

The Rain Saved Us – Examining Drought Impacts Yesterday and Today

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Grade Level	4
Duration	2-3 class periods

Session Two adapted from Project WET lesson: “Easy Street”

National Standards

GEOGRAPHY

Element 1: The World in Spatial Terms

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

Element 2: Places and Regions

4. The physical and human characteristics of places

Element 5: Environment and Society

15. How physical systems affect human systems

16. The changes that occur in the meaning, use, distribution, and importance of resources

Element 6: The Uses of Geography

17. How to apply geography to interpret the past

18. How to apply geography to interpret the present and plan for the future

AZ Standards

ELA

Reading

Informational Texts

Key Ideas and Details

4.RI.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text

4.RI.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text.

4.RI.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Writing

Speaking and Listening

Presentation of Knowledge and Ideas

4.SL.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

MATHEMATICS

Measurement and Data (MD)

4.MD.A.1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.

4.MD.A.2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities

Arizona Social Science Standards

GEOGRAPHY

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

4.G1.1 Use and construct maps and graphs to represent changes in the Americas over time.

Human-environment interactions are essential aspects of human life in all societies.

4.G2.1 Compare the diverse ways people or groups of people have impacted, modified, or adapted to the environment of the Americas.

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

4.G3.1 Explain how the location and use of resources affects human settlement and movement.

HISTORY

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

4.H1.1 Utilizing a variety of multi-genre primary and secondary sources, construct historical narratives about cultures,



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using diagrams such as number line diagrams that feature a measurement scale.

civilizations, and innovations in the Americas.

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

Arizona English Language Proficiency Standards

Stage III Reading

Standard 4: The student will analyze text for expression, enjoyment, and response to other related content areas. The student will demonstrate reading comprehension by:

B-6: making connections to text (i.e., text-to-self).

B-7: identifying the main idea and two-to-three details from text.

B-12: identifying the cause and effect relationship of two related events in a literary selection.

B-20: identifying content vocabulary within math, science, and social studies texts.

B-24: locating specific information from external text in nonfiction text for a specific purpose.

B-30: comparing and contrasting two items within an expository text, with instructional support.

Stage III Writing

Standard 1: The student will express his or her thinking and ideas in a variety of writing genres. The student will express his or her thinking and ideas in a variety of writing genres, as demonstrated by:

B-4: writing an expository paragraph or a simple report containing a topic sentence, supporting details, and a concluding statement using a model.

B-5: writing a summary statement containing only relevant key ideas summarizing a variety of familiar text with instructional support.

Overview

Drought has always been a natural part of the weather system. Today, however, Arizona and the Southwest are adjusting to the 'new normal' climate of prolonged drought and higher temperatures. The effects of the prolonged drought are not felt as keenly as in the past due to urbanization and modern water delivery systems such as the Central Arizona Project. In order for students to understand drought, they will read testimonies of people whose lives were greatly impacted by drought in the past. Students will then consider their own water use today.

Purpose

In this lesson, students will learn about the centrality of water to everyday life, three different kinds drought impacts, how today's water usage differs from in the past, and making decisions about water usage. This lesson includes strategies for diverse learners (ELLs).

Key Vocabulary

drought: a long period of time when there is very little rain or snow

testimony: a story told by the person who experienced it

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pasture: an area of grass where cattle eat

haul: to carry a long way

anxiety: a nervous feeling

economic: relating to money

social: relating to people

environmental: relating to the earth

Materials

- The Rain Saved Us PowerPoint presentation.
- Testimonies A, B, and C (oral histories)
- Chart paper
- Drought Testimony/Drought Impact Student Response Page and Answer Key
- Water Use in the Past worksheet and Answer Key
- Water Use in the Present worksheet and Answer Key
- Vocabulary Test and Answer Key
- Vocabulary Cards

Objectives

The student will be able to:

- Explain the cause and effects of drought.
- Give examples of how physical systems affect human systems.
- Perform calculations to determine water usage.
- Convert measurements of volume.

Procedures

Prior to the Lesson: Print off the Vocabulary Cards and distribute a set to students who might need additional help in becoming more proficient in English or project to whole class and discuss the words they will be using in the lesson.

SESSION ONE

Engage:

a. Begin the lesson by showing The Rain Saved Us PowerPoint. On **Slide 2** (Think About Water), discuss the following: “Did anyone use any water this morning? If you did, raise your hand. Did anyone not have water this morning? If you turned on the faucet and no water came out, please raise your hand. It’s pretty amazing that no one raised their hand. Why is it amazing?” (**Preparation:**

Linking to background)

b. At **Slide 3** (drought map), discuss the following: “Here’s a map showing something very important. How do we know what this map is telling us? (By the title.) (**Application: Promotes engagement**) This map shows that in Arizona, there is a drought right now. What is a drought? (A period of time when

there is little to no rainfall.) In fact, we have been in a drought for over 20 years! So, we are very lucky that even though there hasn’t been much rain, when we turn on our faucets, we have water. In other words, we don’t experience the effects of the drought.”

Ask: “Why don’t we experience the effects of drought? Because even though we’re not getting enough rain, we’re getting water from somewhere. Where does our water come from?” (**Integrating Processes: Listening**) (**Application: Linked to objectives**)

c. After **Slides 4, 5 and 6** (CAP), discuss the following: “Some of Arizona’s water comes from the Central Arizona Project, which is essentially a big canal that brings water from the Colorado River to different parts of Central and Southern Arizona. We are now very dependent on the water from the Colorado River. Without that big canal and the water from the Colorado River we probably couldn’t live here. Of course, The Central Arizona Project hasn’t been here forever. The project started in 1973 and was completed 20 years later in 1993.” (**Integrating Processes: Listening**) (**Application: Linked to objectives**)

d. At **Slide 7**, say: “We know that there is a drought happening now. What happens during a drought? What does it look like? The evidence of drought is mostly seen outside of the cities. These images are from just a couple of years ago, 2011. Cattle that depend on naturally occurring water holes become very stressed. Many cattle die from thirst and lack of pasture.” (**Integrating Processes: Listening**) (**Application: Linked to objectives**)

e. At **Slide 8** say: “The grass they eat is dead from lack of rain, so the cattle lose a lot of weight. The rancher could buy hay to feed them, but that gets very expensive very quickly. The rancher is often forced to sell the cattle before there is nothing left of them.” (**Integrating Processes: Listening**) (**Application: Linked to objectives**)

f. At **Slide 9** say: “Farmers’ crops die from lack of rain. The farmers lose a lot of money and may go bankrupt during a long drought. Drought causes food scarcity which causes food prices to rise.”

(**Integrating Processes: Listening**) (**Application: Linked to objectives**)

g. At **Slide 10** discuss: “Do you think droughts happened in the past? Yes, they did. Now just imagine that you lived around Tucson 100 years ago. Like most people did then, you made your living by farming or by being a cattle rancher. There was no canal that brought water. The only water you had came from the sky or wells.” (**Integrating Processes: Listening**) (**Application: Linked to objectives**)

h. Then say: “What do you think it was like to experience a drought in the past? Droughts are not



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like floods or fires where the damage is dramatic and immediate. What are the impacts of a long-term drought?”

I. Tell students they will be reading short testimonies from real people to analyze how drought affects the land and the people living there. Then explain the vocabulary terms associated with this lesson. Explain that the terms: social, environmental and economic; will be discussed later.

Explore: Jigsaw Activity

- Divide students into roughly three equal “expert” groups (**Grouping Option: Small groups**)
- Show **Slide 11** (Oral History), explain that the formats are different because two of the testimonies (primary sources) are taken from oral histories and one is from an autobiography.
- Distribute the Testimonies A, B, and C so that each group has a different one. Give each group a set of the vocabulary cards. (**Application: Promotes engagement**)
- Ask them to read the testimonies to themselves first and then the groups can read out loud together. (**Integrating Process: Reading**)
- Working as a group, each student will complete the Drought Testimony/Drought Impact Student Response Page for his or her assigned testimony. (**Integrating Process: Writing**) (**Grouping Option: Small groups**)
- Have students share their answers for the student response page one more time to make sure they all understand the story and the drought impacts. Their job is to be the expert about this particular story. (**Grouping Option: Small groups**) (**Scaffolding: Comprehensible input**)
- Rearrange the groups. Now there will be three students per group, each one with a different testimony. Have students take turns sharing their information so that all students have the Drought Testimony/Drought Impact Student Response Page completed. (**Grouping Option: Small groups**) (**Integrating Processes: Listening and Writing**)

Explain: Drought Effects

- Show **Slide 12** and say: “The effects of droughts can be placed into three categories: economic, environmental, and social. Discuss these vocabulary words. Briefly present each of the Types of Drought Impact (**Slides 13, 14, 15**) in order for student to hear a few examples of the different drought impacts.
- Have students look at their student response pages they just completed. Ask them to identify which question talks about economic impact (Q. 3), environmental (Q 4) and social (Q 5).

Elaborate:

- Students in their small groups label a chart with the headings: Economic, Environmental and Social. Show **Slide 16** for an example.
- Working as a group, students place the effects that were noted in the testimonies into their appropriate column. For example, in the Social column, write Sandra Day O’Conner was anxious about the rain not coming. (**Integrating Process: Speaking and Listening**)
- Once the examples from the testimonies have been listed, students can write examples from their own lives if they have been impacted by drought. For instance, did they ever have to haul water? Show **Slide 17** for an example. (**Preparation: Linking to Background**)
- Have students share their answers with the class. Discuss their reactions to the testimonies. (**Integrating Process: Speaking and Listening**)

Evaluate:

- Students will write a paragraph in which they summarize the specific effects drought had on people’s lives in the past. This can be done individually or as a group. (**Integrating Process: Writing**) (**Assessment: Written, Individual or Group**)

SESSION TWO

Prerequisite Skill: Students know how to change quarts into gallons.

Engage:

- “It’s very easy to take water for granted. Why do you think that is?” (We don’t have to work to get water. It’s always available.)
- Ask: “How much water do you think you use in a day? Keeping in mind that droughts have always happened and will continue to happen, we’re going to look at some stories to compare water usage. We’ll use this data to help us think about changes that might be necessary to save water during a drought.”

Explore:

- Begin with the Water Use in the Past worksheet. Review with students how to convert quarts into gallons. (**Preparation: Linking to Past Knowledge**)
- Students can work independently, or in groups. (**Grouping Option: Small groups or independent**)
- Review answers as a class. (**Integrating Process: Speaking and Listening**)
- Have students as a whole group or individually, complete the Water Use in the Present worksheet. (**Grouping Option: Small groups or independent**)

Explain:



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a. Discuss results as a class.

(Grouping Option: Whole class)

Potential discussion questions:

- Would a family in 1890 use as much water as we use today? List several reasons why they would or would not.
- Do students think they would alter the amount of water they use every day if they had to haul it themselves?

Elaborate:

a. Say: Today, the amount of water available to use for our personal use seems unlimited. However, in the future this may not be true. Because of the prolonged drought and the ever-increasing amount of water people use, the amount of water in the Colorado River may not be enough to meet everyone's needs. This newspaper article talks about how the river's water will be reallocated.

http://azstarnet.com/news/local/feds-cut-colorado-river-releases-cap-shortage-risks-increase/article_76565a8b-c0e6-513e-a882-467cdfb7af86.html

Assessment

Geography and Reading

The Drought Testimony/Drought Impact Student Response Page can be graded for accuracy. A score of 80% or higher will be seen as mastery.

The Vocabulary Test can be given over the vocabulary terms used in this lesson. Mastery will be seen as 80% or higher on the vocabulary test.

Mathematics

The Water Use in the Past worksheet and the Water Use in the Present worksheet can be graded for accuracy. A score of 80% or higher will be seen as mastery.

Writing

The paragraph summarizing the effects of drought on people can be graded for Ideas and Organization using the 6 Trait Writing Rubric. A score of 4 or higher will be seen as mastery.

Extensions

Read novel The Time it Never Rained by Elmer Kelton about Texas's seven-year drought in the 1950s.

Sources

National Drought Mitigation Center – Types of Drought Impacts

<https://drought.unl.edu/Education/DroughtforKids.aspx>

Lazy B: Growing up on a Cattle Ranch in the American Southwest by Sandra Day O'Connor and H.Allan Day. Random House, New York. 2002.

Beloved Land: An Oral History of Mexican Americans in Southern Arizona. Collected and edited by Patricia Preciado Martin. University of Arizona Press: Tucson. 2004