



WATERING

KARTCHNER CAVERNS

Water is the life of a limestone cave, it creates the cave, it decorates the cave, and it can also be the end of the cave. The cycle starts with rain.

Rainwater seeps into the limestone and picks up carbon dioxide. It turns into carbonic acid, which is the same thing as carbonated water. This weak acid starts to corrode the rock making holes. These holes get bigger until eventually you get a cave!

This process is very slow, it could take thousands of years just for a formation to grow! Soda straws are some of the fastest growing formations, and in Kartchner Caverns, they take 100 to 1,000 years to grow 1 single inch!

Eventually, water can erode away so much of the rock around the cave, that eventually it will collapse, creating a "cave-in". Although many parts of the cave may still exist, this is usually the end of a cave. Once the cave has reached this stage, the

Next, the water picks up calcite in the limestone. When it enters the formed cave, it releases the carbon dioxide and drops leaving behind the calcite and creating the decorations. Watch Wandering Willie Waterdrop to see our fun version of this process. Also follow this link for another video representation by Pei Chi: youtu.be/UE20_4mlyHo



normal processes of water building formations get harder, mostly because the air getting inside can dry the cave out. This makes the water evaporate instead of dripping like it should. No need to worry about Kartchner Caverns though, this won't happen here for an EXTREMELY long time.

ACTIVITIES:

Kids, make your own stalactites at home, visit: sciencekidsathome.com/science_experiments/growing_stalactites.html

Learn more about Kartchner Caverns at AZStateParks.com/Kartchner

WATER PERCOLATION MAZE

Help the drop of water get through all the rock layers to one of the cave formations!

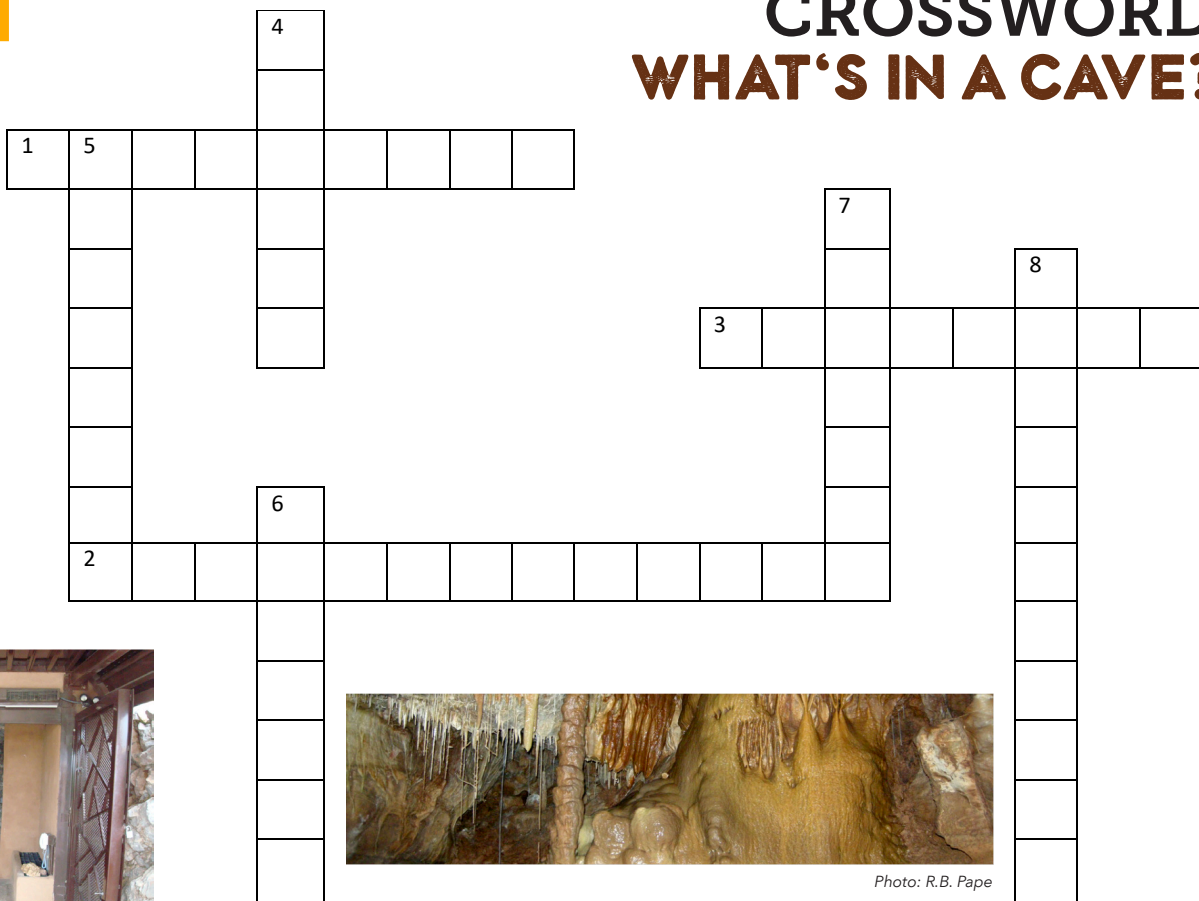


Note: There are numerous ways for the drop to travel! The jagged route with cracks is called a fault. Do you think water would go faster or slower through a fault line than through solid rock? Looking at the maze, is the route through the fault easier?



INVERTEBRATE

CROSSWORD WHAT'S IN A CAVE?



Cave entrance

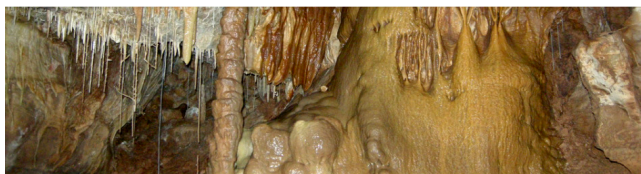


Photo: R.B. Pape

Using the Kartchner Caverns Macro-Invertebrate Research Project Website, under the "Animals" tab, answer the following questions to fill in the crossword: kartchnercavernsinvertebrates.weebly.com

ACROSS:

1. The Brackenridgia is generally a _____ and are present wherever organic nutrient resources are available. (Section: Isopods)
2. _____ - Cave animal that is capable of completing its life cycle within caves. (Section: Definitions)
3. Porcellionidae family has the organism P. laevis, which is usually found among surface debris, beneath rocks, and in the _____. (Section: Isopods)

DOWN:

4. After two years of study and searching (two hundred hours), only _____ scorpions were found in the cave. (Section: Arachnids)
5. Achaearanea canionis (cave spiders) typically spin webs among rocky rubble in _____ areas near entrances (Section: Arachnids)
6. Tullburgia iowensis, or springtails, are _____ consumers, feeding on bacteria, fine organic materials and micro-fungi. (Section: Insects)
7. Ceuthophilus pima, or cave crickets, seek shelter in caves from _____ extremes, like the arid southwest high summer temperatures. (Section: Insects)
8. _____ - Animals which cannot live outside the cave environment. (Section: Definitions)

To learn more about what you can find inside Kartchner Caverns, visit our website

AZStateParks.com/Kartchner


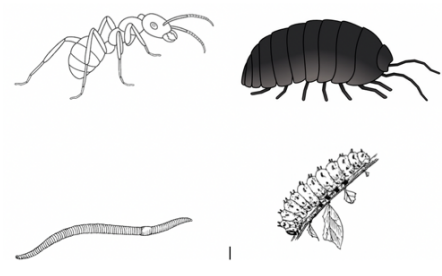
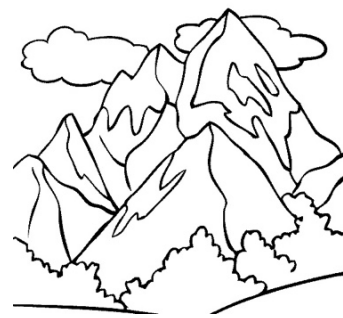


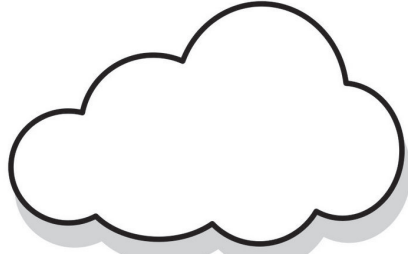
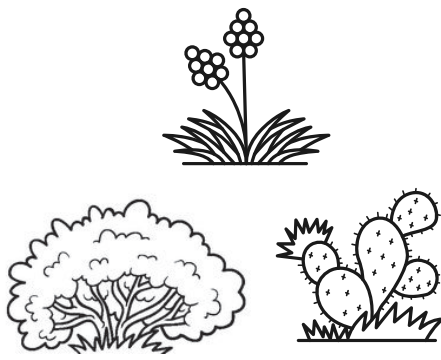
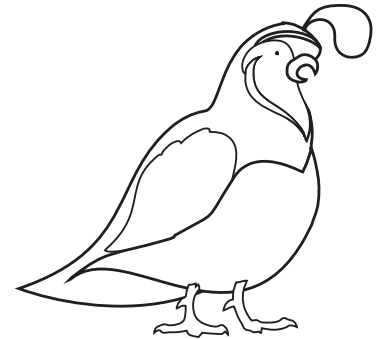
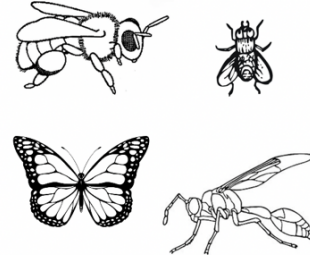
Answers on next page



WHAT'S OUTSIDE?

AT HOME OUTDOOR BINGO

Go outside and circle all of the items below that you can find.

| | | |
|---|---|--|
| <p>TREE</p>  | <p>CRAWLING INSECT</p>  | <p>MOUNTAIN</p>  |
| <p>ROCK</p>  | <p>GRASS</p>  | <p>CLOUD</p>  |
| <p>PLANT</p>  | <p>BIRD</p>  | <p>FLYING INSECT</p>  |



ARIZONA
STATE PARKS & TRAILS

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AZStateParks.com/Kartchner

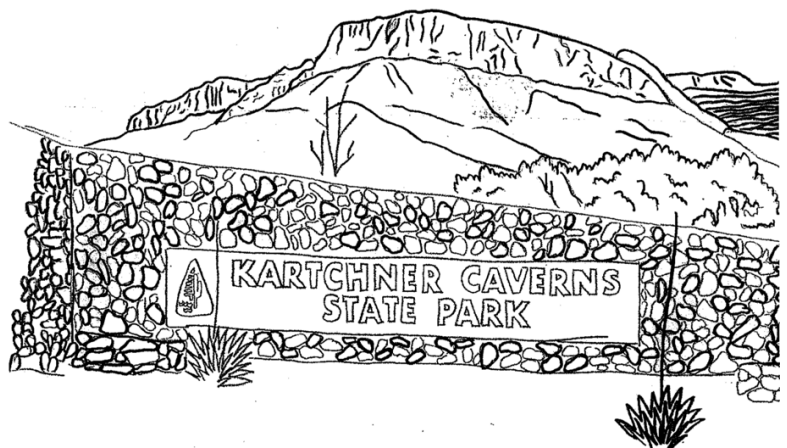


NATIVE LIVING AND OUR HERITAGE

Right off our beautiful Foothills and Ocotillo Loop Trails bedrock mortar can be found left by the natives that lived here long before caverns were discovered. If you have seen it, you have probably wondered why anyone would even want to live in the desert in the first place. Let's go back in time and see if we can understand why, and as we do, try comparing how we live today with how they would have lived back then.



National Park Service (12/14/18) The Chiricahua Apache. Fort Bowie. nps.gov/fobo/learn/historyculture/the-chiricahua-apache





TRADING IN THE SOUTHWESTERN UNITED STATES



This map shows some of the trade routes established by natives long before European colonization. Trade was one of the main reasons why the San Pedro River Valley had people along it. The river allowed tribes in the northern parts of the U.S. to trade with different tribes all the way down to Central America.

Why trade?

Activity- Think of an item that your friend or sibling has that you think you would enjoy. Now, is there something you own that you would give that friend or sibling in return for that item?

Use the following page to print out, color, and cut out the objects the Native Americans would have traded. Pretend you are natives trading for things of value.

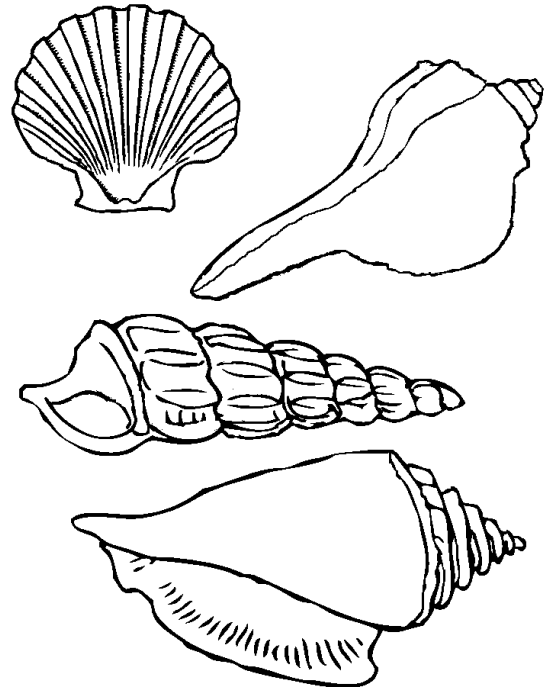
Mexicolore (5/13/18) The Mesoamerican Connection: Central American diffusion into the North American Southwest. Aztecs at Mexicolore. mexicolore.co.uk/aztecs/you-contribute/mesoamerica-and-the-north-american-southwest





TRADING IN THE SOUTHWESTERN UNITED STATES

As you color the items for trade, try to make them worth trading. Ex. The feathers would probably be worth more if they are VERY colorful...



You might be wondering why there is a parrot, seashells, and feathers included in the trading pictures. Archaeologists found evidence that ALL of these were traded from Central and South Americas to this region!



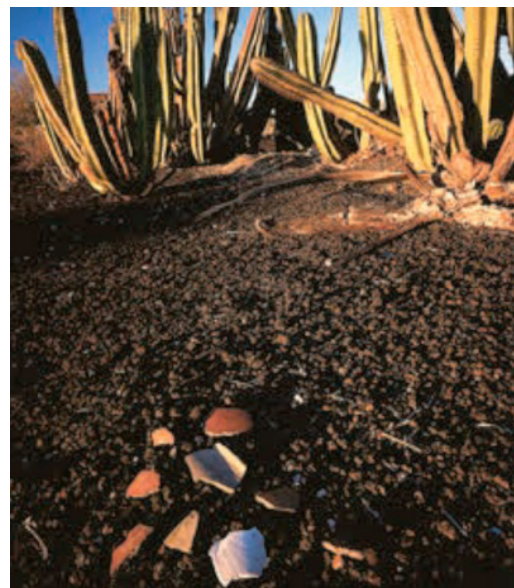
TRADING IN THE SOUTHWESTERN UNITED STATES

Some sites were able to find shells that were indigenous to areas as far away as the Philippine Islands. These trading items were used like currency. One person wants something pretty, while in return the other person may want something more practical, like cooking ware, baskets, or even food. Native Apaches would usually trade their beautiful baskets and pottery.



Repanshek, K. 3/26/18). The Scarlet Macaw's Connection to the Southwest. National Parks Traveler. nationalparkstraveler.org/2018/03/scarlet-macaws-connection-southwest

Tuzigoot National Monument has found feathers and other remains.



Childs, Craig. (2003). Ancient Seashell Traders of the Desert. Arizona Highways. 79. (8). pg. 7-15

Seashells from all over the world were found just outside Phoenix, AZ.



Schaefer, E. (2015, April 30). Apache Arts and Crafts. American Indian Film Gallery. scalar.usc.edu/works/american-indian-film-archive/apache-arts-and-crafts





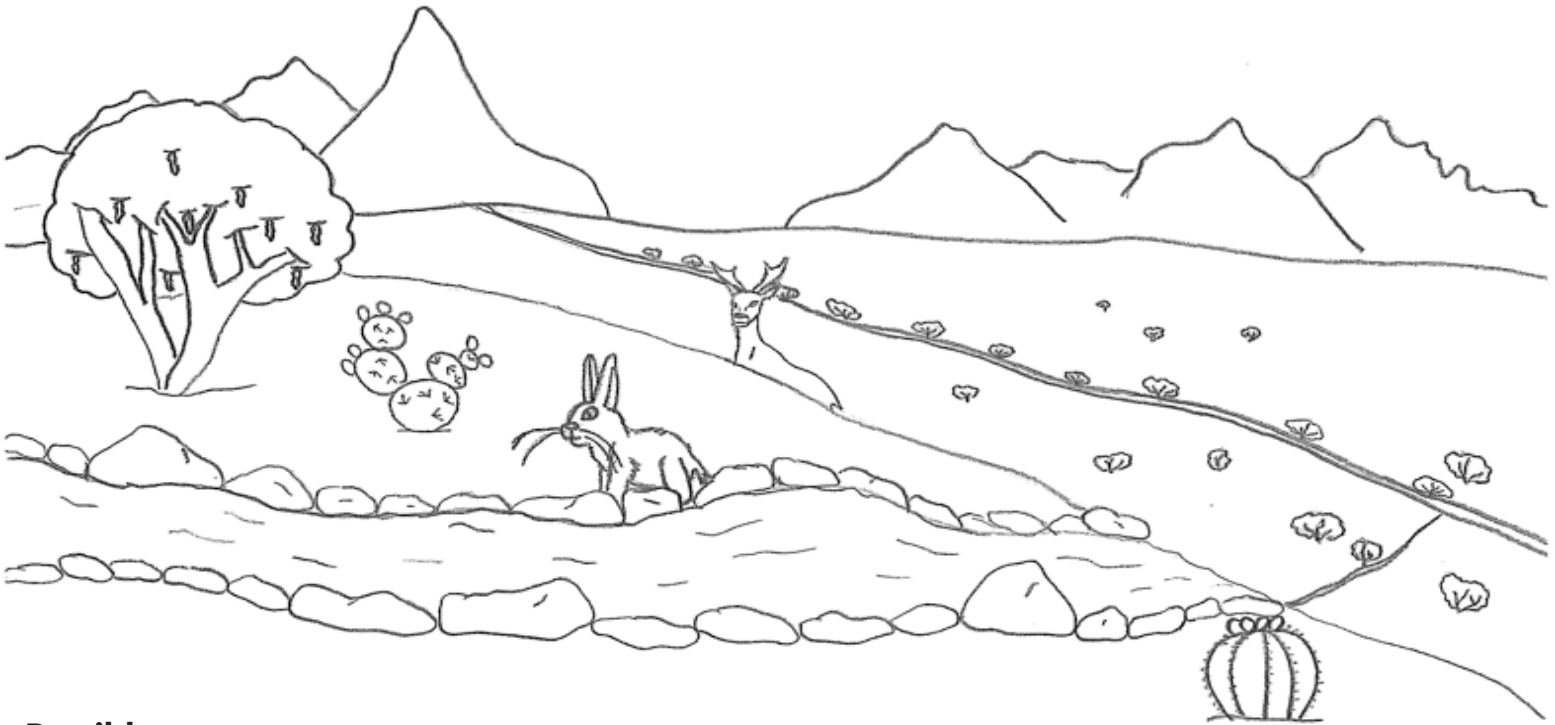
CHOOSING WHERE TO LIVE

The next thing is choosing a site to build your house. The San Pedro Valley was ideal with the river running through it, but there were some issues with living right at the river's edge, including things like flooding during the rainy season and blocking the view of incoming travelers.

Activity: In the picture below try to find the reasons why natives would have chosen the hillside depicted.

Ages 6 and under: Circle the things you can find that would make it easier to live on that site, then color the picture to make it look similar to the beautiful scenery around Kartchner Caverns.

Ages 7 and older: Color the picture, then make a list of the reasons why the site is ideal for living, including a brief explanation on why those items are helpful to natives.



Possible answers:

Mesquite Tree - Mesquite trees produce beans that can be ground down to powder as a flour. The wood would also provide means for fires to cook food or bake pottery.

Wash - The wash means there is most likely groundwater provided most of the year, if not longer.

Jack Rabbit - The water from the wash would bring game, which means food.

Deer - Larger game would also bring materials for clothing and other crafts.

Prickly Pear - After removing the thorns the plant itself as well as its fruits can be eaten.

Rocks - The rocks themselves would be good for using as tools. The rounded rocks from the wash would make them easier to handle.

Barrel Cactus - Barrel cacti have a sweet yellow fruit that grow on top.

View Of Valley Below - The location being on the hill meant they could see if travelers such as traders, passing tribes, or intruders were nearby.



CHOOSING WHERE TO LIVE

The next time you hike our Foothills or Ocotillo Trails stop at the Bedrock Mortar site on the East side of the loop, you will notice that the site is on a hill, just down from our cave hill. You might also notice that the ground around the site looks damp, that is from the groundwater that gets soaked up into the



What kind of house to build?

Different tribes of Native Americans had different lifestyles, and with the diverse landscape across Arizona, there were many tribes living across the state. Dwellings they would build varied greatly because of this.

Wickiups, like the one in the picture herewere perfect for tribes that were mobile, hunting and differing weather patterns being the main causes for moving.

Ranger Mike Westover - Arizona State Parks & Trails

Pit-houses were used by Hohokam natives that were living in places of high heat, but needed to be more permanent because they depended more on things like farming. These would stay warm in the winter, and stay cool in the summer.



McDonald, J. (11/12/17). Archaeological Parks and Prehistoric Native American Indian Ruins of Central Arizona. ajpl.org/wp/wp-content/uploads/2016/04/Arch-20171114.pdf