



Animal Adaptations

Lesson Plan

Season 2, Episode 1: (0:00–13:05)
bit.ly/steamcamp-s2-ep2

Explore how animals have adapted to the harsh Mojave Desert climate with help from the Springs Preserve.

Nevada Academic Content Standards/Next Generation Science Standards:

- K-LS1-1** Use observations to describe patterns of what plants and animals (including humans) need to survive.
- 2-LS4-1** Make observations of plants and animals to compare the diversity of life in different habitats.
- 3-LS3-2** Use evidence to support the explanation that traits can be influenced by the environment.
- 3-LS4-3** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Materials

- 80 toothpicks
- Red marker
- Green marker
- Brown marker
- Stopwatch
- Data collection chart
- Pencil

Engage:

Share the beginning of the program with students. After Carter asks, “How do animals survive in the desert?,” pause the program and ask your students the same question. Write this essential question down and record student responses to reveal students’ current knowledge, connections to the topic, and further questions they have.

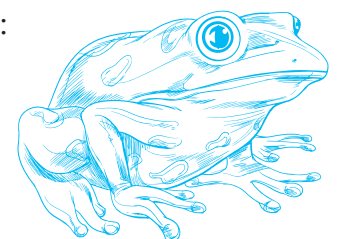
Explain:

Introduce the words: **adaptation**, **camouflage**, **spring**, **aposematic**, **sedentary**.

- Have students guess their meaning and record their ideas.
- Ask students to listen for the words as they watch the video clip, featuring Chris and Katrina, a naturalist and zoologist from the Springs Preserve.
- When they hear one of the words, encourage students to make a gesture, such as wiggling their fingers.

Pause the video at key spots to ask questions that strengthen comprehension and help children make connections.

- After Chris talks about the desert tortoise, pause the video and ask students:
 - “What is camouflage and how does it help desert tortoises survive? (camouflage helps tortoises blend into their environment to protect them from predators)
 - Where do desert tortoises spend most of their lives? Why?” (in a burrow underground to keep cool)





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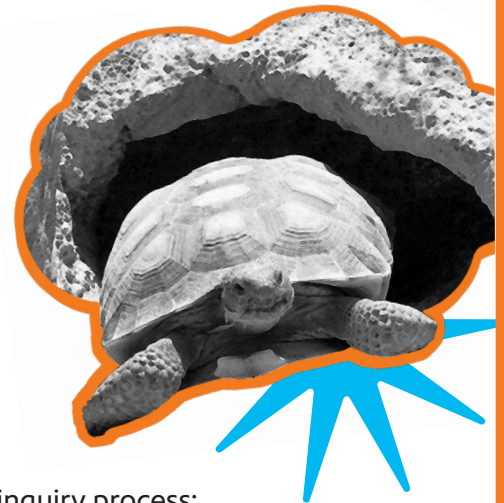
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Explain, continued:

- After Katrina talks about the relict leopard frog, pause the video and ask students:
 - Why the frogs need to live near water (frog babies, or tadpoles, are fish and need to live in water to survive)
 - What is the name of a natural water source in the desert where relict leopard frogs and their tadpoles live? (springs)
- After Chris talks about the Gila monster, pause the video and ask students:
 - What is aposematic coloring and how does it help Gila monster survive? (bright coloring that warns predators to stay away)
 - Why are Gila monsters able to survive without food for a long time? (they are sedentary, sitting still for much of their lives, to conserve energy)
- Watch the “What did we learn?” segment to reinforce the concepts

Reflect on the new knowledge students have acquired.

- Revisit the essential question and have children answer it by incorporating the vocabulary words; ask children to share any new information they acquired or additional questions they have.
- Have students think about the habitat/climate in which they live. How have humans adapted to living there? For example, students who live in the desert might mention using air conditioning in their homes, schools and businesses to keep cool.



Explore:

Use the at-home activity segment to guide students through the scientific inquiry process:

Observe and notice/Ask questions: Share the video segment in which Jessica outlines directions for investigating camouflage. When Jessica asks, “Are brown and tan animals camouflage in every environment? And can any other colors provide camouflage?” pause the video and ask students to share their opinion. Then, pause the video after Carter’s mom spreads the toothpicks in the grass. Have students predict which color toothpicks will be easier and harder for Carter to find and explain their reasoning.

Plan and predict: Have students work in pairs to gather and color the 80 toothpicks (20 red, 20 green, 20 brown, and 20 plain). Then, they will choose which habitat they will use for their investigation. It could be somewhere outside, like grass, desert landscaping, or concrete. Predict which color toothpicks will be easier and harder to find.

Investigate/collect data: Pairs will work as a team to conduct the investigation. One student will scatter the toothpicks in the habitat (about 10’ x 10’ in area) and keep time for 15 seconds. The other student will collect the toothpicks. Then, they will switch roles. Use the Toothpick Investigation Data Collection Chart to keep track of the number of “surviving” toothpicks in the habitat. *To count the number of survivors, remind the students to subtract the number collected from 20.* Help students calculate the average number of survivors of each color toothpick.



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Explore, continued:

Draw conclusions/share ideas: Analyze the information on the data collection chart and look for patterns. Consider having students draw a bar graph showing the average number of “survivors” of each color in their habitat.

- Were their original predictions correct?
- Which colors were easier to find in students’ chosen habitat?
- Which colors were harder to find?
- Are brown and tan animals, like the desert tortoise, camouflage in every environment?
- How does camouflage and color affect the survival of animals in a particular habitat?

Help students make connections between anything they learned in the video and the outcomes of this activity. What new questions do students have?

Extend:

View the book talk with Dani, a local Young People’s Librarian. If possible, check out the books Dani shared with students:

- **Desert Tortoises (Blastoff Readers, Animals of the Desert)** by Patrick Perish
- **Desert Animals (Safari Sam’s Wild Animals)** by David West
- **Laws Field Guide to the Sierra Nevada** by John Muir Laws

Encourage students to continue exploring measurement, proportion, and scale by accessing the following PBS KIDS resources:

- **Plum Landing: Discover the Desert:** bit.ly/plumlanding-desert
- **Kratts Creatures: Animal Camouflage:** bit.ly/kratts-animal-camo
- **Outdoor Nevada: Horned Lizard:** bit.ly/outdoornv-hornedlizard
- **Wild Nevada: Ash Meadows Wildlife Refuge:** bit.ly/wildnevada-ashmeadows

Share:

Visit vegaspbs.org/steamcamp to upload photos or videos of student projects, or share them with us on social media by tagging [@vegaspbs](https://twitter.com/vegaspbs).

Keep in mind, if you are submitting a video, make sure we can see what students are doing and hear what they are saying! Also, please keep videos to one minute or less.

