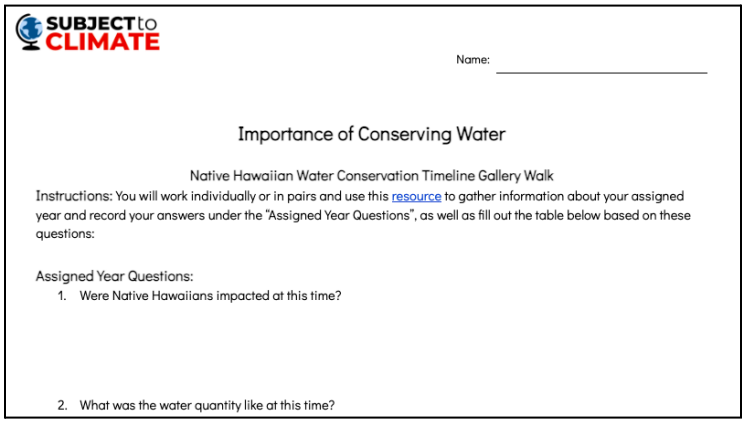
Importance of Conserving Water

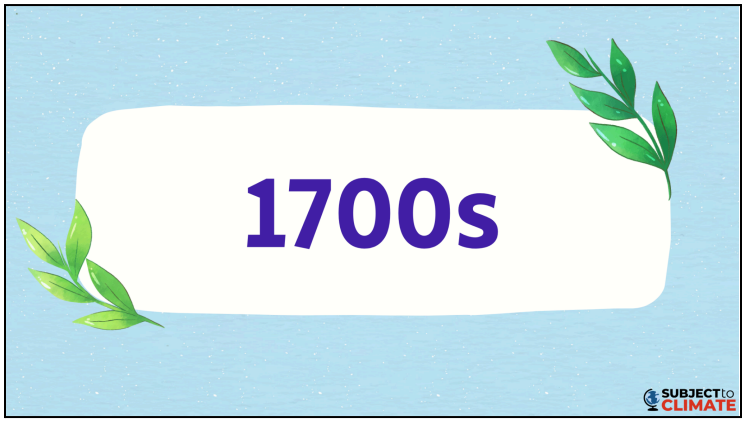
Introduction

Created By	Clarissa Torres
Subjects	English Language Arts, Social Studies
Grade Level	6th, 7th, 8th
Duration	100 minutes
Standards	**Primary Standards** College, Career, & Civic Life (C3) Standards • D1.1.6-8. Explain how a question represents key ideas in the field. • D2.Civ.12.6-8. Assess specific rules and laws (both actual and proposed) as means of addressing public problems. • D2.Civ.13.6-8. Analyze the purposes, implementation, and consequences of public policies in multiple settings. • D2.Civ.14.6-8. Compare historical and contemporary means of changing societies, and promoting the common good. Common Core English Language Arts Standards (CCSS.ELA) • CCSS.ELA-LITERACY.RI.6.7 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. **Supporting Standards** HĀ-BREATH Framework • HĀ.6.f: Hawai'i: Compare and contrast different points of views, cultures, and their contributions. • HĀ.1.g: Belonging: Understand how actions affect others.
Synopsis	In this lesson, students learn about the importance of water conservation as it relates to a changing climate, create a timeline of Native Hawaiian sustainability practices, and promote a law to address water conservation in their community. **Step 1 - Inquire:** Students learn about the importance of water conservation. **Step 2 - Investigate:** Students learn where their drinking water comes from, calculate their water footprint, and learn about Native Hawaiian sustainability practices to conserve water. **Step 3 - Inspire:** Students review past water conservation policies as inspiration for

	creating and promoting new conservation policies.
Essential Questions	• How have local and national water conservation efforts evolved over time? • How is climate change related to water scarcity? • How can Native Hawaiian sustainability practices be adapted to address global water scarcity and climate change?
Learning Outcomes	Students will be able to: • Define the limits of fresh water as a natural resource. • Identify local sources of drinking water. • Create a timeline of Native Hawaiian sustainability practices that conserve water. • State the relationship between climate change and water scarcity. • Write and promote a law focused on water conservation.

Accompanying Materials

	Teacher Slideshow 
	Student Document 

	Timeline Cards 

Lesson Plan

Inquire
~15 minutes
	• Teacher displays six clear containers of water. Alternatively, teachers can display the image from the Teacher Slideshow. Each clear container is labeled to show the amount of water and its source:
	  ○ Container 1: Oceans (970 mL)
	  ○ Container 2: Groundwater (9 mL)
	  ○ Container 3: Lakes (0.08 mL)
	  ○ Container 4: Ice glaciers (20.6 mL)
	  ○ Container 5: Swamps (0.01 mL- 5 drops)
	  ○ Container 6: Rivers (0.002 mL- 1 drop)
	• Teacher tells the students that the six containers represent the Earth's total water supply.
	• Students answer the following reflection questions:
	  ○ Which containers represent fresh water? Which containers represent salt water?
	  ○ If the ocean represents 97% of Earth's water, how much of the water on Earth is fresh water?
	  ○ What do we use fresh water for? Example answers: drinking, agriculture
	  ○ What solutions would you recommend to conserve our limited amount of fresh water?
	  ○ How does this apply to the real world?

Investigate
~40 minutes
	• Students learn where their drinking water comes from by exploring the website My Tap Water and typing in their zip code and other zip codes of interest.
	• Students discuss the following questions as a class:
	  ○ Where does your water come from?
	  ○ How does your household try to conserve water?
	  ○ What activities use the most water in your household?

	○ How do you think a state like Hawai'i should manage drinking water for its people? ● Students work individually or in pairs to build a Native Hawaiian Water Conservation Timeline. ○ Students choose or are assigned one of the following time periods: ancient times, 1700s, 1800s, 1913–1917, 1920s, 1950s, 1970s, 1980s–Present. Note: Teacher can divide the class into seven groups or repeat time periods with smaller groups of students. ○ Students use this resource to gather information about their assigned year and record their answers in the Assigned Year Questions section of their Student Document. ○ Students tape their Assigned Year Questions sheet under the posted Timeline Cards to create a class timeline. ● Students walk around in a gallery walk formation to gather information for each time period and fill out the chart in their Student Document. ● Students pair up and answer the following reflection questions on their Student Document. Note: Any of the questions can be used as a formative assessment or an exit ticket. ○ Where did Native Hawaiians get their drinking water and why did they want to conserve their drinking water? ○ How did humans impact the abundance of fresh water in Hawai'i? ○ How did the Westerners impact the Native Hawaiians' way of life? ○ Why is it important to conserve water? ○ Provide one example of how Native Hawaiians used sustainable practices in their environment. ● Students have a class discussion about their responses.
Inspire **~45 minutes**	● Students discuss their answers to the question, "In your own words, how would you explain water scarcity?" ● Students think-pair-share the question: "What do you think is the main reason water scarcity is an issue?" ● Students watch a video about the relationship between climate change and water scarcity. After watching the video, students discuss the question, "How is climate change related to water scarcity?" Optional: Students can write a response to the question in their Student Document. ● Students watch a video about environmental law and its importance in environmental science. While watching, students write one fact, one thing they learned, and one question in their Student Document. ● Students share their questions with a partner and think-pair-share the following: ○ How does your question represent a key idea in environmental law? ○ How can your question help address issues in water efficiency? ○ With your question in mind, can you think of a way that a law could help conserve water? ● Teacher shows students this infographic and tells them that the Alliance for Water Efficiency rates the U.S. states based on the progress the state has made to implement laws and policies to conserve water and be sustainable.

- Based on the infographic, students make observations and share how the information can help answer the question they identified.
- Students review the following resources before they begin creating their new law pitch:
    - Law Example 1: California's Sustainable Groundwater Management Act
    - Law Example 2: Nevada's Nonfunctional Turf Removal Legislation
    - Law Example 3: Statewide Laws
- Students analyze each law and answer the following questions in the chart on the Student Document:
    - How is the law beneficial?
    - What are the potential challenges to implementing this law in your community?
    - How would you improve the law?
    - Who in your community would you reach out to with your improvement idea?
- Students have a class discussion about their research analysis.
- Teacher explains that students will create a new water conservation law based on the following prompt: "Your community has been impacted by water scarcity and needs to create a new water conservation law that will help with the problem." Students can refer back to their questions, Student Documents, or any other resource from this lesson for support.
- Students respond to the following prompts in their Student Document:
    - What's your new law?
    - What scientific data from a successful water conservation law are you using to support your idea?
    - Write a creative pitch or public service announcement (PSA) to share your new water conservation law.
    - Research a local organization that you can send your law pitch to, or identify two places in your community where you can share your PSA.
- Optional Activity: Students email their law pitch to their chosen organization with approval from the teacher. The email should include the following:
    - An example of a successful water conservation law
    - Evidence and reasoning on why similar laws have been successful
    - The pitch on why their law could help the local community
- As a class, students share the laws that they created and discuss the following questions:
    - What is your water conservation law proposal and how could it benefit your community?
    - How would you feel if your law got approved for your community?
    - How do you think your community would feel about or respond to your law?
    - What do you think would be needed in order to implement this new law successfully?
- The following questions can used for a whole class discussion, exit ticket, or formative assessment:
    - How can we fix the global issue of water scarcity?

	○ How can Native Hawaiian sustainability practices be adapted to address global water scarcity and climate change? ○ How did the process of writing a new law help you understand the issues surrounding water scarcity?

Teaching Tips

Positives	• This lesson aligns with Hawai'i's Nā Hopena A'o HĀ-BREATH Framework. • Students observe the importance of water conservation with digital and non-digital resources. • Students observe how Native Hawaiians conserve water and analyze how humans have impacted freshwater sources. • Students use their creativity to develop a water conservation law for their community based on previous water conservation laws. • This lesson can be taught in a social studies classroom discussing civics or Indigenous communities.
Additional Prerequisites	• Teacher can print the Timeline Cards in advance and tape them around the classroom. • Teacher will need to print the Student Documents in advance because students will tape their responses to the Assigned Year Questions to the wall for the gallery walk.
Differentiation	• Teacher can provide students with a time limit for the gallery walk. • Students can work individually or in pairs during the Investigate and Inspire sections. • Optional activity: Students can evaluate how much water they use at home by comparing their family's water bill to water usage in the average home. Students can create a family goal to reduce water usage, discuss and implement solutions, and observe if the family's water usage decreases. • Optional Activity: Students can compare Hawai'i's rating with other states using this resource.