



What is a Desert tutorial



Virtual Habitat

WHAT IS AVAILABLE HERE?

- What is a Desert? Flash animation tutorial that teaches students about the three characteristics of a desert
- Virtual Habitat- interactive exploration of the Sonoran desert plants and animals
- Discussion questions
- Classroom activities
 - Raindrop Log
 - Disappearing Puddle
 - Draw a Desert
 - Desert Habitat Container Garden
 - Mirror Image Matching Game
 - Story Time
- Necessary worksheets (plus general, optional use Desert Investigation Log and Experiment Log)
- Relevant Arizona State Standards for First Grade

These questions and activities are designed to let first graders think creatively and to inspire curiosity about the world around them.

OBJECTIVES

The objectives of this curriculum are to

- 1. Educate students about the Sonoran desert
- 2. Encourage students to ponder and respect the natural world
- 3. Encourage students to begin thinking in terms of the Inquiry Process as they observe, ask questions, and formulate hypotheses

BACKGROUND KNOWLEDGE

These are concepts that the educator should understand and that can be found in the glossary.

AdaptationAmphibianBurrowLegumeEvaporationHabitatJointed CactusMetamorphosisMonsoonSymbiosis

MATERIALS

Chalk 5+ cups Water

Ruler or Tape Measure Container for desert garden

Paper Soil

Crayons 3-5 small desert plants
Scissors Animal figurines

Buckets



WHAT IS A DESERT?

TUTORIAL QUESTIONS AND ACTIVITIES



What is a Desert tutorial

DISCUSSION QUESTIONS

- 1. *This introductory prompt should be used before the students view the tutorial.

 What is the name of our desert? Where is it? What are the characteristics of a desert? What would life be like for plants and animals that live in a desert? Do you think that you live in a desert?
- 2. *Pause tutorial on the map.

Where is the Sonoran Desert located? What country or countries is it in? What else is near it? Are there any bodies of water? Is your home on this map? This is a way for students to practice their map reading skills. The Sonoran Desert is in the United States and Mexico. Part of the desert lies near the Pacific Ocean. Students may be able to locate the Gulf of Mexico as well.

3. Even though there is not very much water in the desert, there is enough water to support the life of plants, animals, and people. What do people use water for? Do plants need water? Animals? Do birds need water? Frogs or salamanders?

Students should understand that all living things need water to survive. Plants need water to grow and in turn plants provide food for many animals. Animals need water to survive and be active. Some birds and animals not only drink water but they eat fish or other organisms that live in the water. Frogs and salamanders are special kinds of animals (amphibians) that need to have wet skin all the time in order to breath.

People use water for drinking, cooking, washing dishes and clothing, flushing toilets, swimming, showering, brushing teeth. Encourage students to think of as many ways that people use water as they can. People have to share water with all other living things; we can make choices to use less water so that there is more available for other living things.

continued



WHAT IS A DESERT?

Tutorial Questions and Activities



What is a Desert tutorial

DISCUSSION QUESTIONS continued

4. After looking at images of desert and marsh, think about the sounds you might hear in each place. Close your eyes and imagine the sounds you would hear in the desert. Keep your eyes closed but now imagine the sounds you would hear in the marsh. Does one place have more sounds? Louder sounds? What are other ways the desert and the marsh sound different?

Encourage students to understand that in a desert we probably don't hear as many animal noises or as much vegetation shifting as in a wetter environment, like a marsh. In the Sonoran Desert the sounds of water can be heard during the rainy seasons. Other sounds of water, like fish jumping or birds splashing, are not as common. Stress that in deserts we don't hear as many water sounds because we don't have very many lakes or ponds and we get very little rain each year. Students will connect that in marshes or other wet environments there will be more sounds focused around water.

5. The desert is a tough place to live. Why is the desert a tough place? One way that living things survive in this tough place is by helping one another. What are some ways that plants and animals might help each other? What could they provide for each other? Can you think of a time when you saw an animal hanging out with a plant?

Reinforce that the three characteristics of a desert are less than 10 inches of rainfall a year, temperature extremes, and quick evaporation. This means that organisms that live in the desert have to be able to handle hot weather as well as cool weather. They have to live with little water and be able to store whatever water is available.

Plants often provide shade or a cool escape from the heat for animals. They may also provide food or water for animals. In return some animals move seeds around or bury them in the ground, which will help a new plant grow. Some animals help plants by eating insects that could infect the plant with a disease



10 inches of rainfall a year

Review- What is the name of the desert we are learning about and what are the three characteristics of a desert?

The students are learning about the Sonoran Desert and the three characteristics of a desert are less than 10 inches of rainfall a year, extreme temperature differences in one day, and quick evaporation



ACTIVITIES

1. Raindrop Log - We are going to keep track of how much water we use today. First we will make and decorate paper raindrops. Then we will use the raindrops to keep track of our water use.

The purposes of this activity are to have students count and to help them understand that all creatures (including people) that live in the desert need water and therefore we need to conserve water as much as possible.

Students should draw raindrops (about the size of a softball) and then cut them out. On each raindrop they can draw a picture of a way that plants, animals or people use water in the desert. Drawing plants and animals as well as people on the raindrops illustrates that people have to share water with these other desert organisms.

Each student should make ten raindrops. Throughout the day students will use these raindrops as a measure of how often they use water. Each time they use water they drop a raindrop in the bucket or pin it to the bulletin board.

This activity helps students think about how much water they use and to understand that people have to share water with plants and animals





2. Disappearing Puddle - One of the characteristics of a desert is quick evaporation. What does evaporation mean? This activity will help you understand what evaporation means.

The purposes of this activity are to help students understand what evaporation means and to have them practice using math skills. This is a class activity.

Go outside and spill a few cups of water on the cement in a sunny location. Students can trace the outline of the puddle with chalk. Leave the puddle for a couple of hours and then come back to check on the size. Students can then use a different color chalk to trace the new size of the puddle. You can continue to check on it throughout the day. Students can carry a piece of paper and a writing utensil with them to record the size of the puddle as it evaporates. This will allow them to practice writing their numbers.

Students can practice their math skills by using rulers or tape measures to measure the decrease in size of the puddle (to the nearest inch). Students should record their findings and then discuss as a class how much water evaporated. Students should also communicate their results by drawing a picture and recording the times and puddle size in the provided Disappearing Puddle worksheet.

This activity will work best on a warm, sunny day. If the puddle evaporates quickly, that provides a good opportunity to talk about how temperature affects evaporation rate. Liquids in a warm environment will evaporate faster than liquids in a cooler environment. However, if it doesn't evaporate quickly you can still discuss where the water went. While some of the water may have been absorbed into the cement, most of the water evaporated into the air.



3. Draw a Desert - Draw a desert scene to show the characteristics of a desert.

The purposes of this activity are to allow students to review the three characteristics of the desert and to convey their ideas to others.

Students could include little water, an indication of the temperature, and a sunny sky with few clouds. Students should include themselves in the image to illustrate that people are part of the desert as well. f students know any desert plants or animals they could include them. Many students may know about the symbol of the Sonoran Desert- the saguaro- which they could also include. It may help them to recall some of the images from the tutorial.

VIRTUAL HABITAT

QUESTIONS AND ACTIVITIES



Virtual Habitat

DISCUSSION QUESTIONS

1. *Present students with this introductory prompt before they examine the Virtual Habitat so they have an idea of what to look for.

A habitat is an organism's home. It is a place that provides everything a living thing needs to survive. The town you live in is like your habitat. All of the plants and animals in this habitat live in the Sonoran Desert but they also have more specific habitats. Each person's specific habitat is like their own house or bedroom. What plants and animals do you see in the habitat? How do the plants and animals act together? Where do the animals live? Have you seen these animals or plants around your own home?

2. Think about the cacti you saw in the *Virtual Habitat*. How many different cacti are there? Which plants are cacti? How are they similar? How are they different? Do any of the cacti look more similar than others?

There are three cacti in the habitat; saguaro, prickly pear, and cholla. Students should note that they all have spines and green stems. The ocotillo has spines but is not a cactus. The students may also notice that the prickly pear and the cholla have a shorter, wider growth pattern than the tall columnar saguaro. The prickly pear and the cholla are jointed cacti and are both in the Opuntia genus so you can tell your students that they are like cousins.

3. Many trees in the Sonoran Desert, such as Palo Verdes and Mesquites, produce a special kind of food that many desert animals like to eat. If you were an animal and you had to eat one part of the tree, what would you eat? Bark? Leaves? Flowers? Fruit?

Many desert trees are in the legume family. The fruit of legumes are bean pods. These bean and seed pods are very nutritious, so many desert animals (and sometimes people) eat the pods of trees like Palo Verde and Mesquite. These bean pods are similar to pea pods. You can tell students that they probably already eat legumes without knowing it; peas are relatives of these desert trees.



else might it do?

coyotes and other animals

DISCUSSION QUESTIONS continued



Coyote



5. Many of the animals found in the Sonoran Desert live in burrows. What is a burrow? Why do some animals live in burrows? Where do burrows come from? Do animals make their own burrows or do they find them? If they make their own burrow, how do they do it?

4. One way coyotes communicate is by howling. How do people

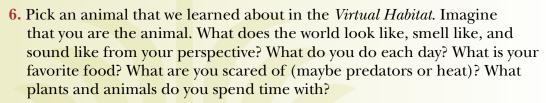
communicate? Do people ever communicate without talking? Do you think the coyote might have more than one way of communicating? What

People communicate through speaking, written words, pictures, hand motions, and

body language. Coyotes also communicate by urinating on trees or rocks in their territory and by scraping the ground with their paws, which have scent glands. By doing these things, they are leaving visual cues as well as scent cues for both other

A burrow is a protective home for an animal. Burrows are often found underground in rock crevices, under bushes, or in other protected locations. Many animals use burrows because they are protected from their predators and from cold, heat, and rain. Some animals find their burrows (in rock crevices) but many make them. Animals that make their own burrows usually need feet or claws to dig a hole. Other burrow-dwelling animals, such as snakes and burrowing owls, probably move in after another animal has created the burrow.

You could also take the students into the school yard and look around for burrows. If you do this, remind the students to be responsible and practice good decision making by not sticking their hands in the holes. Remind them that many animals use the burrows as protection from predators so if the animal sees something in the hole, they may bite it in defense. If the students find burrows they could compare the location, size, and material of the burrows.



You could have students use their imaginations and what they learned from the Virtual Habitat or you could have them do a brief research project to learn about their animals. Students should take time to understand how the world appears to different animals



Round-Tailed Ground Squirrel



VIRTUAL HABITAT

TEACHER'S GUIDE

ACTIVITIES

1. Desert Habitat Container Garden- We learned about many parts of the Sonoran Desert habitat. Now we can make our own miniature habitat to represent the Sonoran Desert.

The class can build and take care of a desert container garden. Searching for 'desert terrarium' online will provide good examples to use a guideline. Here are a few hints- use an open container instead of a closed one. You can explain to students that the garden needs to be open so that it remains dry like the desert. A closed container would hold in too much moisture for desert plants.

Use a well draining soil and sand mix so that the roots don't decay. Obtain 3-5 small desert plants from a greenhouse, nursery, or the Desert Botanical Garden's Garden Shop to plant in the container. Use small figurines like lizards, birds, and scorpions to place in the habitat. The class can care for the desert garden throughout the year, taking care to give the plants good sunlight and the proper amount of water. Remind students that this container garden does not need much water because it is a desert habitat.



Cholla

2. Mirror Image Matching Game- Do you remember the names of the plants and animals we learned about? We are going to practice their names. Each of you will be assigned one desert plant or animal to draw on a sheet of paper. You also need to write its name on the paper. Then we will play a matching game using the pictures that you drew!

The purpose of this activity is to help the students learn some of the Sonoran Desert plants and animals. This is a good way to have students practice writing and reading while learning the animals and plants. This is the list of organisms from the Virtual Habitat: Saguaro, Prickly Pear, Cholla, Ocotillo, Mesquite, Palo Verde, Creosote shrub, Agave, Gila Woodpecker, Cactus Wren, Desert Tortoise, Bark Scorpion, Jackrabbit, Coyote, Spadefoot Toad, Round-Tailed Ground Squirrel, Pocket Mouse, and Spiny Lizard.

Assign each plant or animal to two students and have them each draw a picture of their desert character. So each student will draw one picture, but there will be two drawings of each character. Preferably students sitting close to one another will not draw the same character. The students should also write the name of their character on the paper.

continued



VIRTUAL HABITAT

TEACHER'S GUIDE



Dry Wash

ACTIVITIES continued

When students have finished drawing and labeling their characters, they will get up and walk around the classroom trying to find their match. Students should not shout the name of the character to find their mate. They should read the names and look at the drawings to identify their match. When the characters are paired up, each pair of students will think of one thing they learned about their character to tell the rest of the class.

If you use all the plants and animals as characters there will be 18 pairs (36 drawings) but you could also include the dry wash, butte, summer rain, and winter rain to increase the matching game to 22 pairs (44 drawings).

3. Story Time- Now that we learned about many of the plants and animals that live in the Sonoran Desert, you are each going to create a short story about one of the characters you learned about. Your story should include at least three sentences and as many pictures as you like.

The purposes of this activity are for students to practice their writing skills, to be creative, and to reflect on the Sonoran Desert plant and animal characters. Each student should write at least three sentences and use pictures to convey their story.



Desert Investigation Log

	Name
Plant Name	Cool Fact
1.	
2.	
3.	
4.	
5.	
,	
6.	
7.	
7.	
8.	
o. 	

Desert Investigation Log

	Name
Animal Name	Cool Fact
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Experiment Log

	Name
Question:	
Results:	
Draw a picture about your experiment!	
,	



TEACHER'S GUIDE FOR 1ST GRADE DISAPPEARING PUDDLE

Start Time	Time
Inches	Inches
Time	Time
Inches	Inches

Name

WHAT IS A DESERT TUTORIAL

RELEVANT ARIZONA STATE STANDARDS

Writing

S1C1: PO2 Draw pictures or storyboards about ideas generated

S1C5: PO2 Write legibly

S2C3: PO1 Create pictures and text that is expressive, individualistic, engaging, and lively

S3C2: PO1 Create expository texts through drawing and/or writing

Language Arts

S3LS-F1 Use effective vocabulary and logical organization to relate or summarize ideas, events, and other information

S3LS-F2 Give and follow multiple step directions

S4VP-F3 Access, view and respond to visual forms such as computer programs, videos, artifacts, drawings, pictures, and collages

Math

S4C4-PO2 Select the appropriate measure of accuracy: Length- inches or feet S4C4-PO7 Measure a given object using the appropriate unit of measure.

Science

S1C2: PO3 Use simple tools such as rulers, thermometers, magnifiers, and balances to collect data

S1C2: PO4 Record data from guided investigations in an organized and appropriate format

S1C4: PO2 Communicate the results of an investigation using pictures, graphs, models, and/or words

S4C1: PO1 Identify the following as characteristics of living things: Growth and development, reproduction, response to stimulus

S4C3: PO1 Compare the habitats in which plants and animals live

S6C1: PO3 Identify common uses of basic Earth Materials such as rocks, water, soil

Social Studies

S4C1: PO5 Locate physical and human features using maps, illustrations, images, or globes

S4C1: PO6 Locate Arizona on a map of the United States



WHAT IS A DESERT TUTORIAL

RELEVANT ARIZONA STATE STANDARDS

Technology

S1-1T-F2: PO2 Use multimedia resources

S1-1T-F2: PO3 Access information sources

S1-1T-F3: PO1 Operate keyboard and other common input and output

devices

S2-2T-F1: PO1 Describe and practice respect for other students while

using technology

Workplace Skills

S1-1WP-F2: PO1 Recognize the content of an oral presentation

S1-1WP-F2: PO2 Ask questions relating to content

S1-1WP-F2: PO3 State opinions relating to content

S1-1WP-F2: PO4 Develop summary of relevant content

S1-1WP-F3: PO1 Listen effectively

S1-1WP-F3: PO2 Analyze/ evaluate orally received information

S1-1WP-F3: PO3 Respond appropriately

S1-1WP-F5: PO1 Participate in groups

S1-1WP-F5: PO2 Speak to a group

S1-4WP-F1: PO1 Demonstrate characteristics of positive behavior

S1-4WP-F1: PO3 Interact collaboratively to obtain team results

S1-7WP-F2: PO2 Operate developmentally appropriate technologies to

access information

VIRTUAL HABITAT TUTORIAL

ARIZONA STATE STANDARDS

Comprehensive Health Education

5CH-F1: PO1 Describe differences between verbal and non-verbal communication

Writing

S1C1: PO2 Draw pictures or storyboards about ideas generated

S1C5: PO2 Write legibly

S2C1: PO2 Incorporate details in pictures and text.

S2C2: PO1 Demonstrate sequencing or patterning in written text or storyboards.

S2C2: PO2 Show a sense of beginning.

S2C2: PO3 Write multiple sentences in an order that supports a main idea or story

S2C3: PO1 Create pictures and text that is expressive, individualistic, engaging, and lively

S2C5: PO1 Write simple sentences.

S3C1: PO1 Write a narrative that includes: a main idea, characters, a sequence of events.

Language Arts

S3LS-F1 Use effective vocabulary and logical organization to relate or summarize ideas, events, and other information

S3LS-F2 Give and follow multiple step directions

S4VP-F3 Access, view and respond to visual forms such as computer programs, videos, artifacts, drawings, pictures, and collages

Science

S1C1: PO1 Compare common objects using multiple senses

S4C3: PO1 Compare the habitats in which plants and animals live

S4C3: PO3 Describe how plants and animals within a habitat are dependent on each other

S6C1: PO3 Identify common uses of basic Earth Materials such as rocks, water, soil

continued



VIRTUAL HABITAT **TUTORIAL**

ARIZONA STATE STANDARDS

Technology

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AMENDMENT TO STANDARDS 1st Grade Digital Desert

VIRTUAL HABITAT

EDUCATIONAL TECHNOLOGY

S2C2: PO1 Participate in a classroom learning project using digital collaborative resources.

S4C2: PO1 Participate as a group to manage a learning project and identify sources.

S6C1: PO4 Demonstrate knowledge of ergonomics and electrical safety when using computers.