

Thriving in Death Valley



Death Valley National Park

Extreme Living in Death Valley Pre- or Post-Trip Lesson Two 1 hour periods, plus additional time for research

Essential Question: How do adaptations help an animal survive in the desert?

Standard(s):

Next Generation Science Standard: Standard: 4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Common Core Standards:

W.3.7, W.4.7, W.5.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic.

W.3.8, W.4.8, W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.

Objectives:

Students will be able to:

- decide what is important for animals to survive in the desert.
- define the words habitat, adapt, and thrive.
- research animals in the desert using a variety of sources.
- develop a logical argument as to why certain animals have specific behaviors or physical features.
- use background knowledge about cause and effect to draw conclusions about how animals live in certain habitats.

Overview:

Students will research animals that live in Death Valley National Park and create a presentation about the animals' adaptations. Students will share their presentations with their classmates. After these presentations, students will compare and contrast two animals and their adaptations using a Venn diagram.

Teacher Background Information:

Death Valley National Park is home to 56 mammals, 36 reptiles, 5 amphibians, 6 fish, and nearly 400 bird species. These animals have many different adaptations for living in the desert, including ways of avoiding, heat, releasing heat, and gaining and storing water. Some desert animals (like kangaroo rats and kit foxes) avoid the heat of the day by being active at night. These animals are nocturnal. In the summer, other animals (like bighorn sheep) migrate higher up in the mountains where it is cooler. Desert tortoises spend 95% of their life in a burrow or den to escape the heat.

Animals in the desert have adaptations to help keep their bodies cool. Jackrabbits and kit foxes have large ears that help keep them cool. When a jackrabbit is in a shady area, the cooler air around their ears helps release the heat in their bodies. Animals such as the antelope squirrel and bighorn sheep have light colored fur to reflect the sun's rays. The zebra-tailed lizard has long legs to help keep its body away from the hot ground and allow cooling area to move around its body.

Desert animals also have unique adaptations for gaining and storing water. Adult desert tortoises can go years without water. They can do this by getting water from the grasses and wildflowers they eat. The tortoise can store that water in their bladder. Kangaroo rats can also live without drinking water. Kangaroo rats et water from the seeds that they eat. Roadrunners also have glands near their eyes that remove salt from their bodies, which helps them stay hydrated.

Materials:

- Animal Cards (cut apart)
- Copies of the Desert Animal Adaptations Research Worksheet for each student
- Copies of the Adaptations and Habitat Graphic Organizer for each student (optional)
- Copies of the Animal Venn Diagram Worksheet for each student

Desert Animal Research Activity Procedure:

Anticipatory Set

Make a T-Chart on the whiteboard with a marker or tape. Label one side WANTS and the other side NEEDS. Students will describe the difference between what a "want" is and what a "need" is. They should understand clearly that a need is something that is needed to survive in any particular environment. As students brainstorm help them decide where their ideas will fit. Have students turn and talk to their partner about why WANTS and NEEDS are different and how they can have an effect on the lifespan of an animal.

<u>Video</u>

"<u>Desert Animal Adaptations</u>" by Ms. Mallory Adventures https://www.youtube.com/watch?v=rvRbdbaNHPk

Vocabulary

Use and adapt the vocabulary PowerPoint presentation to introduce new definitions to the students.

Desert Animal Research Activity

- Cut out the animal cards for the students to choose from. Fold them in half and place them in a cup or bowl. Students will blindly choose their animal. Teacher can either choose to make pairs or to let students work alone. Students will use the Internet or books to research a desert animal they picked from the cup. Some students may have the same desert animal.
- 2) Give students each of the students (or pairs) a Desert Animal Adaptations worksheet to record information on. Students should have two (or more) one hour blocks to work on this assignment. At the end of the assignment students will orally present to their classmates about their animals.

If teacher has access to PebbleGo, Capstone, or Epic!, students can use those to do their research.

Compare and Contrast Adaptations Activity Procedure:

Anticipatory Set

Begin a discussion with students using the question: What do people wear when it is cold outside during winter? Students should answer coat. Then ask what they wear in summer when it is warm? They should answer shorts or something similar. Explain to the students that these are adaptations people make to live in a certain environment.

<u>Video</u>

"Desert Adaptations" by Patrick Haney

Compare and Contrast Activity:

1) Make a large chart with three sections "Animal," "Adaptations," and "Effect."

- (Optional) Give each student a copy of their own Adaptation and Habitat Graphic Organizer. Students should list two adaptations and two effects those adaptations have on the animal's life in the desert habitat.
- 3) Each student will choose one adaptation and effect for their animal and place it on the class chart.
- 4) Pair students and have the pair fill out a Venn diagram about their two different animal adaptations.
- 5) Students should be able to share with each other how the animals are alike and how they are different.

Extensions:

The teacher can create a file in Google Classroom for students to place their presentations. Students can create a PowerPoint or use Prezi to create a presentation about their desert animal. Once they upload it to Google classroom, other students can click on the animals they are interested in learning about during their science block. The students could also use these presentations to complete their Venn diagram.

These activities can also be used in conjunction with lessons about food chains. Students could identify their animals by producer, consumer, or decomposer. Students could group animals together that are herbivores, carnivores, and omnivores. Students could also create a food web using all the animals that were researched.

Vocabulary:

Habitat: the natural home or environment of an animal, plant, or other organism.

Adaptation: a change or the process of change by which an organism or species becomes better suited to its environment.

Thrive: (of a child, animal, or plant) grow or develop well or vigorously.

Assessment:

Desert Animal Research Activity

Students will be assessed on the accuracy of the information they provide. Per the Common Core writing and research standards, students should cite their sources. Students should use complete sentences in their research.

Adaptation and Habitat Graphic Organizer

Students will be assessed in the accuracy of their answers and responses to the effect the adaptation has on the animal's life in the desert habitat. Students should use complete sentences in the graphic organizer.

Compare and Contrast Activity

Students will fill in the Venn diagram with their partner. The diagrams should be assessed based on accuracy of the information. Students should have two animals listed on the diagram. The student will need to find at least one similarity between the two animals.

This lesson plan was developed through the Teacher-Ranger-Teacher program.