

EXTENSION LESSON

(OPTIONAL)

In Lesson 1, students may mention some recreational activities as a reason for the need for weather forecasts. If the teacher desires, these recreational activities may be used to include an extension lesson for the students. If students research any recreational activity that was used in ancient Hawai‘i, one of the HCPS III Grade 4 Social Studies benchmarks may apply.

*Optional: Although this lesson is written for surfing, any form of recreational activity may be used in lieu of surfing. This is so that students are able to complete the project based on their interests.

*Note: some of the websites are not .edu or .gov, so a discussion on the accuracy and reliability of websites might be useful in this extension lesson.

Lesson at a Glance

In this lesson, students track the history of surfing from early documentation of *he‘e nalu* in ancient **Hawai‘i** to current times. Students create a storyboard by making drawings that show the evolution of surfing and surfboard design technology.

Lesson Duration

Three 45-minute periods

Essential Question(s)

What are the origins of surfing and how has it evolved from ancient Hawaiian times to the present?

How has technology enabled surfing to evolve over time?

How has surfing contributed to the economy of **Hawai‘i**?

Key Concepts

- Early Hawaiians surfed and the sport became nearly extinct until the cultural revival during the *King Kalakaua* era.
- Today, surfing is a popular recreational activity here in **Hawai‘i** and all over the globe, and surfing has become an internationally competitive sport.
- Technology has changed surfing.
- Surfing is economically important to **Hawai‘i**.

Instructional Objectives

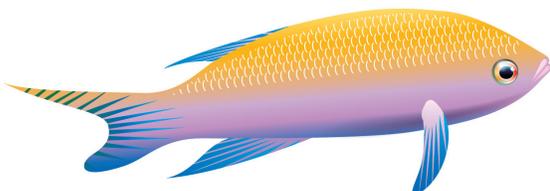
- I can develop a timeline of the history of surfing from ancient **Hawai‘i** to current times documenting the evolution of surfboard designs.
- I can identify how technology has enabled surfing to evolve in Hawai‘i.
- I can give at least two examples of how surfing contributes to the economy of Hawai‘i.

Related HCPSIII Benchmark(s):

Science SC.4.2.1
Describe how the use of technology has influenced the economy, demography, and environment of Hawai‘i.

Social Studies SS.4.3.1
Explain the origins and culture of early Hawaiians.

Language Arts LA 4.6.2
Give short, informal presentations to inform or persuade



Assessment Tools

Benchmark Rubric:

Topic		Science, Technology, and Society	
Benchmark SC.4.2.1		Describe how the use of technology has influenced the economy, demography, and environment of Hawai'i	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Explain how the use of technology has influenced the economy, demography, and environment of Hawai'i and suggest ways to conserve the environment	Describe how the use of technology has influenced the economy, demography, and environment of Hawai'i	Give examples of how the use of technology has influenced the economy, demography, and environment of Hawai'i	Recognize that the use of technology has influenced the economy, demography, and environment of Hawai'i
Topic		Early Hawaiian Society	
Benchmark SS.4.3.1		Explain the origins and culture of early Hawaiians	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Explain, with clear and precise detail, the origins and culture of early Hawaiians	Explain, with detail, the origins and culture of early Hawaiians	Explain, with minimal detail, the origins and culture of early Hawaiians	Ineffectively explain the origins and culture of early Hawaiians

Topic		Discussion and Presentation	
Benchmark LA.4.6.2		Give short, informal presentations to inform or persuade	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Give creative, short, highly effective informal presentations to inform or persuade	Give short, informal presentations to inform or persuade	Give short, informal presentations that are somewhat informative or persuasive	Give short, informal presentations that do not inform or persuade

Assessment/Evidence Pieces

Lesson

- Surfing Questionnaire student worksheet
- Our Surfing Heritage Storyboard and gallery walk presentation



Materials Needed

Teacher	Class	Group	Student
<ul style="list-style-type: none"> • Computer projector • Computer with Internet access • Blank Table on Surfboard Technology 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Glue • Scotch tape • Scissors • Colored Construction Paper • Materials for illustration • Pencil for sketching 	<ul style="list-style-type: none"> • Student Worksheets: <i>Surfing Questionnaire and Our Surfing Heritage Storyboard</i> • 5.5 x 8.5-inch white sheets

Instructional Resources

Teacher Reading: *The History of Surfing*

Student Worksheet: *Surfing Questionnaire*

Teacher Answer Key: *Surfing Questionnaire*

Student Worksheet: *Our Surfing Heritage Storyboard*

Teacher Worksheet: *Surfing Technology Table (blank table)*

Student Vocabulary Words

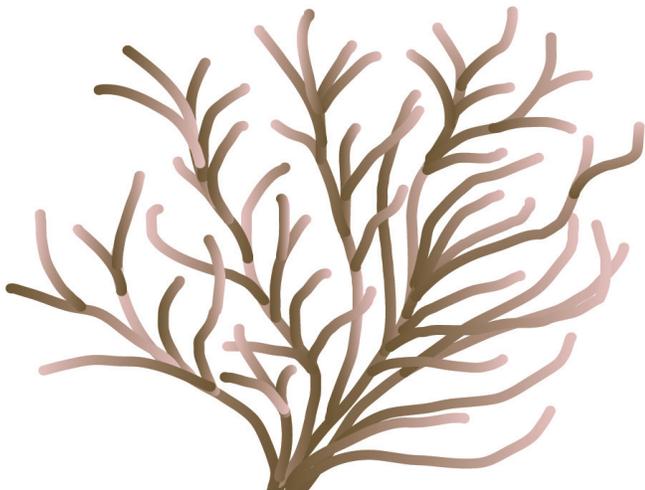
alai: 10-12 foot long surfboards for commoners made of dense koa wood.

ali'i: royalty.

he'e nalu: Hawaiian word for surfing.

kapu system: a strict set of laws regulating and managing Hawaiian natural resources for continual self-sustainability.

olo: 14-16 foot long surfboards for royalty made of wiliwili wood.



Lesson Plans

Lesson Preparation

- Review the Science Background provided in the Unit Overview and the Teacher Background *The History of Surfing* for this lesson.
- Duplicate Student Worksheets *Surfing Questionnaire* and *Our Surfing Heritage Storyboard*
- Familiarize yourself with the information at the following three websites:
 *Note: if using other recreational activities for this lesson, additional websites may need to be bookmarked for the students.
 *Note: a discussion to the accuracy/reliability of websites may be appropriate at this time.
 1. The History of Surfing. Coffee Times <http://www.coffeetimes.com/surf.htm>
 2. From Polynesia with Love www.surfingforlife.com/history.html
 3. Surfing Heritage (an exhibit of surfboards in a timeline from 1900 – 2000) <http://www.surfingheritage.org/exhibits.aspx>
- Prepare story board materials, including
 1. 8.5 x 11-inch paper in half to form 5.5 x 8.5-inch white sheets for drawing storyboard panels (one per student).
 2. 8 x 14-inch colored construction paper on which to paste panels (two per group).
 3. If possible, prepare a demonstration storyboard to show to the students.
- (Optional): Allow group access to the Internet to view pictures from the websites for inspiration as they develop their storyboards, or print select images for them to view.
- Allot space on the bulletin board or wall to display storyboards.

I. Explore and Engage

- A. Give students background information on surfing
 - 1) Ask student questions such as; *Where did surfing start? What did Hawaiians need to know and do to surf?* (*Surfing for life* website above is the best resource for this lesson.)
 - 2) Ask students how they could check to see whether their ideas are correct? Remind students that the Hawaiians did not have a written language. Invite suggestions, including obtaining information from traditions passed on through song, dance, and art.
- B. Explain to the students that they will be viewing website information about surfing from ancient Hawaiian times to present day. Remind students that although the web information is interesting we can't be 100% sure it is culturally accurate.
- C. Show students a picture of the petroglyph of the surfer carved into lava rocks by the early Hawaiians in 1500 AD.
 - 1) Project the website *History of Surfing*, from <http://www.coffeetimes.com/surf.htm> which has the image of the petroglyph, or print copies of the website image for students.
 - 2) Remind students that Hawaiians did not have a written language, but only an oral history passed down from one generation to the next. This makes the petroglyph art extremely important and valuable. The fact that Hawaiians drew surfing along with other cultural activities confirms that they were probably surfing more than a thousand years ago.

- D. Review written accounts and artistic renditions of early surfing that came in the 1700s.
- 1) Project the website *From Polynesia with Love*, at <http://www.surfingforlife.com/history.html>
 - 2) Show the pictures and read the captions of surfing history on the first page of this website. Read selected passages aloud that illustrate the reactions of early newcomers to Hawai'i.
 - 3) Describe the kapu system by having students take turns reading aloud the paragraph just above the Ruling Chiefs image on the website. Ask students what it would be like to be a surfer back then and remind them that this is a very brief description of the kapu system, if they are interested in more information, they should look to the library.
- E. Hand out Student Worksheet, *Surfing Questionnaire*. Leave some pictures projected on the big screen while students complete the worksheet. Optional: Play a CD of ocean waves breaking or of Hawaiian music while students work.

II. *Evolving Surfboard Technology*

- A. Ask the class whether any students have ever tried to surf. Ask those students to describe the surfboard they use. If there are at least three surfers, there will likely be descriptions of three different types of boards. Ask students: *Why do you think there are so many different types of surfboards today? Was it always like that?*
- B. Inform students that they will search websites to learn about the technology of surfboards, and how the surfboard technology has changed over the years. This includes what surfboards are made from, the shape of their designs, and the kinds of waves they are used for.
- C. Show pictures of the evolving surfboard designs.
- 1) Project, *Surfing for Life*, from <http://www.surfingforlife.com/history.html> Proceed to page 2 of the website, and scroll through all of the photographs, reading selected captions. Additional information on the history of surfboards can be found at:
http://www.surfmuseum.org/html/surfboard_evolution.html
http://www.clubofthewaves.com/culture_surfboard.php
<http://360guide.info/surfing/history-of-the-surfboard.html?Itemid=50>
 - 2) On a white board or poster paper, project a blank version of the following table to be filled out as a whole class while reviewing the surfboard technology information on the website. A blank version of the table is provided in this lesson. Ask students to help fill out the information as it appears on the website.
(Optional: Conduct this activity in a computer lab by having students fill out a similar table in small groups or pairs.)

Surfboard Technology	Ancient Hawai'i	Up until 1950s	1950s to present
Materials	lightweight wiliwili trees denser koa wood	wood	Synthetic foams, fiberglass, epoxy, biofoam, balsa wood
Shape/Design	10-16 feet long	12–16 feet long	All sizes: short 4–8 feet, hybrid, long boards

- 3) Ask for volunteers to draw surfboard shapes on the board from each time period. Have a preliminary discussion leading into Part III by asking students how the new surfboard technology has impacted the way in which people surf, and the increasing numbers of people that surf?

III. *Importance of Surfing to Hawai‘i*

- A. Remind students that they have been looking at the history of surfing and the changes technology made in surfboard designs.
- B. Ask students: *How does surfing benefit Hawai‘i economically?*
 - 1) Who surfs? (*Recreational and competitive surfing.*)
 - 2) Who enjoys watching surfers and surfing?
 - 3) Who makes, buys, and sells surfboards? What else is made or sold that is related to surfboards and surfing? (*Leashes, clothing, magazines, movies, and others.*)
 - 4) What other businesses benefit from surfing and surfing events in Hawai‘i?

IV. *Create an “Our Surfing Heritage” Storyboard*

- A. Inform the students that they will be working in groups to use what they have learned to make an *Our Surfing Heritage Storyboard* in eight frames or less. If necessary, explain the difference between a poster and a storyboard: A storyboard consists of a series of frames, organized from left to right, that depict a story. Show an example of a storyboard, if possible.
 - 1) Give each student a copy of the Student Worksheet, *Our Surfing Heritage Storyboard*. Review the purpose of the storyboard. Emphasize that the storyboard needs to address the following:
 - The history of surfing in Hawai‘i.
 - Changes in surfboard design and technology.
 - Importance of surfing to Hawai‘i’s economy.
 - 2) Review the Student Worksheet procedures. Ask students to first sketch their ideas in pencil.
- B. Circulate about the room to assist groups, as needed. Help each group decide how and what each student in each group will contribute to their storyboard.

V. *Check for Understanding*

When storyboards are completed, display them on the walls around the classroom, and conduct a gallery walk. Then ask each group to explain their storyboard.

Additional Extended Activities

1. Have students draw a timeline. An example could begin with petroglyphs and chants dating back to 1500 A.D., to Captain Cook’s arrival, then the missionaries, *King Kalakaua*, followed by *Duke Kahanamoku* and the Waikiki Beach Boys, and ending with the big surfing competitions out at *Waimea Bay* on the North Shore. An extra option would be to include the evolution of windsurfing, kite-boarding, boogie-boarding, and stand-up paddle surfing.
2. Have students interview friends and family to create a poster about any one of the following:
 - *Golden Girl* surfers of *O‘ahu*’s North Shore
 - Tandem surfing competitions
 - Winners of the latest surf competitions
 - Any repeat winners over the last five years of surf competitions
3. Have students make a wave mosaic out of pictures cut out from surfing magazines.
4. Ask students who surf to write an entry in their journals for each of the next three times they surf. Have students reflect, in a fourth journal entry based on the surfing students’ last three entries, what someone living 500 years from now and reading their journal entries might imagine what their surfing experiences were.

LESSON 1 Extension Lesson

Teacher Reading The History of Surfing

The first documentation containing a description of surfing is from a journal entry by Lieutenant King, Captain Cook's successor.

“...The men sometimes 20 or 30 go without the Swell of the Surf, & lay themselves flat upon an oval piece of plank about their size and breadth, they keep their legs close on top of it, and their Arms are used to guide the plank, they wait the time of the greatest Swell that sets on Shore, & altogether push forward with their Arms to keep on its top, it sends them in with a most astonishing Velocity, & the great art is to guide the plank so as always to keep it in a proper direction on the top of the Swell, & as it alters its direct. If the Swell drives him close to the rocks before he is overtaken by its break, he is much praised.....”

(Cook's Voyages, 1779; quoted by Ben Marcus in *From Polynesia with Love*, at <http://surfingforlife.com>)

Hawaiians are credited for having invented surfing or *he'e nalu*. The length of the surfboard, as well as the type of wood the surfboard was made of, differentiated the royalty from the commoners. *Ali'i* (royalty) surfboards, called *olo*, were 14–16 feet long, and were made from wiliwili trees. The *makaainanas'* (commoners) boards, called *alai*, were only 10–12 feet long, and were made from denser koa wood. Although *olo* were less dense, they still could weigh up to 175 pounds. If a commoner *dropped in* on a wave that an *ali'i* wanted to ride, or rode a wave that an *ali'i* was catching, those violations warranted the death penalty.

The creation of a surfboard was also sacred. Before chopping down a tree, a surfboard maker would place a *kūmū*, or ritualistic fish, in a hole near the roots of the tree and pray. After the tree was cut down and hauled away, it would be roughly shaped using bone or adze. The board would then be taken to a halau, or canoe house, where coral and stone would be used to further refine the shape of the board. Burned kukui nuts, roots from the *ti* plant, *hili* (pounded bark), or banana bud stains were used to blacken the board. *Kukui* nut oil was then applied to give the board a smooth and shiny finish. Before its first use, the finished surfboard would be dedicated. After every use, the surfboard was rubbed with coconut oil, and wrapped with tapa cloth to preserve its finish. Because of the painstaking care required to build and maintain them, surfboards became treasured possessions to ancient Hawaiians.

With the arrival of the first missionaries in early 1800's, belief systems of the early Hawaiian society changed, and eventually the *Kapu* system was abolished. This resulted in the dwindling numbers of surfers. In the later half of the nineteenth century, *King Kalakaua*, the Merry Monarch, revived many ancient practices including the hula and surfing. By 1905, a young teenager named *Duke Kahanamoku* and his friends frequented Waikiki Beach to ride waves. Their wooden boards, made from either balsa or redwood, were typically taller than them, approximately 14–18 feet, and were used to catch the small swells at this surf spot. These young men formed the Hui Nalu or the *Club of Waves*, which eventually became the famous *Waikiki Beach Boys*.



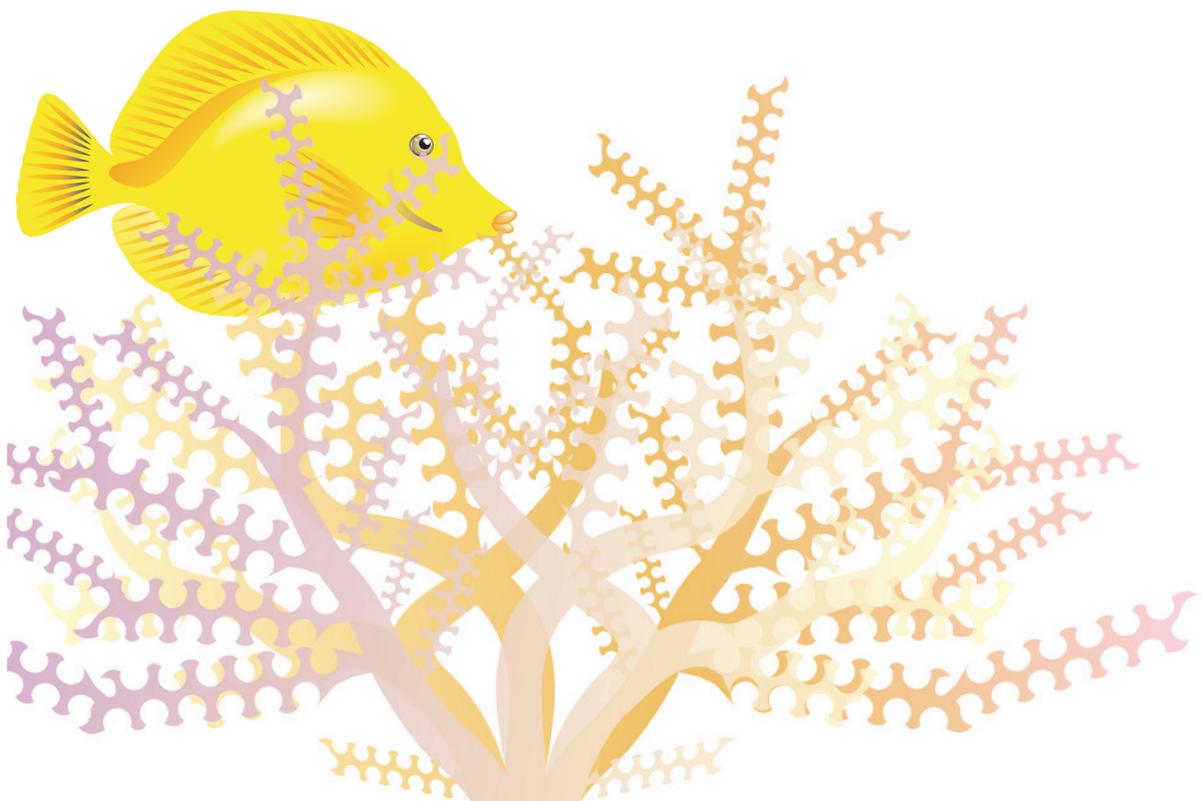
Henry Huntington asked George Freeth (an Irish Hawaiian) to demonstrate the sport at a Redondo Beach, California, railroad opening in 1907. Freeth was the first craftsman to cut a 16-foot board in half to create shorter surfboards, which made maneuvering waves easier. California beaches became the breeding ground for innovative surfboard designs and techniques.

In 1935, the first fin was attached to surfboards and is often given as the start of modern surfing. In the 1940's, fiberglass meant that strong, light, waterproof modern surfboards could be constructed. At first, balsa wood (very light wood) was used as the surfboards core. Balsa wood was later replaced with polyurethane foam that is still used today. Waves at Waimea Bay on the North Shore can reach heights of 20–30 feet on the backside. Surfing these waves was thrilling for many of the surfers who migrated from California to Hawai'i. Today, surfboards are made of fiberglass with pointed noses making them ideal for riding *killer* waves. Fins have been added to surfboard designs for optimum big wave performance. Lengths have been shortened and, over the years, materials have changed from wood, to fiberglass and polyurethane foam, to epoxy. Surfboard designs have improved drastically with technological advances.

Surfing has changed dramatically since its inception. Today, women, like their male counterparts, also surf *killer* waves. Other surfing sports have evolved, like tandem surfing and performing tricks on a board. If a surfer puts the weight of his body on the front nose of his board, that is called a *hang ten*, during which the surfer's ten toes are at the front of the board. Surfers are sometimes seen doing *handstands* on their boards when the waves are small. Children in Hawai'i are also learning to surf at younger ages, and *keiki* (child) surfing competitions are held yearly. Surfing today is not only for the young, but also for the *young at heart*, such as, on the North Shore, a group of more mature women who call themselves the *Golden Girl Surfers*. Surfing is a sport that has gained popularity internationally as well. Surfing movies have been made about traveling the globe to find *that* perfect wave. For as long as surfing exists, that quest will continue.

References:

Drent, Les, (2006) *The history of surfing*. Coffee Times, at <http://www.coffeetimes.com/>
Marcus, Ben, *From Polynesia with love*, at <http://www.surfingforlife.com/> and <http://www.surfingheritage.org/>



LESSON 1 Extension Lesson

Surfing Questionnaire

NAME: _____ DATE: _____

Directions: Read the passage below, then answer the following questions.

The Hawaiians are believed to be the inventors of surfing. Evidence that ancient Hawaiians surfed is found in legends that were passed down orally through chants and in carvings found in rocks called petroglyphs. The Hawaiian word for surfing is *he'e nalu*.

Hawaiian society was divided into royal and common classes. Commoners generally rode waves on paipo (body board; prone) and alaia (surfboard made of koa or breadfruit wood; stand up) boards as long as 12 feet, while the *ali'i* (royalty) rode waves on olo boards (long surfboards made of wiliwili wood) that were as long as 24 feet.

The royalty ruled Hawai'i by a code, kapu, which regulated almost everything: where to eat; how to grow food; how to predict weather; how to build a canoe; how to build a surfboard; how to predict when the surf would be good. These kapu extended into the surf zones, too. There were reefs and beaches where the *ali'i* (chiefs) surfed, and reefs and beaches where the commoners surfed. *

* <http://www.surfingforlife.com/history.html>

1. What is the Hawaiian word for surfing?
2. What evidence is there that ancient Hawaiians surfed?
3. In ancient Hawai'i, how long, and of what type of wood were royalty or *ali'i* boards made?
4. In ancient Hawai'i, how long, and of what type of wood were commoner boards made?
5. Did *ali'i* and commoners surf together at the same spots? Why or why not?

LESSON 1

Extension Lesson - Teacher Answer Key

Surfing Questionnaire

1. What is the Hawaiian word for surfing?

Answer: The Hawaiian word for surfing is *he'e nalu*.

2. What evidence is there that ancient Hawaiians surfed?

Answer: Evidence that ancient Hawaiians surfed is found in legends that were passed down orally through chants and in carvings found in rocks called petroglyphs.

3. In ancient *Hawai'i*, how long, and of what type of wood were royalty or *ali'i* boards made?

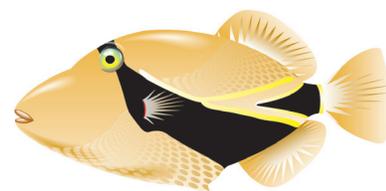
Answer: The *ali'i* (royalty) rode waves on **olo** boards (long surfboards made of wiliwili wood) that were as long as 24 feet.

4. In ancient Hawai'i, how long, and of what type of wood were commoner boards made?

Answer: Commoners generally rode waves on *paipo* (body board) and *alaia* (surfboards made of koa or breadfruit wood); these boards were as long as 12 feet.

5. Did *ali'i* and commoners surf together at the same spots? Why or why not?

Answer: There were reefs and beaches where the *ali'i* (chiefs) surfed, and reefs and beaches where the commoners surfed. This was due to the *kapu* code, which regulated almost everything, developed by the royalty who ruled Hawai'i.



LESSON 1 Extension Lesson

Our Surfing Heritage Storyboard

NAME: _____ DATE: _____

Directions: Work with members of your group to create a storyboard in eight frames or less that illustrates:

- the history of surfing in Hawai‘i timeline
- changes in surfboard design and technology
- the importance of surfing to Hawai‘i’s economy

Procedure

1. Sketch your illustrations in pencil, and then use colored crayons or markers to complete each frame. Keep each frame the same size as shown below.
2. Use ideas from the websites and class discussion, but draw your own ideas.
3. Give each frame a caption and a number. See the example given in the frame below.
4. Assemble your frames, and glue them in order onto the construction paper.

Example of one storyboard frame:

Frame # 5 Caption: Economic Importance of Surfing to Hawai‘i
(A drawing of surfers lined up to buy shave ice and T-shirts.)

LESSON 1 Extension Lesson

Surfing Technology Table

Use this blank table to project onto a white board or poster board. Or make copies for small groups of students to fill in. (Answer Key can be found in Activity II.)

Surfboard Technology	Ancient Hawai'i	Up until 1950s	1950s to present
Materials			
Shape/Design			