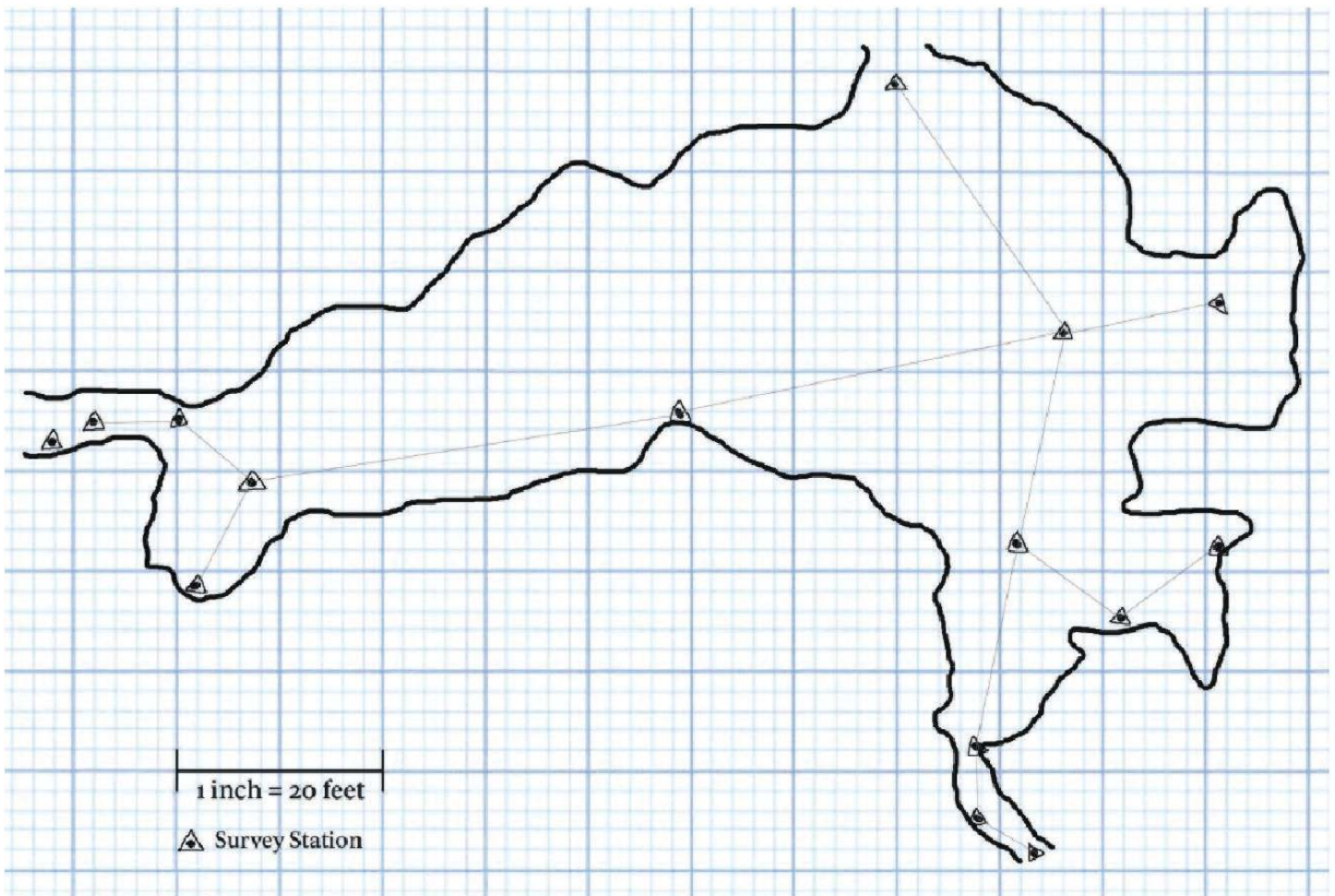
Why were the Guadalupe a place of refuge for the Mescalero Apache in the 1850s?

Why is this region sacred to American Indians?

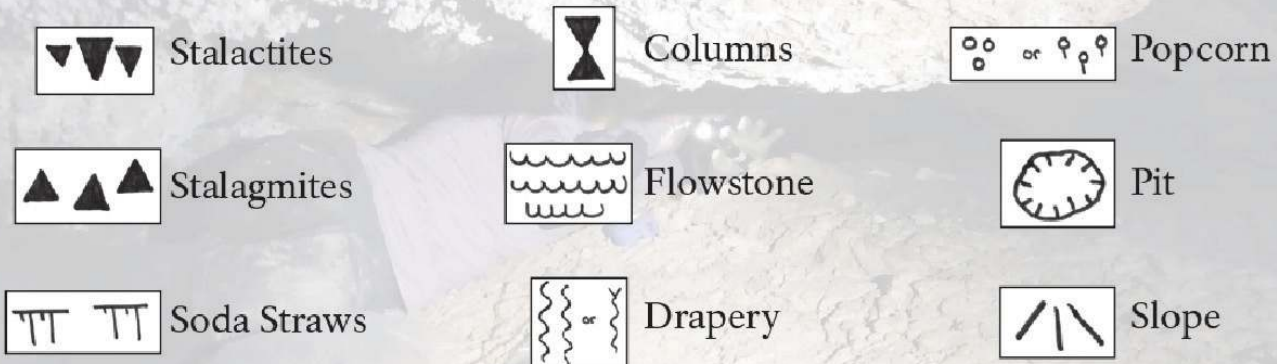
When you visit the Natural Entrance of Carlsbad Cavern, look at the large natural opening of the cavern and the surrounding landscape. Do you see any other evidence of Indigenous Peoples nearby? Do you believe American Indians would have entered Carlsbad Cavern? Why or why not?

Mapping a Cavern

Cave surveying is an important task to help map and understand a cave. A survey team consists of three to four members, and one person is always in charge of sketching new passages. Imagine you are now a surveyor, in charge of drawing a newly discovered room in Carlsbad Cavern. Use the key below to add features to the room. Be sure to give your discovery a name!



Room name: _____



Bonkers for Brochures!

You can answer all of these questions by getting a copy of the park map at the Information Desk.

1. Bats use echolocation to help them find prey.

A. What is another reason that bats use echolocation?

B. List at least two other animals that use echolocation.

2. Where did the Brazilian Free-Tailed Bat get their name?

3. True / False Bats have fur.

4. How many feet below the surface is Bat Cave?

5. What proved to people that all the stories about the cavern were real?

6. Carlsbad Cavern is located in which desert?

7. What are three different animals that live in Carlsbad Caverns National Park?

8. Why should you refrain from touching cave formations?

9. Name another cave within the park that can be visited on a ranger-guided tour.

10. How long in total is the self-guided tour (in time and miles)?

11. At what depth is the deepest known part of Carlsbad Cavern?

12. What did early visitors use to access the cavern before elevators and modern trails?

What's the Word?

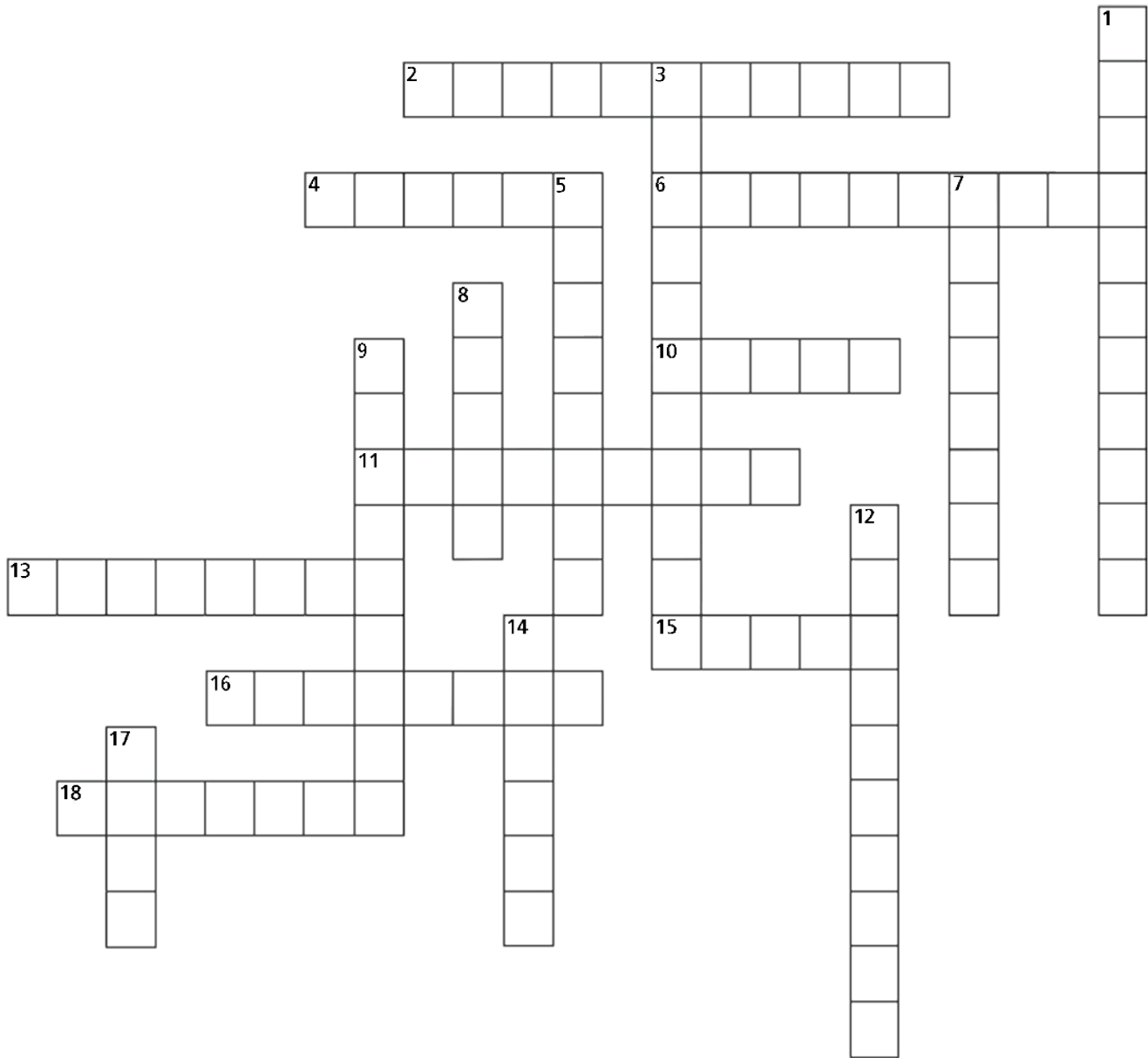
Using the information in the exhibit hall and the park brochure, solve the following clues about Carlsbad Caverns National Park.

Across

2. So many unique fossils were found in this mountain range that a subsection of the Permian Era was named the _____ Epoch.
4. First discovered in the state of New York, White-Nose Syndrome is a _____ that has devastated hibernating bat populations across North America since 2006.
6. Carlsbad Caverns National Park is located in the northern one-third of the _____ Desert that extends into the U.S. The other two-thirds are located in Mexico.
10. Bat _____ was mined from Carlsbad Cavern due to its use as a fertilizer.
11. Brazilian Free-Tailed Bats return to Carlsbad Cavern each summer to give birth and raise their young. Therefore, these bats are often referred to as a “_____ colony.”
13. Cave _____ are some of the few lifeforms native to this cave environment that we can see with the naked eye.
15. In 2017, the lighting system in the cavern was replaced to help give a more natural look and prevent _____ growth.
16. Distantly related to modern squids and octopuses, this fossil is frequently found in the walls of Carlsbad Cavern.
18. Cave formations are commonly formed from this type of mineral.

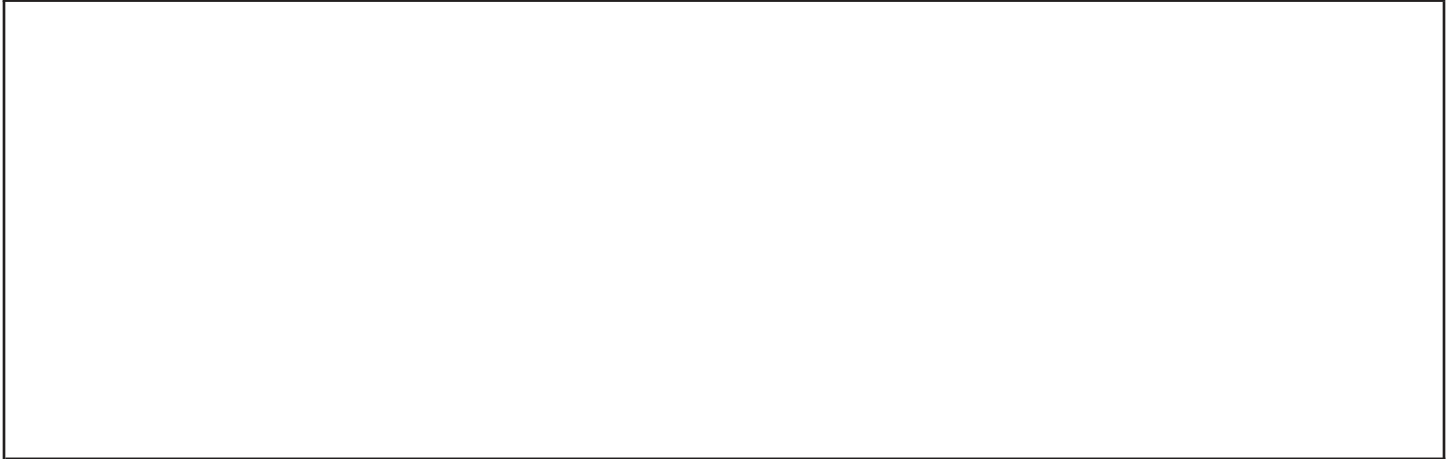
Down

1. On May 14, 1930, congress changed Carlsbad Cave National Monument to Carlsbad Caverns National Park, making it the United States' _____ designated National Park.
3. _____ Cave is the longest and deepest known cave system within the park. More than 150 miles have been mapped and surveyed so far.
5. The cave systems in the Guadalupe Mountains are unique because they were formed by _____ acid (H_2SO_4) dissolution, rather than running water.
7. In 1995, Carlsbad Caverns National Park was designated as a World _____ Site.
8. Jim _____ is generally credited as the first person to extensively explore Carlsbad Cavern.
9. Like many caves, Carlsbad Cavern is primarily made up of this type of rock.
12. An alternate name for “cave formation.”
14. _____ scrapers were stone tools flaked on both sides. Used by American Indians, this could be used as a knife, scraper, or ax depending on the need.
17. A hand-stone used in conjunction with a metate by Indigenous Peoples to grind grain or agave hearts.



Reflections

Pick a spot (in the cavern or on the surface) to sit quietly for a few minutes. Observe your surroundings and draw what you see in the space provided. Then answer the questions below.



As you sit, look, and listen for evidence of life (in the cavern or the desert); do you see or hear anything? Why or why not?

What kinds of life might be found here? What adaptations do you think life would need to survive in a cave or desert environment?

Look around and listen again. Do you find any evidence of human impact around you? How might this human impact be negative or positive?

We can help preserve our national parks by practicing Leave No Trace—leaving these places as we find them, or better, so that others may enjoy them in the future. How are you following the Leave No Trace ideals as you visit this national park?

Bat Bonanza

While watching to the bat video Echolocation: Listening in the Dark (located at the far end of the exhibit hall), circle the answers the following questions.

Cave Myotis



1. Echolocation is used to:
 - a. Avoid obstacles
 - b. Find food while flying
 - c. Mate with other bats
 - d. a and b
2. True / False Bats are blind?
3. Bats that eat bugs are called:
 - a. Vegetarians
 - b. Carnivores
 - c. Insectivores
 - d. Omnivores
4. True / False : Bats help keep insect populations in check?
5. What process similar to echolocation do we use to map the sea floor?
 - a. Tetrachromacy
 - b. Sonar
 - c. Radiology
 - d. GPS
6. How long does it take for bats to gather data from echolocation?
 - a. One minute
 - b. A couple seconds
 - c. A few minutes
 - d. A few milliseconds
7. Bats have had the ability to echolocate for:
 - a. 10,000 years
 - b. 20,000,000 years
 - c. 50,000,000 years
 - d. 60,000,000 years
8. When do bats come out to feast on bugs?
 - a. Sunrise
 - b. Afternoon
 - c. 3:00 p.m. sharp
 - d. Sunset
9. Brazilian Free-Tailed bats prefer to eat:
 - a. Moths
 - b. Beetles
 - c. Flies
 - d. Mosquitos
10. Large colonies of bats can consume how many pounds of insects each night?
 - a. 1 pound
 - b. 47 pounds
 - c. 200 pounds
 - d. 1,000 pounds

Brazilian Free-Tailed



Interview a Ranger

Find a park ranger or volunteer and ask them the following questions to get to know your public servants better. Don't forget to introduce yourself!

1. What are your duties with the National Park Service?

2. What are some other types of jobs that park rangers do for the National Park Service?

3. Have you worked at any other National Park Service sites? If so, which ones?

4. What is your favorite part of your job?

5. Why did you decide to become a National Park Ranger?

Ranger Autograph: _____



Now It's Your Turn!

1. If you were to become a park ranger, what types of jobs would you like to do in our national parks?

2. How can you help protect national parks even if you're not a park ranger or volunteer?

What Can I Do?

Our Senior Ranger Motto is “Explore, Protect, Enjoy.” Answer the questions below to explain how you can achieve these important goals.

One way I can explore my environment at home is by:

I can help protect plants, animals, and the environment near my home by:

A place where I can go to enjoy the plants and animals near my home is:



NPS / DUSTIN BAKER ILLUSTRATION

Senior Ranger Pledge

I, _____, am proud to be a National Park Service Senior Ranger. I promise to explore, protect, and enjoy my national parks and the natural world around me. I will do my part to ensure that our national parks and everything in them are preserved for everyone, now and in the future, and I will share my knowledge of these special places with my friends and my family.

Certificate of Achievement

has successfully fulfilled the requirements of the
Senior Ranger Program and is hereby proclaimed an official

Carlsbad Caverns National Park

Senior Ranger



Park Ranger

Date