

Saving Desert Tortoise

An Elementary Science Lesson Plan Designed For Group Inquiry Based On The 5E Inquiry Model

GRADE LEVEL: 7th grade.

SCIENCE CONCEPT (the Main Idea or Enduring Understanding): The population of the desert tortoise has fallen; its current status is “threatened,” just one level below “endangered.” (*Desert Tortoise*, 2013). This lesson is designed to help students understand that there are many factors (environmental, natural predators, pollution...etc) that contribute to the decline of desert tortoises population.

RELATIONSHIP TO CALIFORNIA SCIENCE CONTENT STANDARDS:

7.3.e: Students know that the extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient for its survival.

LEARNING OBJECTIVES:

1. Students will list 5 causes that threaten the desert tortoise populations.

EVALUATION IDEAS:

1. formative:
 - Student-student assessment (pair-share).
 - Teacher checks for understanding (thumbs-up-thumbs-down)
2. summative:
 - Students create a poster listing 5 causes and present them to class.

CONCEPTUAL BACKGROUND: According to recent study, it’s been estimated that there are about “1000,000 individual desert tortoises existing in the Mojave and Sonoran deserts” (“*Desert Tortoise Basic*,” 2013). Under the Endangered Species Acts, desert tortoise is listed as “threatened,” it means that desert tortoises are likely to become endangered in the near future.

Key terms:

Extinction: Used to describe plants or animals that have died out.

Endangered: Used to describe plants or animals that have become rare and could die out.

Threatened: Used to describe plants or animals that will likely to become rare if not protected.

Population: A group of people or animals that live in a place.

Survival: Able to live despite difficult situations.

(Definitions paraphrased from the Merriam-Webster’s Dictionary)

LESSON IMPLEMENTATION PLAN: This lesson involves a brief introduction on the factors that might lead to a species' decline in population. The teacher will present the central question and students will carry out the investigation. Students will be divided into four-member groups; each member will be assigned the role of discussion leader, recorder, materials manager, or spokesperson.

ENGAGE –

1. Write these words on the board “threatened,” “endangered,” and “extinct”
2. Ask students to define and compare these words. How are they different? How are they similar?
3. What are some reasons that organisms might become “threatened,” “endangered,” or “extinct”?

EXPLORE –

1. Teacher presents the question “What are 5 factors that have threatened desert tortoise populations?”
2. Students get into groups of 4 and each will assume the role of discussion leader, recorder, materials manager, or spokesperson.
3. Students will log on to internet and begin their investigation.
4. Students will work on their posters to be presented to the class.
5. Teacher goes around visiting each group to make sure students are following directions and clarify any questions.

EXPLAIN –

1. Students take turns present to the classroom.
2. Teacher wraps up the classroom discussion by inviting inputs and feedbacks from students.
 - a. “What are some interesting facts that you came across?”
 - b. “Why do you think it’s important to make sure desert tortoises don’t die out?” (reviewing concepts of food chain and the ecosystem)
 - c. “Considering all of the factors that are affecting desert tortoise populations, what are some steps that we can take to protect them?”

ELABORATE –

1. Show this video: “The Heat is One: Desert Tortoises and Survival” (30minutes)
2. “The Heat is On: Desert Tortoises and Survival” is a thirty minute television program exploring the world of the Mojave Desert Tortoise. It highlights the USGS research program on the Desert Tortoise and the role of that research in managing desert environments to allow the species to recover and escape the threat of extinction. The program was originally released on the internet in segmented form in 2010. This re-release presents the program in its entirety. The program was produced jointly by the USGS Western Ecological Research Center (www.werc.usgs.gov) in cooperation with the US Fish and Wildlife Service, Desert Tortoise Recovery Office.” (“*USGS Multimedia Gallery*,” 2013)
3. <http://gallery.usgs.gov/videos/642>

EVALUATE –

(a) summative -

- At the end of the lesson, ask students to take out a piece of binder paper, list 5 causes discussed in the peer presentations, and elaborate on possible ways to protect the desert tortoises.

(b) formative – teacher checks each group to make sure students are on task.

DIFFERENTIATION PLANS:

Behavioral for Student A:

- Student will sit away from distractions or stimuli that might trigger behavior problems.

Cognitive for Student B

- Challenge with Worksheet B which invites students to do further research on desert tortoise.

Cognitive for Student C

- Teacher paraphrases instructions with student before starting this activity.

Affective for Student D

- Teacher writes directions on the board and go over the lesson objective with student to make sure he/she is comfortable participating in the classroom activities.

Language Demands for Students E, F, G

- Students complete Worksheet A (vocabulary and graphic organizer)
- Student may use a dictionary while doing internet research
- Directions are written on the board.

LIST OF MATERIALS (PER GROUP):

- Butcher paper
- Markers
- Computer with internet access (1 per group)
- Binder papers
- A container with sand
- Red or black beans (beans preferably bigger in size with some color)

DIRECTIONS OR SPECIAL INSTRUCTIONS; SAFETY CONCERNS, ETC.