

Living Antiques: Saguaros

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Grade Level 1
Duration 2 class periods

National Standards

GEOGRAPHY

Element 3: Physical Systems:

8. The characteristics and distribution of ecosystems and biomes on Earth's surface

NEXT GENERATION OF SCIENCE STANDARDS

1-LS3 Heredity:

Inheritance and Variation of Traits

1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

AZ Standards

ELA

Reading

Key Ideas and Details

1.RI.2 Identify the main topic and retell key details of a text.

Craft and Structure

1.RI.4

Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.

Writing

Text Types and Purposes

1.W.2

Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.

MATHEMATICS

Measurement and Data (MD)

1.MD.A.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. (Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.)

SCIENCE

Life Science Standards

1.L1U1.6 Observe, describe, and predict life cycles of animals and plants.

Arizona Social Science Standards

GEOGRAPHY

The use of geographic representations and tools helps individuals understand their world.

1.G1.1 Use, explore and construct maps, graphs, and other geographical representations to support content focus.

Examining human population and movement helps individuals understand past, present, and future conditions on Earth's surface.

1.G3.2 Compare places past and present as it relates to content focus.

HISTORY

The development of civilizations, societies, cultures, and innovations have influenced history and continue to impact the modern world.

1.H1.1 Explain how ideas and innovation can contribute to a community by utilizing primary sources (artifacts, photographs, newspapers, speakers) and secondary sources (biographies, stories, articles).

Patterns of social and political interactions have shaped people, places, and events throughout history and continue to shape the modern world.

1.H4.2 Draw upon fictional stories, biographies, and non-fiction/informational text to identify historical figures in your community, state, and nation and explain their significance in history and in the present day.



SIOP Elements		
<p>Preparation Adapting content Linking to background Linking to past learning Strategies used</p>	<p>Scaffolding Modeling Guided practice Independent practice Comprehensible input</p>	<p>Grouping Option Whole class Small groups Partners Independent</p>
<p>Integrating Processes Reading Writing Speaking Listening</p>	<p>Application Hands on Meaningful Linked to objectives Promotes engagement</p>	<p>Assessment Individual Group Written Oral</p>

Arizona English Language Proficiency Standards
<p>Grade 1 Basic Listening and Reading Standard 2 By the end of each language proficiency level, an English learner can determine the meaning of words and phrases in oral presentations and literary and informational text. B-1: determine the meaning of general academic, and content-specific words and phrases, and some common expressions. Speaking and Writing Standard 3 By the end of each language proficiency level, an English learner can speak and write about grade appropriate complex literary and informational texts and topics. B-1: communicate simple messages about a variety of topics, experiences, or events. B-2: add appropriate drawings or other visual displays to clarify thoughts and feelings about a variety of topics, experiences, or events. B-3: compose short written texts using appropriate conventions (narrative and informational). B-4: produce writing with appropriate organization on a variety of topics, experiences, or events using sentence frames. B-5: identify and describe similarities and differences within a text. Listening, Speaking, Reading, and Writing Standard 7 By the end of each language proficiency level, an English learner can conduct research and evaluate and communicate findings to answer questions or solve problems. B-1: record information and observations in guided notes. B-2: respond to a question or problem based on gathered information from provided source.</p>

Overview

“The saguaro (sah-WAR-o) is the largest cactus in the United States, and it is only found in the Sonoran Desert of Arizona. Saguaros are very slow-growing and long-lived. A saguaro may grow only an inch per year, but can reach a height of 50 feet. A saguaro’s arms begin to form after it is about 15 feet tall and around 75 years old. The arms sometimes grow at odd angles, giving the cactus a misshapen appearance. An average old saguaro has five arms and is 30 feet tall. The average lifespan of a saguaro is approximately 150 years of age. The largest

saguaros, with more than five arms, are estimated to be 200 years old. These plants often grow in dense saguaro “forests.” Saguaros are unique living antiques; it is illegal to harm or remove those growing in the wild, and landowners must obtain a permit to relocate or destroy a saguaro plant on their property.” www.ArizonaEdventures.com

Purpose

In this lesson students will learn about the saguaro cactus and chart the growth of the saguaro cactus on a timeline, so they can appreciate how long the



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cactus lives. Students, especially those in the American Southwest, should know about these mighty plants and help to preserve their habitats. This lesson includes strategies for diverse learners.

Key Vocabulary

seed: the small part of a plant with flowers that grows into a new plant

saguaro: a cactus that has spines, white flowers, and red fruit, and may grow up to 50 feet tall

Sonoran: a desert in the U.S. and Mexico

desert: an area land that gets very little rain and can be covered with sand

fruit: the part of a plant that has the seeds in it

blossom: a flower

Materials

- The Sonoran Desert map
https://geoalliance.asu.edu/sites/default/files/maps/Sonoran_Desert.pdf
- North America map
https://geoalliance.asu.edu/sites/default/files/maps/No_America.pdf
- Colored pencils/crayons
- Colored chalk
- Scissors
- Rulers/tape measurers
- Kite string
- Timeline Drawing worksheets (10 years to 150 years)
- Sidewalk Pictures (10 years to 150 years)
- Saguaro Timeline and Answer Key
- The Seed and the Giant Saguaro by Jennifer Ward.
- Science journals
- Vocabulary Cards
- Vocabulary Test and Answer Key
- Extension Timeline with Technology Images

Objectives

The student will be able to:

1. Recognize and describe a saguaro.
2. Locate the Sonoran Desert on a North America map.
3. Create a timeline.
4. Make and record observations.

Procedures

Prerequisites: *Students have been introduced to measuring and journal writing.*

Prior to this session: Color and tape Sidewalk Drawings in area outside of classroom.

SESSION ONE

Engage:

1. Begin the lesson by drawing a KWL chart on the whiteboard or on chart paper. Ask children to name some of the things they know about the saguaro cactus. Then ask them what they would like to learn about saguaros. As any vocabulary words are spoken in this discussion, put the word on the word wall and explain to all students what this word means. (**Preparation: Linking to background and Linking to past learning**)
2. Project the Sonoran Desert map.
https://geoalliance.asu.edu/sites/default/files/maps/Sonoran_Desert.pdf Explain how to locate the Sonoran Desert on the map. (Legend explains the shaded area delineates the Sonoran Desert.)
3. Now distribute the North America map and colored pencils/crayons to each student.
https://geoalliance.asu.edu/sites/default/files/maps/No_America.pdf
4. Have them work as partners to locate and shade in the Sonoran Desert on their maps.
(Application: Hands on)
5. Create a second KWL chart about the desert. Again introduce vocabulary words as they are spoken by the students. (**Preparation: Linking to background and Linking to past learning**)
6. Leave both KWL charts where the students can see them.

Explore:

1. Take students outside. Model measuring one of the saguaro stages of life by measuring out the string using the ruler or tape measure and marking with the colored chalk. Then cut the string. Show students how to lay the string from the edge of the sidewalk into the grass (dirt) next to the sidewalk. Then model how to draw on the Timeline Drawing worksheet the saguaro during this time of its life using the taped Sidewalk Drawings. Emphasize how carefully they need to look at the size of the man compared to the cactus and how many arms the cactus has at this life stage. (**Scaffolding: Modeling, Comprehensible input**)
2. Assign each set of partners a stage to measure and draw. (Remember to keep the students in order by 10, 20, 30 years, etc.) Distribute chalk, string and Timeline Drawing worksheets to partners Give time for partners to take their measurement, cut their string, lay the string out



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into the grass, and complete their worksheet.

(Grouping Option: Partners)

3. Ticket Out the Door: Ask questions to each partner group. Questions can include vocabulary words from the lesson, how tall a saguaro would be in their assigned time period, what is a desert, and where is the Sonoran Desert. **(Assessment: Individual or Group, Oral)**

SESSION TWO

Explain:

1. Read and discuss the book, The Seed and the Giant Saguaro by Jennifer Ward. Add to the KWL charts as they gain information from the book either about the saguaro or the desert. **(Integrating Processes: Listening, Scaffolding: Comprehensible Input)**

Elaborate:

1. If your school is near some saguaros, have students walk to this location and sketch a saguaro cactus in their science journal. If no saguaros are near the school, use pictures or videos related to the Sonoran Desert and have students do the same activity. Post the Sidewalk Pictures around the room. Have students estimate the age of the cactus and write facts about the saguaro in their science journal. **(Application: Hands on and Promotes engagement)** Again, as students discuss their observations, review vocabulary words from the lesson or add new words as they are mentioned on the word wall. **(Integrating Processes: Listening, Scaffolding: Comprehensible Input)**

Evaluate:

Have partner groups share their drawings in the correct order of the life stages of the saguaro with the class. **(Assessment: Group, Oral)** Each student should record the height of the cactus and the year on the Saguaro Timeline worksheet. Students should be able to write two to five sentences describing what they have learned about saguaros. **(Assessment: Individual, Written)**

Assessment

Reading

Vocabulary test can be given. Mastery will be considered 80% or higher.

Oral responses on the Ticket Out the Door from Session One can be assessed as satisfactory or unsatisfactory.

Mathematics and Reading

Saguaro Timeline can be graded to see if students could record the measurements correctly according to the years.

Writing and Social Studies

Written paragraphs can be graded for content. More than four correct facts about saguaros will be seen as satisfactory.

Writing and Science

Science journals can be graded for a correct likeness of a saguaro and accurate observations.

Geography

Shading of North America map for Sonoran Desert can be graded for accuracy. Shading in the southwestern part of the U.S. and northern Mexico will be seen as satisfactory.

Extensions

Give small groups a set of the photos about inventions in technology. Have them work as a group to see if they can organize the events by "date" or by "years ago."

Take images linked to inventions in technology and organize them into a timeline that incorporates the saguaro drawings.

Sources

Maps

North America <http://geoalliance.asu.edu/azga/>
Sonoran Desert <http://geoalliance.asu.edu/azga/>

Ward, Jennifer. The Seed and the Giant Saguaro, Flagstaff: Rising Moon Publishing, 2003

Sidewalk Pictures illustrated by John Gallagher

