LESSON 1 Water in My Life

Lesson at a Glance

This lesson introduces the unit by calling attention to the importance of water in daily life. It also establishes *schema* for learning about water, the water cycle, and the need to conserve water. Students chart their water usage over a one-day period and compare their water use to a classmate's, write about their water usage and how it might change in a drought, and create a set of water vocabulary flash cards to begin developing a working vocabulary of water-related words that they continue adding to throughout this unit.

Lesson Duration

Two 45-minute periods
(Allow 3 days between the two periods.)

Essential Question(s)

Why is water important to my life?
How much water do I use in my everyday activities?

Key Concepts

- Water is the essence of life on Earth because all living things need water to survive.
- To the ancient Hawaiians, water was very important; they respected and protected this valuable resource.
- By examining our daily water consumption, we can see its importance in our own lives.

Instructional Objectives

- I can collect, input, and analyze data in graph and table formats about my water usage.
- I can write paragraphs using new vocabulary from this lesson that describes why water is so important.

Related HCPSIII Benchmark(s):

Science SC.3.1.2
Safely collect and analyze data to answer a question.

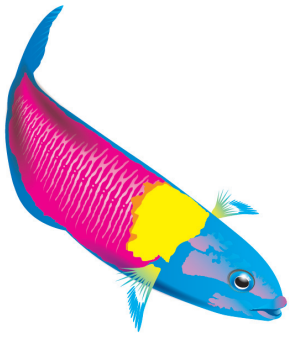
Language Arts LA 3.1.3
Use new grade-appropriate vocabulary.

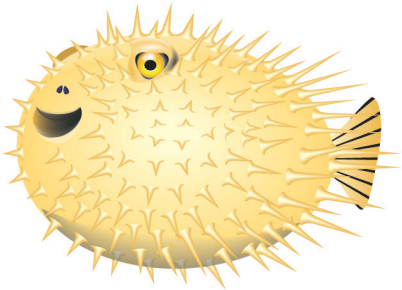
Language Arts LA.3.5.3
Group related ideas into paragraphs.

Math MA 3.11.1
Pose questions, collect data using surveys, and organize the data into tables and graphs.

Math MA 3.11.2
Organize and represent data in more than one way (e.g. tallies).

Math MA 3.13.1
Answer questions based on data represented in graphs.





Assessment Tools

Benchmark Rubric:

Topic		**Scientific Inquiry**	
Benchmark SC.3.1.2		Safely collect and analyze data to answer a question	
Rubric			
Advanced	**Proficient**	**Partially Proficient**	**Novice**
Summarize and share analysis of data collected safely to answer a question	Safely collect and analyze data to answer a question	With assistance, safely collect and analyze data	With assistance, safely collect data and attempt to analyze data

Topic		**Vocabulary and Concept Development**	
Benchmark LA.3.1.3		Use new grade-appropriate vocabulary, including homophones and homographs, introduced in stories, informational texts, word study, and reading	
Rubric			
Advanced	**Proficient**	**Partially Proficient**	**Novice**
Use new grade-appropriate vocabulary, including homophones and homographs, with precision, fluency, and accuracy	Use new grade-appropriate vocabulary, including homophones and homographs, with no significant errors	Use new grade-appropriate vocabulary, including homophones and homographs, with difficulty and a few significant and/or many minor errors	Use new grade-appropriate vocabulary, including homophones and homographs, with great difficulty and/or many significant errors

Topic		**Design**	
Benchmark LA.3.5.3		Group related ideas into paragraphs	
Rubric			
Advanced	**Proficient**	**Partially Proficient**	**Novice**
Group related ideas into paragraphs to create a clear and logical organization that guides the reader	Group related ideas into paragraphs	Group some related ideas into paragraphs, but the relationship between other ideas may be superficial or unclear	Group very few related ideas into paragraphs

Topic		**Data Collection and Representation**	
Benchmark MA.3.11.1		Pose questions, collect data using surveys, and organize the data into tables and graphs	
Rubric			
Advanced	**Proficient**	**Partially Proficient**	**Novice**
Pose meaningful questions, collect data using surveys, and effectively and accurately organize the data into tables and graphs	Pose questions, collect data using surveys, and organize the data into tables and graphs, with no significant errors	Pose questions, collect data using surveys, and organize the data into tables and graphs, with a few significant errors	Pose questions, collect data using surveys, and organize the data into tables and graphs, with many significant errors

Topic		**Data Collection and Representation**	
Benchmark MA.3.11.2		Organize and represent data in more than one way (e.g., tallies, chart, tables, bar graphs, line plots, line graphs)	
Rubric			
Advanced	**Proficient**	**Partially Proficient**	**Novice**
Strategically and effectively organize data, and accurately represent data in more than one way	Organize and represent data in more than one way, with no significant errors	Organize and represent data in more than one way, with a few significant errors	Organize and represent data in more than one way, with many significant errors

Topic		Predictions and Inferences	
Benchmark MA.3.13.1		Answer questions based on data represented in graphs	
Rubric			
Advanced	**Proficient**	**Partially Proficient**	**Novice**
Answer questions based on data represented in graphs, with accuracy, and effectively justify the answer	Answer questions based on data represented in graphs, with no significant error	Answer questions based on data represented in graphs, with a few significant errors	Answer questions based on data represented in graphs, with many significant errors

Assessment/Evidence Pieces

Lesson
- How much water do I use? Water Use Log student worksheet
- Students T chart on Water Users
- Student writing about water usage and how it might change in a drought
- Word wall (ongoing, formative)

Materials Needed

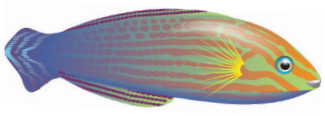
Teacher	Class	Group	Student
• One 1-gallon jug filled with water	• None	• None	Optional: 30 3x5 inch index cards per student, hole punch top left corner, fasten cards together with ring through punched hole

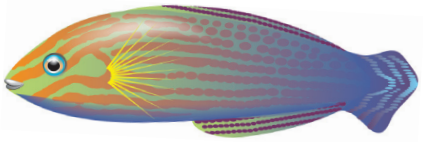
Instructional Resources

Teacher Reading: *Hawaiians and Water*
Student Worksheet*: How much water do I use? Water Use Log*

Student Vocabulary Words

wai: Hawaiian word for water.
water conservation: the careful preservation and protection of water.
water consumption: water that is used for drinking, cooking, washing, and others.





Lesson Plan

Lesson Preparation

Note: Because the water-use monitoring and recording takes at least a week to complete, you can move on to the next lessons while the students continue to collect data at home.

- Review the Science Background provided in the Unit Overview and the Teacher Reading *Hawaiians and Water.*
- Make copies of student worksheet *How much water do I use? Water Use Log,* one per student.
- Select a 3-day period for students to monitor and record observations in their *Water Use Log.*
- Allocate wall space for a *Water Bulletin Board.* Allow sufficient room to add posted material from each of the lessons in the unit.

I. Water Use in the Hawaiian Islands

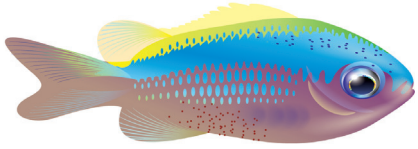
A. Introduce the unit by sharing information from the *Hawaiians and Water* Teacher Background. Teachers may want to present this in storytelling fashion in the tradition of Hawaiian *mo'olelo*. During the story be sure to refer to the vocabulary words for this lesson. Point them out and explain their meanings to the students.

B. Draw a Venn diagram on the board. Label one circle "Water Usage in Ancient Hawai'i" and the other circle "Water Usage in Modern Hawai'i."Invite students to share their understanding of the main ideas from the *Hawaiians and Water* presentation. Help students to differentiate the mythology from the beliefs, values, and water practices which emerged from those myths. Guide the discussion to focus student attention on key concepts (importance of water, uses of water, water users, etc.) and values. Try to elicit responses which draw comparisons and contrasts between water usage in ancient Hawai'i and modern Hawai'i.

(NOTE: Maintain this Venn diagram by revisiting it to make additions as the class progresses through the unit. Student responses can be used to assess student understanding of water, water cycle, water use, and water conservation.)

C. Divide students into small groups or pairs. Have each group on a sheet of notebook paper create a T chart. The left column of the chart should read *Water Users* and the right column should be labeled *How is water used?* Draw students' attention to the list of water users in modern Hawai'i they identified in part A of this lesson. Have each group select five users from the Venn diagram and record those in the first column of the T chart under *Water Users*. The teacher may want to direct students to place certain users on their charts to insure a good cross-section of water users and uses (i.e., residences, schools, businesses, golf courses, farms, etc.)

D. The student groups discuss how water is used by each type of user identified in Step C. They record their ideas in the second column of the chart entitled *How is water used?* After about fifteen minutes, the teacher convenes the class and has each group share their responses. The teacher may want to record responses on a class wall chart. The T chart may be used as an assessment tool for this portion of the lesson.

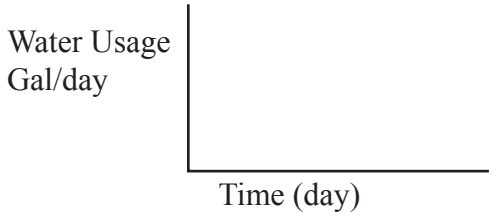


II. *Individual Water Use*

A. Ask students the following question: How much water do they actually use, and how would they monitor their own water use? Explain that water usage can be measured in gallons. Demonstrate how much water is in a gallon. Here you might want to pour water from cups or glasses, water bottles or soda bottles into a gallon jug to help students envision water quantities.

B. Give each student a copy of the worksheet *How much water do I use? Water Use Log* to determine his/her own daily water consumption. Review the instructions with students. Inform students that they are to record how much water they use at home for three days. Explain that they will use the log in class.

C. After the three day period, have students make bar graphs based on their data. Have them work in groups to review each other's logs and compare how they used water. Instruct them to look for differences and similarities in how each of them used water. Additionally, have students identify situations where water may have been wasted, and where water could have been conserved.



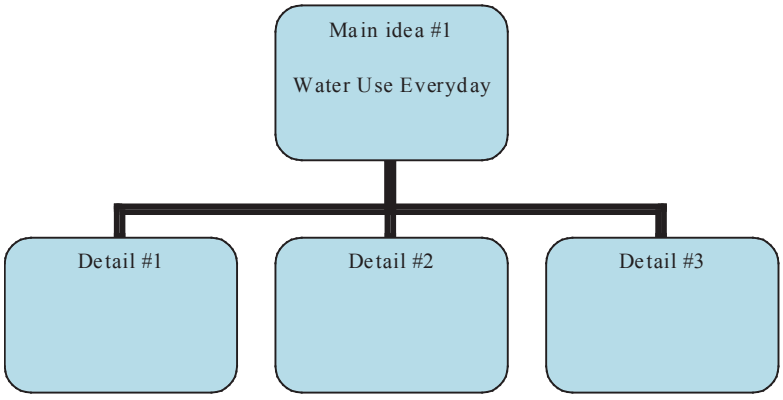
D. Discuss findings and conclusions as a class to answer the question. Have students write a concluding statement about their own water use.

III. *Imaginary Water Shortage*

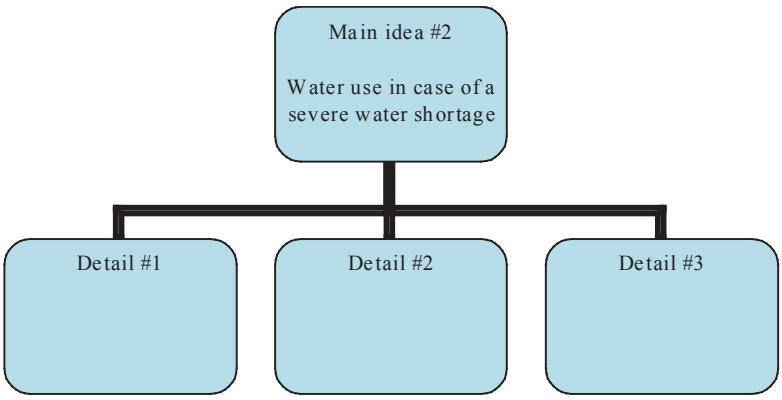
A. Engage students in an "Imagine If" scenario where there was a severe water shortage. Say, "Imagine that it has just been announced on the news there is a severe water shortage and that for the next year every person will only be allowed to use 5 gallons of water per day, and businesses will only be allowed to use water from 8 a.m. to 9 a.m. It is suggested that humans should drink 64 ounces of water a day, that's half a gallon right there!" Suggest these follow-up questions to help them develop their thoughts. (Teacher may want to write the questions up on the board for student's reference as they write.) What would happen to them? How much water do they really need to survive each day? Is one gallon enough? What could they do to make sure they could survive with a 1-gallon ration of water?

B. Have students write two paragraphs: one on how they use water every day, and one on how they could change their water usage habits if there were a severe water shortage. Ask students to use the new vocabulary words for this lesson in their writing. Suggest that students use a graphic organizer to develop their ideas.

Example Graphic Organizer:



Example Graphic Organizer Continued:



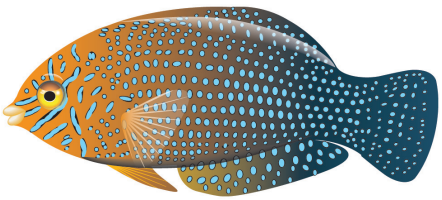
IV. *Word Wall: Water-Related Vocabulary*

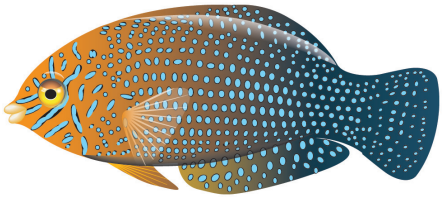
A. Create a word wall incorporating water-related vocabulary. Discuss words as they are introduced throughout the unit to allow students to construct meaning and to facilitate usage. Teachers can use words for word study and vocabulary development activities. Include Hawaiian words and terminology (i.e., *wai, wai ola*).

B. Optional: Make available 3 x 5 inch index cards with holes punched in one corner for fastening with a ring or string. (Approximately 30 cards per students if they create a card for every water-related word that comes up in this unit.) Have students maintain their own "word banks" by making individual vocabulary cards. Students can add cards as they acquire new water-related vocabulary through this unit. They should write new vocabulary words and their definitions on these cards. They can refer to them as they go through the unit making revisions as their understanding is refined and clarified.

Extended Activities

1. Integrate the following reading into this lesson, or add these books to your classroom library for the duration of the unit: Wick, W. (1997). *Water, Water Everywhere*. Danbury, CT: Scholastic Press.





LESSON 1 Teacher Reading

Hawaiians and Water

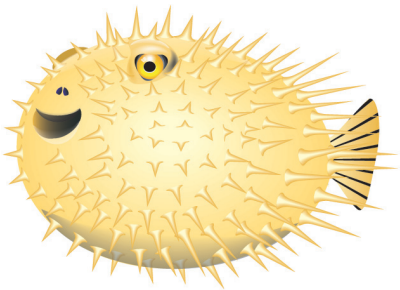
Water is the essential component of all of life. It makes up 70% of the Earth's surface! All living things, including plants, animals, and humans need water for survival. In fact, the human body is made up of about 60% water.

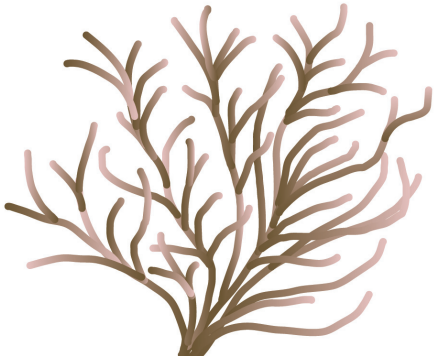
To the ancient Hawaiians, water was the basis of all of life. It was considered one of the gods' greatest gifts because it enabled birth, growth, and prosperity, and because it was essential to both physical and spiritual well-being. In fact, every Hawaiian, regardless of class or occupation, took an active part in maintaining and conserving water.

The Hawaiian gods of water were Kane and Kanaloa. They traveled around the Hawaiian Islands bringing water and creating water sources to help living things. When they got thirsty, they would plunge a digging staff into the Earth and bring forth water to drink. It was said that Kane was gruff and impatient so the water that he drew from the Earth rumbled and roared in the form of large rivers and streams. Whereas Kanaloa was said to be very passive and easy-going and so he was responsible for calmer water sources, such as springs and pools.

Lono was another of Hawai'i's water gods. He was the god of rain clouds, the sea, agriculture, and productivity. The Hawaiians honored him in celebrations, and thanked him during the rainy season (*Ho'oilo*) for continuing the productiveness and fertility of land and sea.

The term *ka wai ola o Kane*, meaning Life-Giving Waters of Kane, reflects the special link between the divine and all life forms in nature. Hawaiians believed that the gods would always bless the Earth with water as long as water was used with respect, and water sources were well cared for.





LESSON 1

Name:_____ **Date:**_____

How much water do I use?

Water Use Log

Instructions:

Step 1: Review the information about *typical* water consumption per activity as shown in Columns 1 and 2.

Step 2: Track your activities throughout the day by making tally marks in Column 3 of the table.

Step 3: At the end of your 3-day period, add up your score.

Column 1: Use	Column 2: Average, Daily Water Use In Gallons per day	Column 3: My Daily Use (If you don't do dishes or wash clothes, indicate if someone else did, and include the total in this column.)			
		Day 1	Day 2	Day 3	Total for 3 days
Drinking and cooking	**2**				
Flushing toilets	**6**				
Taking a shower	**15**				
Taking a bath	**30**				
Washing dishes by hand	**30**				
Washing dishes by dishwasher (one load)	**16**				
Washing clothes (one machine load)	**60**				
Watering lawn and garden or washing car 10 (per minute)					
DAILY TOTALS Add up each day here.					

My total water usage was: _____!

My average water usage was: _____!