



Join the Junior Ranger Team at Petrified Forest National Park!

As a Jr. Ranger you help us preserve national parks by:

- Learning about each park and sharing your knowledge with others.
- Setting a good example for other visitors by following the park rules.
- Having fun and safely exploring your national parks.



Placerias

What will
you discover
today at your
national park?

How to become a Junior Ranger at Petrified Forest National Park:



Everyone: Answer the “How Can You Help?” and the “Preservation Takes Teamwork” questions on the last page of the book.

Are you 6 years old or younger?

- Complete at least 4 activities.

Are you between 7 and 10 years old?

- Complete at least 5 activities.

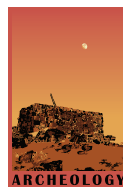
Are you 11 years old or older?

- Complete at least 6 activities.



Typothorax

Look for these five icons on signs throughout the park to help you complete this booklet.



ARCHEOLOGY



ECOLOGY



GEOLOGY



PALEONTOLOGY



HISTORY

Show your answers to a park ranger at the Rainbow Forest Museum, Painted Desert Inn, or Painted Desert Visitor Center to receive your free badge.

You can also mail or scan and e-mail your booklet back to us to receive your badge.



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#1 Experience Your America

There are over 400 National Parks and Monuments across the United States. You will know you are in a National Park because you will see this arrowhead symbol.



What is a National Park?

- Where special natural, cultural, and historic places are preserved.
- A place for people to explore and enjoy.
- National park sites have been set aside for "this and future generations".

Think about where you live. What national parks or monuments are near you? Why are these places special?

What other national parks have you visited?
Write the name of the park on the state where it's located.



#2 Wildlife Watch



Petrified Forest National Park is home to all kinds of wildlife! Keep an eye out for the animals pictured below, or their scat and tracks. Look carefully, they may be hard to see.

Draw a circle around the picture of each animal you spot.

Remember: never feed or disturb the wildlife you see in the park.



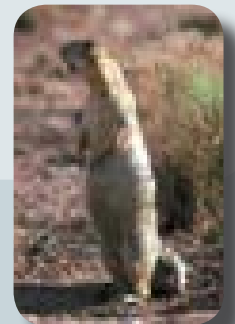
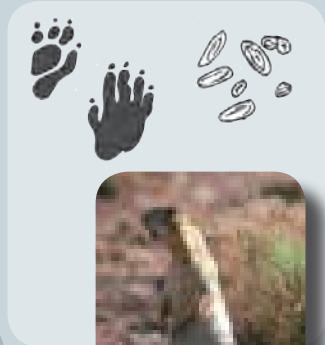
Pronghorn



Rabbits/Hares



Lizards



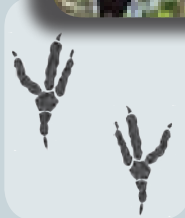
Prairie Dogs



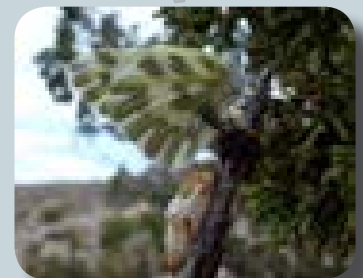
Coyote



Ravens



Snakes



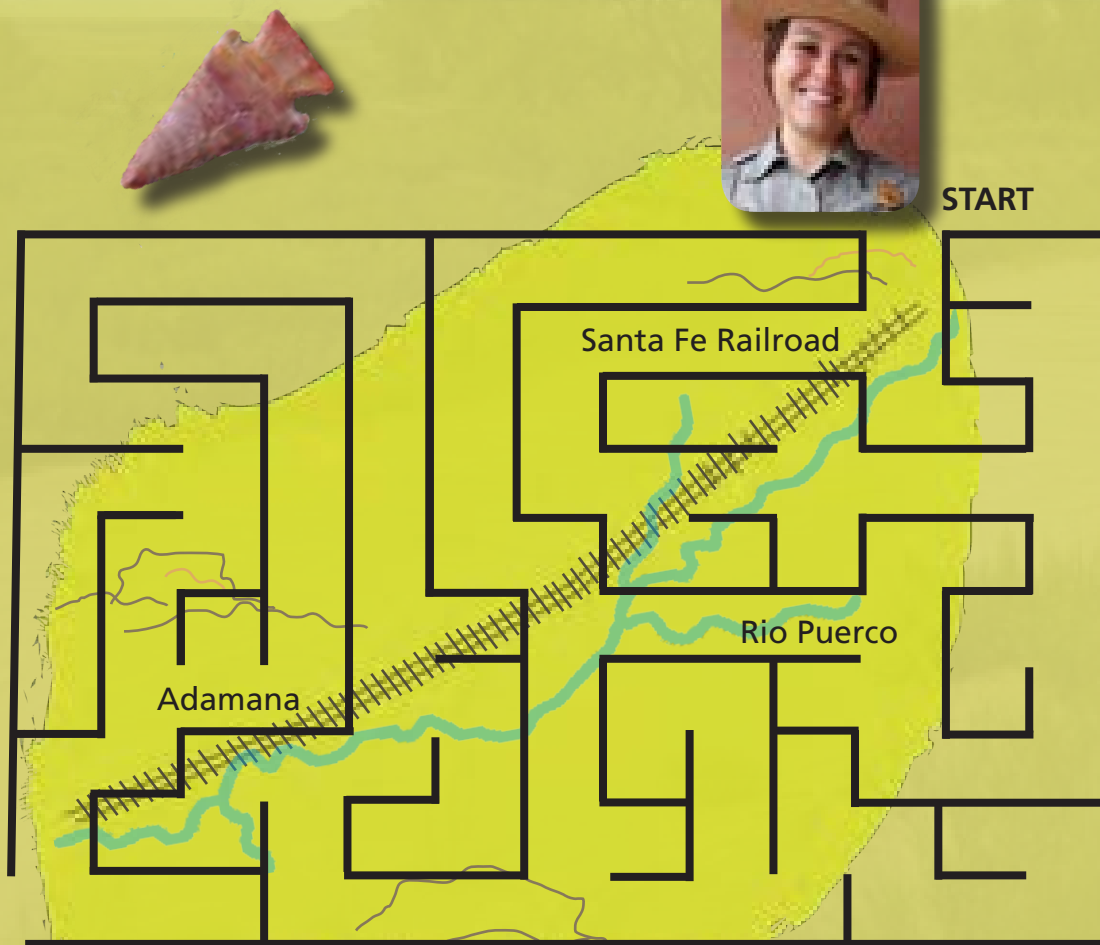
Insects

#3 Archeology Maze

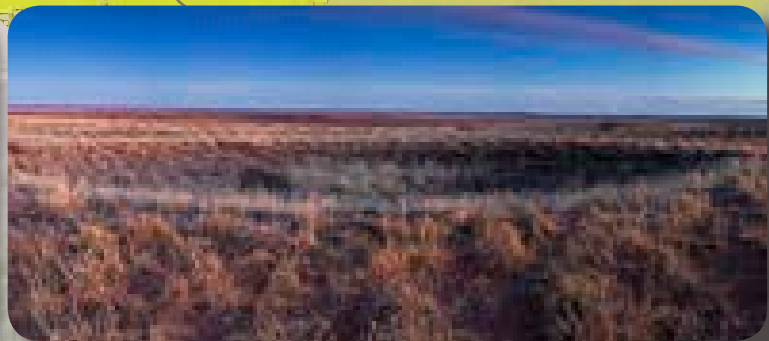


The Puerco River Valley cuts across the middle of Petrified Forest National Park. People have been living and traveling along this route for thousands of years. Even today the railroad and Interstate 40 are aligned with this ancient corridor.

Help ranger Jamie find her way across the landscape to discover a new archeology site.



Some sites are carefully excavated so artifacts and dwellings can be studied.



Other sites, like this great kiva (ceremonial room), are only monitored because excavation might cause too much damage.

#4 Petrified Forest Crossword

Look on signs and exhibits for the answers.
You can even ask a ranger if you get stumped.

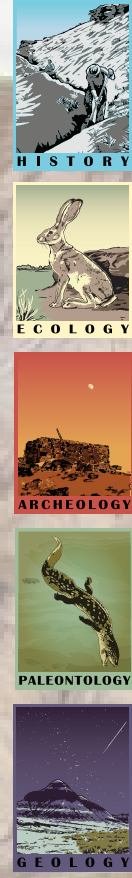
Word Bank

IRON
SILICA
PHYTOSAUR SKULL
POTTERY
MARIPOSA LILY
METOPOSAUR
ROOSEVELT
RANGERS
PETROGLYPHS



Word Bank

VILLAGE
ROUTE 66
PHYTOSAUR
GRASSLAND
ARCHEOLOGIST
PAINTED DESERT INN
PRONGHORN
COYOTE
HARVEY GIRLS
PALEONTOLOGIST



Across

- The man who designed the Painted Desert Visitor Center.
- Images scratched or picked into stone.
- The mineral that infiltrated the logs to make them petrified.
- A large fossil found by paleontologist Annie Alexander.
- Artifacts made out of clay.
- The golden yellow tulip-like wildflower.
- The president that created Petrified Forest National Monument in 1906.
- The NPS employees who wear flat hats in the park.

Down

- The mineral that causes red and orange colors in petrified wood and the Painted Desert.
- The fastest land animal that lives in the park.
- The legendary women who worked in Painted Desert Inn during the 1950s.
- The building made by homesteader Herbert Lore.
- The kind of scientist that studies fossils.
- The kind of scientist who studies artifacts made by humans.
- This Triassic creature looks like a huge salamander.
- A dog-like omnivore commonly seen in the park.
- Another name for a pueblo community.
- The Triassic reptile that closely resembles a crocodile.
- This road is nicknamed 'The Mother Road'.
- The current primary environment of Petrified Forest.

#5 Trail Explorer

Get out of the car and go for a walk! The NPS uses information signs along trails to inform visitors about their park. Look for these signs to help you find answers to the questions below.



Painted Desert Rim Trail

What hooved animals make their home in this section of the park?



Puerco Pueblo

Look for a small stone building with an archeology exhibit inside. What was this building historically used for?



Crystal Forest

What country today has plants and animals filling the same niches as those living here during the Triassic?



Long Logs & Agate House

How tall were the petrified trees here when they were still alive?
During what years did people live at Agate House?



Design your own sign for the Blue Mesa trail!



What's the subject?

What question would you answer?

What graphics would you use?

Use the box on the right to draw your design ideas for the new sign.



#6 Animal Adaptations



At first glance it might seem impossible for plants and animals to survive in the park, but look closely and you will see a large diversity of living things. These plants and animals have evolved to be well adapted to this dry grassland environment.

Match the living organism to its adaptation by drawing a line between the two.



Grass

I am an opportunistic omnivore. I eat what I can whenever I can.

I am a colony of organisms. I look dead when dormant but 'blossom' when it rains.

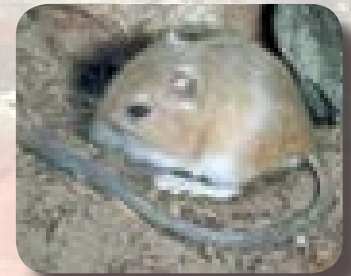
I become dormant in the winter and grow new shoots in the spring.

I hibernate underground until the rainy season so I don't dry out.

I don't have to drink water. I get enough from the seeds I eat.

I have a thick waxy coating to prevent water evaporation.

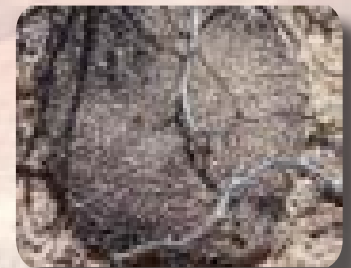
My coloring may be different to blend in with my surroundings.



Kangaroo Rat



Coyote



Cryptobiotic Soil



Lizard



Cactus



Toad

#7 How Old Are These Things?



The two main sciences studied in the park are:

- Paleontology, the study of ancient life through fossils
- Archeology, the study of human culture through artifacts.

Both of these sciences ask when events happened or how old objects are.

Relative dating tells you if one thing is older than another by where it is in the geologic layers. (Older rocks are on the bottom and younger rocks are on the top.) But how do scientists determine **absolute ages**?

Some sedimentary rocks and all organic matter contain material called radioactive isotopes which decay at constant rates. When half the amount of radioactive material in a sample decays, that amount of time is called its half-life. (Another half-life has passed when half of the remaining radioactive atoms also decay, and so on.) Scientists can measure the ratio of radioactive atoms to non-radioactive atoms in a sample to find its age.

Corn Cob

The Carbon-14 isotope is used to date organic material that is younger than 50,000 years.

The half-life of Carbon-14 is 5,730 years.

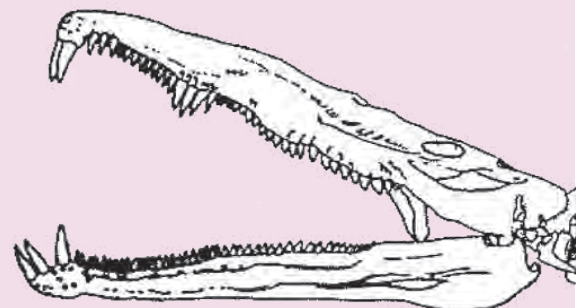
If there is a ratio of 25% radioactive to 75% non-radioactive atoms left in the corn cobb, how many half-lives of Carbon-14 have passed? _____



Triassic phytosaur skull:

Paleontologists can use Uranium to Lead isotopes to measure the age of rocks that formed from about 1 million years to over 4.5 billion years ago. The half-life of Uranium²³⁵ is 704,000,000 years.

This skull is 214,000,000 years old.
How many more years would it take for one half-life of U²³⁵ to pass?



Answers: Corn Cobb - 2 half-lives have passed.
Triassic skull - 490,000,000 years.

#8 When We Left Home



In the 1930s, during The Great Depression, the government created a public workforce called the Civilian Conservation Corps. Young men from many places across the country signed up to be in the '3 Cs'. They often were sent to parks or towns far away from their familiar city life to work, learn a trade, and earn money to support their families.

Write a story below of how you felt the first time you left home by yourself. Where did you go? What kinds of adventures did you have? How did you feel when you got there? What did you miss from home? If you haven't been away from home yet just imagine where you would want to go and how you would feel.

When I left home _____

Background Photo - CCC crew at the Painted Desert Inn, 1938

Where can you see examples of CCC work in the park?



Cottonwood trees planted along the Puerco River



The Painted Desert Inn

#9 No Bones About It

Paleontologists are like detectives. They study clues from fossils and gather information about past life. Visit inside the Rainbow Forest Museum and look for clues in the exhibits to fill in the blanks below. You can be a Triassic Detective too!



The geology in the park is made of colorful layers formed by a large river system. This geology is named the _____ Formation.

These small animals in shells are just one clue that tells us there used to be water here. _____

Large carnivores like the _____ and the _____ have sharp pointy teeth.

The _____ and _____ are two ankle bones that fit together differently in *Coelophysis* and *Postosuchus*. Which of these two animals is a dinosaur? _____

This animal had a lateral line system and was an ambush predator.

The _____ are nicknamed 'The Tanks of the Triassic'. How many different species are found in the park? _____

Paleontology is a dynamic science. As new fossils are discovered the information we know about the Triassic story evolves. Compare the two large murals in the museum. What do you notice that is different or the same about how the Triassic looks?

#10 Petrified Wood Detective



Petrified wood is found in many colors, shapes, and sizes. Walk on a trail (Giant Logs, Long Logs, or Crystal Forest), and look for the colors, shapes, and sizes listed below. Put a check mark next to each item you see.

When you touch a piece of petrified wood, how does it feel?

- smooth hot
- rough glassy
- sharp cold

Put a check next to each color you see.

- orange white
- pink yellow
- brown grey
- purple black
- red green

Find a giant log you cannot wrap your arms around. How close are your fingertips from touching? _____

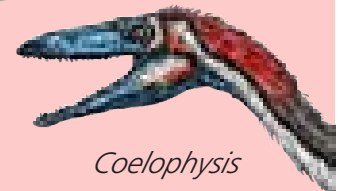
Find a petrified log that is longer than you are tall. Walk next to the log and count your steps. _____ steps long

Additional 'Petrifi-questions'

Where did the minerals making the petrified wood come from?

How did the logs break into pieces?

Thank you for leaving all petrified wood in its place so others can enjoy it too.



Coelophysis

Color this picture of a petrified log to look like the logs you have seen.



#11 Even More Spectacular



Petrified Forest National Park was first established as a National Monument in 1906. That means everything in the park, especially the petrified wood, has been protected for more than 100 years!

Visit the sites in the historic photos below and compare them to what the park looks like now.



Giant Logs Trail from inside the Rainbow Forest Museum sunroom, 1934



Back of Rainbow Forest Museum



Back side of Crystal Forest trail facing North, 1930

What looks different? _____

What looks the same? _____

#12 Jr. Ranger Field Notes

We hope you enjoyed your visit to Petrified Forest and had lots of memorable experiences while you were here. Use the space below to write down some notes about your day.

While I was at Petrified Forest National Park...

I saw:

I heard:

I felt:

In the box below, draw a picture of your favorite thing in the park.



I wondered:

Thank you for helping the National Park Service protect our shared heritage for this and future generations.

How Can You Help?

Why is it important to preserve and protect the rocks, fossils, plants, and wildlife found within the Petrified Forest National Park? Please give at least three reasons.

Preservation Takes Teamwork!

National Parks are special places, where all of nature's things - animals, birds, plants, and rocks - are protected so everyone can see and enjoy them. Although the rangers protect the park, we need your help too. Please give us your suggestions and tell us what you can do to help preserve the National Parks.

Explore - Learn - Protect

This Certifies That

_____ has completed the Junior Ranger Program at
Petrified Forest National Park

and is hereby considered an official

Junior Ranger



Park Ranger _____



Date _____