

# **Teacher's Guide**

**for**

## **HAWAIIAN CANOE-BUILDING TRADITIONS**

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## TO THE TEACHER

**Hawaiian Canoe-Building Traditions** is a combination textbook/workbook that was developed to aid teachers and students in their study of Hawai'i. A readability level for this book has purposely been omitted as we feel that it can be utilized in both the primary and secondary grades.

This book contains twelve sections or chapters. With the exception of the "Introduction" and the "Summary," each section consists of a reading selection plus 2-5 activity sheets. In the right-hand pocket of the Teacher's Packet, you will find master copies of the activity sheets which may be duplicated for student use.

Answers for the knowledge and comprehension-type worksheets are included in this Teacher's Guide. For those subjective-type activity sheets which call for creative writing or drawing, we ask that you accept any reasonable answer from, or work done by, your pupils.

Please keep in mind that the pre-reading discussion/activities and the follow-up activities found in this guide are **suggestions** only. We realize that every teacher has his or her own style of presenting a unit, and hope that you will be able to use **Hawaiian Canoe-Building Traditions** in a way that is interesting, meaningful, and enjoyable for both you and your students.

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## **Introduction (pp. 1-2)**

### **General Objectives:**

- To have students recognize the significance of long-distance voyaging.
- To stress that the canoe was an important part of the Hawaiians' daily lives.
- To have students distinguish between a plank-lashed canoe and a dugout canoe.

### **Preparation:**

- Display maps of the Hawaiian Islands and the Pacific Ocean. Keep posted for the entire unit.
- Display: **Ahupua'a Poster**, Marilyn Kahalewai, 1982.
- Display pictures and posters of Hawaiian people at work and at leisure. Create the "mood" of an ancient Hawaiian setting.

### **Pre-reading Discussion/Activities:**

- Do a "Word Explosion" activity with your students. Encourage them to talk about their traveling experiences. Did they ever have to move? Have they ever traveled to another island, to the Mainland, etc.? How did it feel to have to move? How did they feel traveling to new places?
- List the emotions mentioned on the blackboard or on a large sheet of chart paper.

### **Follow-up Activities:**

- Read to the class: **Voyage: The Discovery of Hawaii**, Herb Kane, 1976.
- Do another "Word Explosion" activity with them. Q: How do you think the early Polynesian settlers felt when they had to leave Kahiki? List the emotions mentioned on the blackboard or a large sheet of chart paper. Compare with the earlier "Word Explosion" list. Discuss the similarities and differences between students and ancient Polynesian voyagers.
- Supplemental reading: "The Water of Kane," **The Water of Kane**, Mary Kawena Pukui and Caroline Curtis, 1951, pp. 3-22.
- Teach a short song about canoe voyaging. Suggestion: "Hoe Aku I Kou Wa'a" by Mahela Rosehill. This song is found in **Polynesian Seafaring Heritage**, Cecilia K. Lindo and Nancy Alpert Mower (editors), 1980, p. 165.

### **Additional Resources:**

- **The Coming of the Polynesians**, George Tahara, 1975. (16 mm film, 11 min.)
- **Hawai'i: The Continuing Traditions**, Chevron U.S.A., Inc., 1986. (videotape, 20 min.)
- **The Navigators: Pathfinders of the Pacific**, Sam Low, 1983. (videotape, 60 min.)

### **Hawaiian Vocabulary:**

wa'a	general term for a canoe
wa'a kaulua	double-hulled canoe
koa	tall, large, endemic tree preferred for canoe-building; scientific name: <i>Acacia koa</i>
wa'a kaukahi	single-hulled canoe

## Selection (pp. 3-8)

### General Objectives:

- To familiarize students with the Hawaiian traditions followed when selecting a tree that will be used to build a canoe.
- To introduce the role of the *kahuna k̄alai wa'a*.
- To have students become aware of the close relationship the Hawaiian people had with their environment.
- To have them realize the importance of honoring gods in Hawaiian society.

### Preparation:

- Display pictures of *koa* trees, 'elepaio birds, etc. See *The Hawaiian Canoe*, Tommy Holmes, 1981.
- Display samples of some of the foods offered to the gods (e.g. 'awa, k̄umū fish, niu hiwa). If items are unavailable, show illustrations or slides.

### Pre-reading Discussion/Activities:

- Talk about omens: What is an omen? Do you believe in omens?
- Name other natural phenomena that act as "clues" with regards to what is happening in the environment (e.g. animals that can sense weather changes).

### Follow-up Activities:

- "Noting the Correct Sequence of Events" worksheet, p. 7.
- "Identify Pictures" worksheet, p. 8.
- Teach a short chant relating to nature:

Pua ke k̄o,	When the sugarcane tassels,
k̄u mai ka he'e.	the octopus season is here.
Pala ka hala,	When the pandanus fruit is ripe,
momona ka uhu.	the parrot fish is fat.

- Compose a similar chant that tells how a tree was determined to be healthy or rotten.
- Plan a nature walk/hike to look for *koa* trees and 'elepaio birds.
- Supplemental reading: "Naughty 'Elepaio," *Tales of the Menehune*, Mary Kawena Pukui and Caroline Curtis, 1985, pp. 105-107.

## Additional Resources:

- **A Canoe for Uncle Kila**, Stanley Kapepa, 1976.
- **Nā Ki'i Hana No'ēau (Series): "Ka Wa'a: The Canoe"** (Program 11), Office of Instructional Services, General Education Branch, Department of Education, State of Hawai'i, 1986. (videotape, 20 min.)

## Hawaiian Vocabulary:

kino/kuamo'o	canoe hull
koa	<i>Acacia koa</i> ; preferred type of tree for canoe-making
kumulā'au koa	a koa tree
kahuna kalai wa'a	canoe-building specialist
ahu	shrine, altar
hale mua	men's eating house
moe'uhane	dream
'elepaio	bird believed to be <i>Lea</i> , the goddess of canoe makers
pua'a hiwa	black pig
niu hiwa	dark-colored coconut often used in ceremonies
kūmū	a type of red fish; goatfish
'awa	kava root
imu	underground oven

## Answer Key:

### NOTING THE CORRECT SEQUENCE OF EVENTS

Noting the correct sequence, or order, of events in a story helps you to understand and remember the information it contains.

Read the section on "Selection." As you read, note the sequence of events that the Hawaiians followed when selecting a tree for their canoe. Then, number the events below from 1 to 11 to show the correct order in which they occurred. The first one has been done for you.

- 5 He watched for an 'elepaio bird.
- 7 The kahuna kalai wa'a offered a black pig, coconuts, red fish, and 'awa to his gods.
- 1 A man told the kahuna kalai wa'a about a koa tree he had seen in the forest.
- 8 The kahuna kalai wa'a and his assistants slept at the base of the koa tree.
- 11 They began to prepare for the felling, or the cutting of the tree.
- 3 He dreamt of a clothed man or woman.
- 2 The kahuna kalai wa'a slept before the ahu in the hale mua.
- 4 He went into the forest to see the koa tree he had been told about.
- 9 They baked and ate the black pig.
- 6 The 'elepaio did not land on that particular koa tree.
- 10 They examined the tree to determine how long the canoe would be, and where the hollow part and the bottom of the vessel would be.

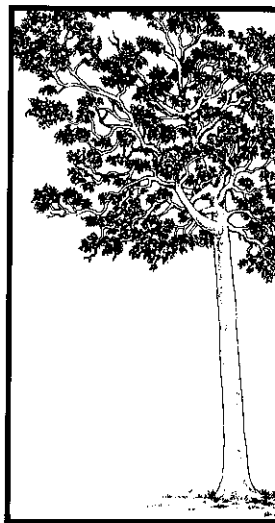
7



1 moe'uhane



2 kahuna kalai wa'a



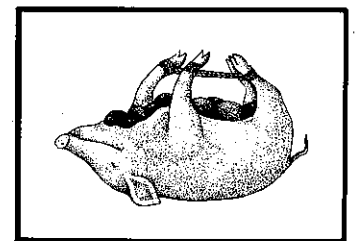
4 kumulā'au koa

Identify each picture (ki'i) with the correct Hawaiian term from the list below:



3 'elepaio

'elepaio  
kahuna kalai wa'a  
kumulā'au koa  
moe'uhane  
pua'a hiwa



5 pua'a hiwa



## Felling (pp. 9-14)

### General Objectives:

- To have students recognize the serious nature of the felling ceremony.
- To emphasize the major role of the kahuna kālai wa'a.

### Preparation:

- Display an authentic *ko'i* and a modern adze. Inquire at the Academy of Arts and the Bishop Museum re: lending collections.
- Display plants: *koa*, 'ie'ie vine, *hāpu'u* fern, etc. Show illustrations or slides if plants are unavailable.
- Display products made from the above plants (e.g. koa bowl, basket made from 'ie'ie, *hāpu'u* fibers used for gardening purposes, etc.).

### Pre-reading Discussion/Activities:

- Ask class if they have ever seen a tree fall. Was it in person, on television, in a movie? Have them describe the action that took place - sight, sound, etc.
- Discuss the quote: "If a tree falls in a forest and no one hears it fall, does it make a sound?"
- Have the class practice "silence."
- Listen to a tape or a record of a Hawaiian chant. Have students listen for inflection, tone, volume, etc. Discuss what was heard.

### Follow-up Activities:

- "Word Scrabble" worksheet, p. 12.
- "Visualizing" worksheet, p. 13. Have students do a draft first; then have them transfer their work to a larger sheet of paper.
- "Creating Acrostic Descriptions" worksheet, p. 14.
- Invite a Hawaiian chanter to the classroom. Have students listen for inflection, tone, volume, etc. Discuss what was heard.
- Gather appropriate props and costumes and dramatize the felling ceremony.

### Additional Resources:

- A Canoe for Uncle Kila, Stanley Kapepa, 1976.

## Hawaiian Vocabulary:

lālā	kamahele	largest branch-closest to the top of the tree
ko'i		adze
hāpu'u		an endemic tree fern
hāku'iku'i		cracking sound from a falling tree
malo		loincloth
'ie'ie		an endemic vine

## Answer Key:

**WORD SCRAMBLE**

Read the section on "Felling." Then, unscramble these Hawaiian and English vocabulary words. Be sure to use the correct diacritical markings. Remember that a glottal stop, or 'okina ('), takes one space.

1. HAANUK / IĀAKL / 'AWA  
KAHUNA / KĀLAI / WA'Ā
2. ĀLLĀ / HAMAKEEL  
LĀLĀ / KAMAHELE
3. 'OIK KO'Ī
4. PĀHU'U HĀPU'U
5. KĀ'IKI'UHU HĀKU'ĪKU'Ī
6. LOAM MALO
7. EI'EI 'ĪE'ĪE
8. ZEAD ADZE
9. FSSCRA SCARFS
10. NAOB CANOE
11. ALTOOICN LOCATION
12. FLINGLE FELLING
13. NERF FERN
14. RECMONEY CEREMONY

12

**T**eacher: Please accept any reasonable answer(s) for the "Visualizing" and "Creating Acrostic Descriptions" worksheets on pages 13 and 14.

## Hewing (pp. 15-18)

### General Objectives:

- To have the students realize the importance of this step: namely, that by removing excess wood before hauling, the canoe hull is lighter and easier to carry.

### Preparation:

- Display various ko'i and samples of wood chips
- Have blocks of balsa wood and carving tools ready for the follow-up activity below. Check hobby shops and art supply stores for the balsa wood.

### Pre-reading Discussion/Activities:

- Define the term "hewing" for your students. Ask them to name some of its synonyms.
- Q: Have you ever carved anything? Are you good with your hands? Name the types of materials you have worked with. Possible answers: wood, clay, etc.
- Q: When you are working/creating with your hands, do you have an image of what your finished product will look like?

### Follow-up Activities:

- Q: Why did the canoe builders do the rough hewing in the forest?
- Q: What other activities does the hewing motion remind you of? Possible answers: scraping coconut out of a shell, scooping ice cream, digging a hole in the ground, etc.
- "Color and Complete" worksheet, p. 17.
- "Noting Important Details" worksheet, p. 18.
- Have students "rough hew" blocks of balsa wood or another soft wood. Use bars of Ivory soap as an alternative.

### Hawaiian Vocabulary:

ihu	bow (front part of a vessel)
muli	stern (back part of a vessel)
pepeiao	brackets of a canoe; where the seats rest
maku'u	knob-like "neck" of the canoe
ka'ele	unfinished canoe hull
hālau wa'a	canoe house

## Answer Key:

**T**eacher: Please accept any reasonable work done for the "Color and Complete" activity sheet on page 17.

### NOTING IMPORTANT DETAILS

Reading slowly and carefully helps you to note and remember important details.

Read the section on "Hewing" slowly and carefully. Note and remember as many important details as you can. Then, answer the questions below. Try to write your answers without looking back at the reading. When you have answered all the questions, quickly reread "Hewing" to check your answers.

1. The exterior of the koa tree was hewed, or shaped, first. What part(s) of the tree did the Hawaiians hew first?

the ends

2. What is the front part of a canoe called? Give both the English and Hawaiian terms.

bow

ihu

3. What is the back part of a canoe called? Give both the English and Hawaiian terms.

stern

mulu

4. Who determined what the measurements of the interior of the canoe hull would be?

the kahuna kalai wa'a

5. What was the purpose of hewing a *maku'u*?

The maku'u was hewed as a point of attachment for the restraining ropes, which were necessary for hauling the canoe.

6. What is the Hawaiian term for an unfinished canoe hull?

ka'ele

## Hauling (pp. 19-24)

### General Objectives:

- To have students realize the teamwork involved in hauling a canoe.
- To have them realize that hauling was a careful and cautious process.
- To reiterate that respect for the gods was emphasized at all times.

### Preparation:

- Display the students' rough-hewn balsa wood blocks.
- Display various types of ropes (e.g. natural, synthetic, etc.).

### Pre-reading Discussion/Activities:

- Q: Have you ever had to haul or tow something? Have you ever watched somebody move heavy equipment, such as a stalled car, a piano, or furniture? What did it involve? Name some "safety tips" one should follow when moving things.

### Follow-up Activities:

- "Fill in the Blanks" worksheet, p. 22.
- "Maze" activity sheet, p. 23.
- "Compose a Paha" activity sheet, p. 24.
- Teach students the hauling chant found on page 24 in text. This chant was once used as a cheer by Kamehameha Schools students at football games during the 1920's.

Kīauau, kīauau!	Haul, haul!
Hukiauau, hukiauau!	Pull on, pull on!
Koauau, koauau!	Draw on, draw on!
Ho'omalo ke kaula!	Keep the rope taut!
Moku a ke kaula!	Keep the rope in position!

- Divide the class into groups of 4-5. Have each group haul an object (e.g. a large box filled with sand, a baby bathtub filled with water, etc.) from one point to another. Have each group devise a plan for hauling the filled object safely to their destination. Students may gather items and materials that could help them (e.g. rope). Emphasize teamwork and safety. Check for the least amount of damage to the container and spillage of its contents, as well as speed, to determine who wins.

### Additional Resources:

- A Canoe for Uncle Kila, Stanley Kapepa, 1976.

## Hawaiian Vocabulary:

ka'ele	unfinished canoe
pū i ka wa'a	a ceremony conducted by the kahuna kālai wa'a in which he prayed to the gods to protect the hull
maku'u	neck of the canoe
pū, kaula kō	thick, towing rope
kaula kā'ili'ili	restraining ropes
kanaka kā'ili'ili	men who held the restraining ropes
pale wa'a	persons who guided and protected the canoe
paha	improvised, conversational chant
hālau wa'a	canoe house

## Answer Key:

**FILL IN THE BLANKS**

Read the section on "Hauling." Then, fill in the blanks in the statements below. Choose a word or phrase from the Word Bank at the bottom of the page. Each word or phrase is used only once.

- Hauling the ka'ele, or the unfinished canoe, down to shore was a difficult job.
- Hauling the hull from the forest to the sea could take from one day to several months.
- The kahuna kalai wa'a conducted a ceremony called pū i ka wa'a in which he prayed to the gods to protect the hull as it was hauled.
- The maku'u was the neck of the canoe.
- Attached to the maku'u was a towing rope called the pū or the kaula kō.
- The men who were responsible for keeping the nose of the hull on the right course were called kanaka kā'ili'ili.
- Pale wa'a literally means "canoe protector."
- The canoe was hauled stern, or back end, first.
- Ku'alanawao, Kumokuhā'i'i, and Kūholoholopali were names of canoe-building gods.
- The kahuna kalai wa'a performed an improvised and conversational chant called a paha.

**WORD BANK**

kaula kō	paha	protector	neck
months	ka'ele	stern	pū i ka wa'a
kanaka kā'ili'ili			Kūholoholopali

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**Teacher:** There is only one way out of the "Maze" on page 23; this is a fun worksheet and is not meant to be graded. Also, please accept any reasonable work done for the "Compose a Paha" activity sheet on page 24.

## Finishing (pp. 25-31)

### General Objectives:

- To have students realize that "curing" was an essential step in the finishing process.
- To have them recognize and understand all the steps involved in the finishing process.

### Preparation:

- Display finishing tools: ko'i, 'aha, pōhaku 'ānai wa'a, dried 'ulu leaf sheaths, etc.
- Assemble materials for pā'ele or another kind of dye for the follow-up activity below.

### Pre-reading Discussion/Activities:

- Introduce the concept of "curing." Name other things, besides wood, that undergo curing (e.g. meat and fish can be salted and smoked, leather and tobacco are dried and aged, mangoes and cucumbers can be pickled, etc.).
- Encourage students to talk about their experiences building or assembling something (e.g. model airplane, Lego building blocks, etc.).

### Follow-up Activities:

- "A Crossword Puzzle" worksheet, p. 30.
- "Identify Plants" worksheet, p. 31.
- Have students "finish" their balsa wood canoes by fine-hewing the hull and by adding parts (e.g. mast, sail, seats).
- Experiment making a dye. Because the ingredients used for pā'ele are somewhat hard to find, you might want to try making a different type of dye. See **Made in Hawai'i**, Jane F. Abernethy, Suelyn C. Tune, and Julie S. Williams, 1983, pp. 82-95.
- Have students paint their canoes. Use dried hala fruit keys for paintbrushes.
- Plan a field trip/hike to see the plants and trees mentioned.
- Supplemental reading: "Laka's Canoe," **Tales of the Menehune**, Pukui/Curtis, pp. 3-6.

### Hawaiian Vocabulary:

ka'ele	unfinished canoe
halau wa'a	canoe house
kino/kuamo'o	canoe hull
'aki/lona	wooden blocks that canoes were placed upon when ready for finishing
mo'o	gunwale strakes; gunnels
maku'u	neck of the canoe

moamoa

ko'i 'āwili/kūpā'aike'e

pōhaku 'ānai wa'a

'ulu

manu

pā'ele

'akoko

mai'a

kukui

wiliwili

lau hala

'ahu'awa

kī

pulu niu

ali'i

'alaea

leftover section of the maku'u extending beyond the end of the stern

swivel-headed adze

rubbing stones

breadfruit tree

end pieces of the canoe

black paint

an endemic shrub

banana plant

candlenut tree

a Hawaiian leguminous tree

pandanus leaves

a type of sedge

ti plant

coconut husk

chief

a red earth

### Answer Key:

#### A CROSSWORD PUZZLE

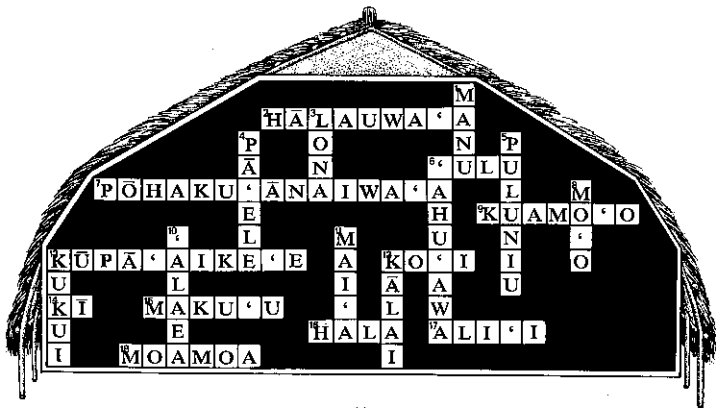
##### ACROSS

2. Canoe house (2 words)
6. Breadfruit
7. Rubbing stones (3 words)
9. Two terms for the canoe hull were *kino* and \_\_\_\_\_.
12. Two terms for the swivel-headed adze were *ko'i 'awili* and \_\_\_\_\_.
13. General term for adze
14. Ti plant
15. Neck of the canoe
16. Pandanus leaves were called *lau* \_\_\_\_\_.
17. If a canoe was red in color, it belonged to an \_\_\_\_\_.
18. After most of the *maku'u* was cut off, this small section was left.









##### DOWN

1. Finely-carved end pieces of the canoe.
3. Wooden blocks for canoes were called *'aki* or \_\_\_\_\_.
4. Black paint
5. Coconut husk (2 words)
6. Name of sedge which made a fine mesh.
8. Gunwales
10. This gave paint a reddish color.
11. Banana
12. Candlenut
13. Only the *kahuna* \_\_\_\_\_ *wa'a* and his apprentices did finishing work on the canoe.

HINTS: 1) All answers are in Hawaiian.  
 2) An 'okina, or glottal stop ('), takes one space.



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 <p>1. Dried leaf sheaths from the <u>'ulu</u> tree were used as fine sandpaper.</p>	<p>Read the section on "Finishing." Then read the incomplete captions for each illustration. Fill in the blanks with each tree or plant's correct Hawaiian name. Choose a term from the list below:</p> <table border="0"> <tr><td>'akoko</td><td>mai'a</td></tr> <tr><td>hala</td><td>niu</td></tr> <tr><td>ki</td><td>'ulu</td></tr> <tr><td>kukui</td><td>wiliwili</td></tr> </table>	'akoko	mai'a	hala	niu	ki	'ulu	kukui	wiliwili	 <p>2. The buds and twigs of the <u>'akoko</u> shrub produced a juice from which a black paint (pa'ele) was formed.</p>
'akoko	mai'a									
hala	niu									
ki	'ulu									
kukui	wiliwili									
 <p>3. A juice was obtained from the flowers and buds of the <u>mai'a</u> plant and used to make pa'ele.</p>	 <p>4. The red, inner bark from the roots of the <u>kukui</u> tree was used for pa'ele.</p>	 <p>5. Burnt <u>wiliwili</u> wood yielded a fine charcoal powder.</p>								
 <p>6. Burnt leaves from the <u>hala</u> tree produced a fine charcoal powder.</p>	 <p>7. The pounded root of the <u>ki</u> plant produced a juice that, when added to the pa'ele, made the paint colorfast.</p>	 <p>8. The paint was applied with the husk (pulu) from the <u>niu</u>.</p>								

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## Consecration and Launching (pp. 33-38)

### General Objectives:

- To have students learn the importance of *lolo 'ana ka wa'a*, or the canoe consecration ceremony.
- To reinforce the concept of offering food and prayers to the gods.
- To reiterate the important role of the kahuna k̄alai wa'a.

### Preparation:

- Display offerings and/or have illustrations of: black pig, k̄m̄ fish, niu hiwa, 'ilio, 'uala, and kalo.

### Pre-reading Discussion/Activities:

- Discuss other religious ceremonies that students may be familiar with (e.g. baptism, weddings, etc.).
- Discuss other types of religions, such as Christianity or Buddhism. Are there any similarities between Hawaiian, Christian, or Buddhist forms of worship? How do they differ? What kinds of offerings are made at their services? Possible answers: prayer, chanting, food, money, flowers, incense, etc.
- Discuss other launchings you may have seen (e.g. christening of a new boat or ship).

### Follow-up Activities:

- "Vocabulary Check" worksheet, p. 36.
- "He 'Ōlelo No'eau (A Proverb)" worksheet, p. 37.
- "Writing Cinquains" worksheet, p. 38.
- Dramatize a *lolo 'ana i ka wa'a* ceremony. Plan a field trip to the beach. Have a "mass launching" of the students' finished balsa canoes.

### Additional Resources:

- **The Vision of Mo'ikeha**, Nancy Alpert Mower, 1976.
- **A Canoe for Uncle Kila**, Stanley Kapepa, 1976.
- **The Voyage to Tahiti**, Nancy Alpert Mower, 1976.
- **The Launching of the Hokule'a**, Tip Davis, 1975. (16 mm film, 30 min.)

## Hawaiian Vocabulary:

lolo 'ana ka wa'a i ka hālau	consecration ceremony for the canoe
pua'a hiwa	black pig
kūmū	a type of red fish; goatfish
niu hiwa	dark-colored coconut used in ceremonies
'īlio	dog
'uala	sweet potato
kalo	taro
'aumākua	family gods

## Answer Key:

**VOCABULARY CHECK**

How well do you remember your Hawaiian vocabulary from the section on "Consecration and Launching?" Each Hawaiian word or phrase in Column A has a corresponding English word or phrase in Column B. Fill in the blanks in Column A with the appropriate letters from Column B.

Column A	Column B
<u>c</u> 1. lolo 'ana ka wa'a i ka hālau	a. canoe
<u>e</u> 2. "lolo 'ana ka wa'a"	b. ceremonial coconut
<u>a</u> 3. wa'a	c. canoe consecration ceremony
<u>j</u> 4. hālau wa'a	d. dog
<u>i</u> 5. pua'a hiwa	e. "imparting brains to the canoe"
<u>k</u> 6. kūmū	f. taro
<u>b</u> 7. niu hiwa	g. family gods
<u>d</u> 8. 'īlio	h. canoe-building specialist
<u>l</u> 9. 'uala	i. black pig
<u>f</u> 10. kalo	j. canoe house
<u>h</u> 11. kahuna kalai wa'a	k. a certain type of red fish
<u>g</u> 12. 'aumākua	l. sweet potato

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**T**eacher: Please accept any reasonable answers for the "He 'Ōlelo No'eau (A Proverb)" and "Writing Cinquains" worksheets on pages 37 and 38.

## Tools (pp. 39-46)

### General Objectives:

- To familiarize students with the types of tools used in canoe-building.
- To have students recognize the natural materials that were used to make the tools.
- Note: This chapter may also be used with the "Finishing" section.

### Preparation:

- Display various Hawaiian tools. Inquire at the Academy of Arts and the Bishop Museum re: their lending collections.
- Display similar modern tools (e.g. steel adze, drill, sander, sandpaper, chisel, etc.).
- Assemble coconut fiber or raffia to make cordage for the follow-up activity below.

### Pre-reading Discussion/Activities:

- Name the types of tools around your house. When and how do you use them?

### Follow-up Activities:

- Q: How are modern and traditional Hawaiian tools alike? How do they differ?
- "Tools for Canoe-Building" worksheet, p. 44.
- "Reading a Diagram" worksheet, p. 45.
- "Helping to Make a Canoe" worksheet, p. 46.
- Make 'aha cordage. See **Made in Hawai'i**, Abernethy, Tune, and Williams, pp. 28-29. If you cannot obtain coconut fibers, use raffia instead.
- Make a simple adze. Use your cordage to bind the haft and the tang together. Suggested materials for the haft: tree limb, scrap of wood, dowel stick, etc. Suggested materials for the tang: plaster of paris head, scrap of wood, small rock or stone, etc.
- Borrow a pump drill. Practice making holes in a piece of wood. If materials are available, have students construct a pump drill.

### Additional Resources:

- **The Hawaiian Canoe**, Tommy Holmes, 1981.

### Hawaiian Vocabulary:

ko'i	adze
po'e kā ko'i	stone craftsmen specialists
hau	a lowland tree with light, tough wood

olopua	a large, native tree
'aha	cordage made from coconut fibers
olonā	a native shrub
hala	pandanus
mai'a	banana
ko'i 'āwili/kupā'aikē'e	swivel-headed adze
pōhaku pao	stone chisel
pupū	general term for sea and land shells
pōhaku kاپili wa'a	hammerstone
puki'i wa'a/kaumo'o	wooden clamp
mo'o	gunnels; gunwale strakes
manu	end pieces
nao wili	pump drill
pōhaku 'ānai wa'a	rubbing stone
'ulu	breadfruit tree

### Answer Key:

**TOOLS FOR CANOE-BUILDING**

Read the section on "Tools." Study the illustrations above. Then, fill in the blanks with the appropriate letters corresponding to the names of the tools listed below:

a. 'aha	e. pōhaku 'ānai wa'a
b. ko'i	f. pōhaku kاپili wa'a
c. pupū	g. pōhaku pao
d. nao wili	h. puki'i wa'a/kaumo'o

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**READING A DIAGRAM**

Reading a diagram that accompanies a reading selection helps you to understand and remember the information it contains.

Re-read the first two pages in the section on "Tools." The diagram of Ke Ko'i will also help you to answer the questions below.

**Ke Ko'i (The Adze)**

- The adze head was also called the tang.
- The adze handle was also called the haft.
- Why was the binding considered an important part of the ko'i?  
It secured the tang and the haft together.
- What part of the ko'i was made of basaltic stone? tang
- What part of the ko'i was made from hau or olopua wood? haft
- The binding was usually made from the fibers of the coconut (niu) or the olonā plant.
- Why was a piece of kapa, pandanus (hala) leaf, or banana (mai'a) leaf placed between the tang and the haft?  
This was done so that the tang and the haft would not slip, and so that the binding would not be cut by the tang's sharp edges as the ko'i was being used.

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**T**eacher: Please accept any reasonable answer or work done for the "Helping to Make a Canoe" worksheet on page 46.

## Parts of a Canoe (pp. 47-56)

### General Objectives:

- To familiarize students with the different parts of the canoe.
- To have students learn the names and functions of the various parts.
- To have them learn the types of materials used to construct the parts.

### Preparation:

- Display models or posters of a *wa'a kaukahi* and a *wa'a kaulua*.
- Display various types of canoe paddles.

### Pre-reading Discussion/Activities:

- Q: How are boats and canoes alike? How do they differ?
- Q: Does anyone belong to a canoe club? Share what a "typical" training day is like.

### Follow-up Activities:

- "Following Directions" worksheet, p. 54.
- "What Am I?" worksheet, p. 55.
- "Design a Sail" worksheet, p. 56.
- Visit the Midkiff Learning Center at the Kamehameha Schools to see the single canoe on display. Go to the second floor for a better view.
- Plan a field trip to a beach. Make arrangements with a canoe club who will take school groups out paddling.
- Supplemental reading: "Paka'a," *The Water of Kane*, Pukui/Curtis, 1951, pp. 25-46.

### Additional Resources:

- *Arts and Crafts of Hawaii, Volume VI*, Peter Buck, 1964.
- *The Hawaiian Canoe*, Tommy Holmes, 1981.

### Hawaiian Vocabulary:

wa'a kaulua	double-hulled canoe
wa'a kaukahi	single-hulled canoe
kino/kuamo'o	hull
kupe	upright piece; commonly known as <i>manu</i>
manu ihu	forward upright piece

manu hope  
 lā'au ihu  
 lā'au hope  
 kaupo'i  
 mo'o  
 lapauila  
 wae  
 pola  
 nohona  
 lā/pe'a  
 kia/pou  
 paepae  
 lei hulu  
 ama  
 'iako  
 hoe

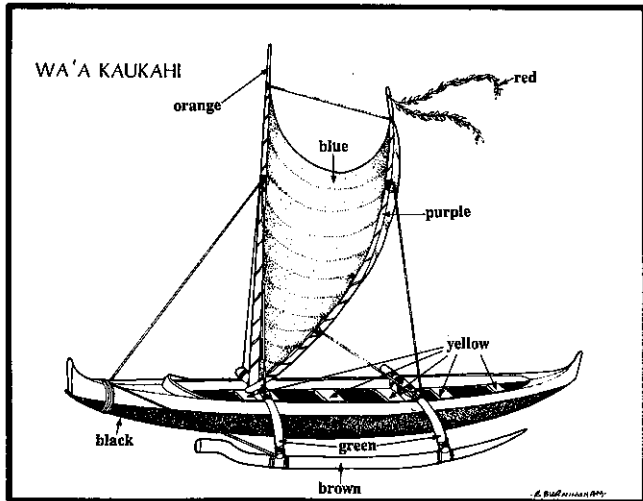
aft upright piece  
 forward piece  
 aft piece  
 median cover  
 gunnel; gunwale strake  
 cross beam  
 canoe spreader  
 deck  
 seat  
 sail  
 mast  
 boom  
 feather wind and speed indicator  
 outrigger float  
 outrigger boom  
 canoe paddle

**Answer Key:**

**FOLLOWING DIRECTIONS**

You will need several colored pens or pencils to complete this worksheet. Read the section on "Parts of the Canoe." Pay close attention to the diagrams of both the single and double canoes (*wa'a kaukahi* / *wa'a kaulua*). Then carefully read and follow the directions below.

1. Color the *ama* brown.
2. Color the *'iako* green.
3. Color the *lei hulu* red.
4. Color the *lā* blue.
5. Color the *kia* orange.
6. Color the *paepae* purple.
7. Color the *nohona* yellow.
8. Shade the *kino* black.



Teacher: It is suggested that you also color in your answer sheet.

**"WHAT AM I?" RIDDLES**

Read the section on "Parts of the Canoe." Then, identify the eight different canoe parts that are described in the paragraphs below. Answer each "What am I?" riddle with the correct term from the Word Bank.

**WORD BANK**

lā/pe'a	ama	kia/pou	pola
kino/kuamo'o	'iako	lei hulu	mo'o

1. I am the major part of the canoe. I prefer to be made with *koa* wood. What am I? kino / kuamo'o
2. I give extra height to the hull. By adding me onto the hull, I prevent water from entering the canoe. Among the many woods used in my construction are *'ahakea*, *'ulu*, and *koa*. What am I? mo'o
3. I am located near the highest point of the canoe. I indicate to the crew the direction of the wind and how fast the canoe is traveling. What am I? lei hulu
4. I am usually made of finely-plaited *lau hala* matting. I am especially helpful to the canoe when it is sailing downwind. What am I? lā / pe'a
5. I am built for a double canoe. I provide space and shelter for passengers and their gear. I am usually made from *'ilahi* wood. What am I? pola

Choose a term from the Word Bank that you have not already used. Make up a riddle for that particular canoe part. Write your riddle below.

Teacher: Please accept any reasonable answer/riddle for the *ama* (float), *'iako* (boom), or *kia/pou* (mast).

**Teacher:** Please accept any reasonable work done for the "Design a Sail" activity on page 56.

## Types of Canoes (pp. 57-62)

### General Objectives:

- To have students recognize and identify basic Hawaiian canoe forms.
- To have them recognize the different functions of various Hawaiian canoe types.

### Preparation:

- Display models of different types of canoes from Hawai'i and the rest of Polynesia.
- Display posters from **Canoes of Polynesia** (a portfolio of 12 lithographs with accompanying booklet), Herb Kane, 1974.
- Display models of canoe types from other Native American cultures (e.g. Indian, Eskimo, etc.).

### Pre-reading Discussion/Activities:

- Discuss other types of ocean-going transportation (e.g. oceanliner, yacht, sailboat, surfboard, etc.).
- Discuss other modes of transportation. Categorize them by land, sea, air, or outer space.

### Follow-up Activities:

- "True or False" worksheet, p. 61.
- "Design and Draw" worksheet, p. 62. Have students do a draft first; then transfer to a larger sheet of paper.
- Take a field trip to the Hawai'i Maritime Center at Pier 7, Honolulu Harbor. Tour the *Kalakaua* Boathouse where various canoes of Oceania are displayed. Board the *Hokule'a* and the *Falls of Clyde*, and have students compare these two vessels. Also plan to visit the Aloha Tower.
- Plan a field trip to a beach. Arrange for a canoe club to take the students out paddling.
- Categorize the different types of racing canoes (e.g. koa vs. fiberglass, U-shaped vs. V-shaped, Hawaiian vs. Tahitian, traditional vs. "bullet-type," etc.).

### Additional Resources:

- **Canoes of Oceania**, A.C. Haddon and James Hornell, 1936.
- **The Hawaiian Canoe**, Tommy Holmes, 1981.

## Hawaiian Vocabulary:

kaukahi/wa'a kaukahi	single-hulled canoe; outrigger canoe
kaulua/wa'a kaulua	double-hulled canoe
kū'e'e	double-hulled canoe with one hull longer than the other
pūkolu	triple-hulled canoe
ko'okahi, ko'olua, etc.	canoe that carries one person, two persons, etc., up to eight persons (ko'owalu)
ho'omo	single or double aku fishing canoe
kiapoko	a short fishing canoe with a round hull
peleleu	name for the very large, deep, and wide war canoes built by Kamehameha I during 1796-1801
kialoa/kioloa	racing canoe that was long, narrow, light, and swift; it was also used for one or two-man fishing and for general purposes
ihu nui	canoe with a large bow; literal meaning: "big nose"

## Answer Key:

TRUE OR FALSE	
Read the section on "Types of Canoes." Then read the statements below and determine if they are true or false. Write a T before each statement that is true and an F before each statement that is false.	
<u>T</u>	1. There were many types of canoes (wa'a) in Hawai'i.
<u>F</u>	2. A canoe with one hull was called a wa'a kaulua.
<u>T</u>	3. The most common canoe in Hawai'i was the outrigger canoe.
<u>T</u>	4. The <i>Hokūle'a</i> is a double-hulled canoe.
<u>F</u>	5. The pūkolu, or triple-hulled canoe, provided an efficient means of sailing.
<u>T</u>	6. Fishing canoes were important to the Hawaiians.
<u>F</u>	7. A kiapoko canoe was used for deep-sea fishing.
<u>F</u>	8. Kamehameha III built a fleet of war canoes called peleleu.
<u>T</u>	9. A long, narrow canoe that was light and swift was called a kialoa or a kioloa.
<u>T</u>	10. "Ihu nui" means "big nose."
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**T**eacher: Please accept any reasonable work done for the "Design and Draw" activity on page 62.



## A Brief History of the *Hōkūleʻa* (pp. 63-76)

### General Objectives:

- To familiarize students with the history of the *Hōkūleʻa*, a replica of an ancient Polynesian voyaging canoe.
- To have students recognize the vast scope of the three voyages the *Hōkūleʻa* has sailed.

### Preparation:

- Display a model of a double-hulled canoe.
- Display poster(s) of the *Hōkūleʻa*.
- Post: **The Polynesian Triangle** (a map), Ray Lanterman, 1986.
- Have newspaper and magazine articles about the *Hōkūleʻa* available to the students for reading.

### Pre-reading Discussion/Activities:

- Q: Who is familiar with the *Hōkūleʻa*? What do you know about this canoe?
- The name "*Hōkūleʻa*" has been translated as "Star of Gladness." If you owned a canoe, what would you name it? Why?

### Follow-up Activities:

- Discuss this quote by author-artist Herb Kane, who said of the *Hōkūleʻa*, "I am the spaceship of your ancestors."
- "Word Find" worksheet, p. 72.
- "Map of the Polynesian Triangle" worksheet, p. 73.
- "Map of the Voyage of Rediscovery" worksheet, p. 74.
- "Understanding Analogies" worksheet, p. 75.
- "Can You Make the Crew?" worksheet, p. 76.
- Field trip to the Bishop Museum Planetarium for a presentation on how the *Hōkūleʻa* was navigated using the sun, moon, and the stars as guides.
- Field trip to the Hawai'i Maritime Center to visit the *Hōkūleʻa*, currently being used as a "floating classroom." Also tour the Kalakaua Boathouse where other canoes of Oceania are displayed.
- Listen to: **The Musical Saga of the *Hōkūleʻa***, sung by *Hōkūleʻa* (a group). Learn one or more of the songs on this album.
- Construct a scale-sized relief map of the Polynesian Triangle.
- Supplemental reading: ***Hōkūleʻa***, Maralyn Blackman, 1976.

**Additional Resources:**

- **Hōkūle‘a: In the Path of the Ancients**, Lee Enterprises, Inc., 1985. (videotape, 30 min.)
- **Hōkūle‘a: Ka Wa‘a Kaulua**, Polynesian Voyaging Society, 1984. (16 mm film, 25 min.)
- **Hōkūle‘a: Proud Voyage Home**, Lee Enterprises, Inc., 1987. (videotape, 60 min.)
- **Hōkūle‘a: The Rediscovery Begins**, Lee Enterprises, Inc., 1985. (videotape, 60 min.)
- **The Launching of the Hōkūle‘a**, Tip Davis. (16 mm film, 30 min.)
- **Voyage of Rediscovery**, Hawaii Public Broadcasting Authority, 1987. (videotape, 60 min.)
- **The Voyage of the Hōkūle‘a**, National Geographic Society, 1976. (16 mm film, 90 min.)
- **The Musical Saga of the Hōkūle‘a**, sung by Hōkūle‘a (group), Music of Polynesia Inc., 1977. (LP)

**Answer Key:**

**WORD FIND**

The names of fifteen places that the *Hōkūle‘a* has visited or sailed by are hidden in the letters below. Find and circle the 15 place names which run up, down, forward, backward, and diagonally. The names are listed below the letters. Happy sailing!

S	N	E	W	Z	E	A	L	A	N	D	Z	D	U	K
O	A	D	E	O	D	A	L	R	O	T	A	U	Q	E
T	W	M	R	D	T	S	I	R	H	C	W	U	A	
U	O	G	O	R	R	W	U	A	M	J	V	R	S	L
A	L	G	Y	A	O	E	W	S	A	S	B	S	C	A
M	H	S	R	F	P	A	N	D	W	O	N	D	A	I
O	A	I	T	A	I	A	N	E	C	M	N	O	K	
T	T	C	J	C	A	V	A	D	I	K	A	N	A	
U	N	O	I	I	O	S	R	L	F	E	L	L	P	H
A	A	S	N	Y	F	L	D	S	T	T	H	S	L	I
R	A	Y	F	G	C	O	X	I	H	Y	G	I	U	K
C	K	E	H	I	A	G	W	K	U	I	T	S	A	I
H	J	U	T	E	P	E	I	O	K	S	Y	A	S	C
I	A	J	Q	A	B	T	W	O	O	L	U	S	D	H
P	A	C	I	F	I	C	O	C	E	A	N	E	F	A
E	X	L	D	H	C	O	S	P	N	O	U	G	N	
L	R	G	A	S	O	B	A	V	M	D	P	Q	H	N
A	T	T	M	C	R	W	R	R	H	S	A	R	J	E
G	P	D	N	B	N	E	G	M	N	Y	S	A	K	L
O	A	G	N	O	T	O	R	A	R	I	D	M	L	D

Hawai‘i	New Zealand	Rarotonga
Tahiti	Tonga	Tropic of Capricorn
Marquesas Islands	Samoa	Tuamotu Archipelago
Cook Islands	Pacific Ocean	Society Islands
Ra‘iatea	Equator	Kealaikahiki Channel

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**POLYNESIAN TRIANGLE**

Use the map of the Polynesian Triangle to help you answer the following questions.

1. Which island group is furthest north? Hawai‘i
2. Which island group is furthest south? New Zealand
3. What is the name of the easternmost island? Easter
4. Which island group is westernmost? New Zealand
5. Name the island in the northern hemisphere that is closest to the Equator. Christmas
6. Name the island group in the southern hemisphere that is closest to the Equator. Phoenix

Fill in the blank with the directional that **best** completes each sentence.

7. Hawai‘i is located southwest of the continental United States.  
 northeast    southeast    northwest    southwest
8. Hawai‘i is located northeast of New Zealand.  
 north    northeast    northwest    south

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## Answer Key cont.

Use the map of the Voyage of Rediscovery to answer the questions below. Circle the letter that best answers each question.

1. Which leg is the longest, in terms of distance?

- a. Hawai'i to Tahiti
- b. New Zealand to Tonga
- c. Samoa to Cook Islands

2. Which leg is the shortest, in terms of distance?

- a. Cook Islands to New Zealand
- b. Tonga to Samoa
- c. Tahiti to Cook Islands

3. In which direction does Leg 1 sail?

- a. north to south
- b. east to west
- c. south to north

4. In which direction does Leg 6 sail?

- a. east to west
- b. west to east
- c. south to north

Look at the inset map of Leg 2 - Tahiti to Rarotonga, Cook Islands.

5. What is the name of the westernmost island?

- a. Tahiti
- b. Huahine
- c. Rarotonga

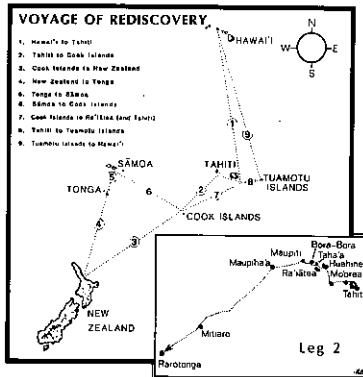
6. What is the name of the northernmost island?

- a. Ra'iatea
- b. Maupiti
- c. Maupih'a

7. Which leg on the "Voyage of Rediscovery" took the greatest amount of sailing time?

- a. Hawai'i to Tahiti
- b. Cook Islands to New Zealand
- c. Tuamotu Islands to Hawai'i
- d. Unable to determine from the given information

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## UNDERSTANDING ANALOGIES

An analogy is a similarity found between things that are otherwise not alike. If you can recognize an analogous relationship, you can understand the comparison that is being made.

The following analogies are incomplete. Read the first pair of words (in bold face) and decide what the relationship is between those words. Then read the first word of the incomplete pair. Select a word from the Word Bank below that best completes the analogy. Fill in the blank with your answer. The starred example has been done for you.

\* Land is to sea as car is to **canoe** \_\_\_\_\_.

- Plane is to sky as canoe is to **ocean** \_\_\_\_\_.
- Airplane is to pilot as canoe is to **navigator** \_\_\_\_\_.
- Driver is to roadmap as navigator is to **moon and stars** \_\_\_\_\_.
- Ancient is to modern as koa is to **fiberglass** \_\_\_\_\_.
- North is to south as Hawai'i is to **Tahiti** \_\_\_\_\_.
- Satawal is to Micronesia as Hawai'i is to **Polynesia** \_\_\_\_\_.
- Bay is to ocean as Honolulu is to **Pacific** \_\_\_\_\_.
- Hawai'i is to Tahiti as Honolulu is to **Pape'ete** \_\_\_\_\_.
- Mau Piiatug is to Satawal as Nainoa Thompson is to **Hawai'i** \_\_\_\_\_.
- Outdoor is to indoor as sky is to **planetarium** \_\_\_\_\_.
- First is to third as 1976 is to **1985** \_\_\_\_\_.
- Nautical mile is to statute mile as 6076 is to **5280** \_\_\_\_\_.

### WORD BANK

1985	canoe	Hawai'i	ocean	fiberglass
planetarium		5280	navigator	Pape'ete
moon and stars		Pacific	Tahiti	Polynesia

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**T**eacher: Please accept any reasonable answer(s) for the "Can You Make the Crew?" activity sheet on page 76.

## Summary (p. 77)

- Review the major concepts of canoe-building traditions in Hawai'i, as listed on page 77 in text.

- Suggested activities to bring this unit to a closure:

Have students stage their own play. Focus on one aspect of canoe-building or the entire canoe-building process. Assign roles and responsibilities: script writers, scenery makers, actors, musicians, etc. Invite other classes to your play.

Sponsor a "*Hōkūle'a* Day." Invite past and present crew members to speak to the class. Have students perform songs and dances in honor of the famous canoe.

- Field trips are highly recommended. Hours of operation and the cost will vary for each place of interest, which include:

### Island of O'ahu:

Hawai'i Maritime Center, Pier 7, Honolulu Harbor - this facility includes the Aloha Tower, the Kalākaua Boathouse, the *Hōkūle'a*, and the *Falls of Clyde*.

Ala Moana Beach - arrange with canoe clubs to take students out paddling.

Bishop Museum Planetarium, Kapālama

Foster Botanic Garden, Nu'uauu

Hawai'i Nature Center, Makiki

He'eia State Park, He'eia

Ho'omaluhia State Park, Kāne'ohe

Keāiwa Heiau State Park, 'Aiea

Lyon Arboretum, Mānoa

Waimea Falls Park, Waimea

### Island of Kaua'i:

Kaua'i Museum, Līhu'e

Pacific Tropical Botanical Garden, Lāwa'i; satellite garden, Hā'ena

### Island of Maui:

Maui Historical Society Museum, Wailuku

Pacific Tropical Botanical Garden's satellite garden, Hāna

### Island of Hawai'i:

Lyman Museum, Hilo

Pu'uhoonua o Hōnaunau National Historical Park, Hōnaunau

### Island of Moloka'i:

Haleolono Harbor - view the start of the annual Moloka'i to O'ahu Canoe Race (September or October).

- Canoe regattas are held during the summer months. Check each island's racing schedule and plan to attend a canoe race.

## Suggested Reading List

- Abernethy, Jane F., Suelyn C. Tune, and Julie S. Williams. **Made in Hawai'i.** Honolulu: University of Hawaii Press, 1983.
- Blackman, Maralyn. **Hōkūle'a.** Honolulu: Polynesian Voyaging Society, 1976.
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- Emory, Kenneth P., et al. "Isles of the Pacific, Parts I-IV." **National Geographic** (December, 1974), pp. 732-793.
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- Holmes, Tommy. **The Hawaiian Canoe.** Hanalei: Editions Limited, 1981.
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- Pukui, Mary Kawena (translator). "The Canoe-Making Profession of Ancient Times." **Papers of the Hawaiian Historical Society, Number 20.** Honolulu: The Printshop Co., Ltd., 1939.
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- Pukui, Mary Kawena and Caroline Curtis. **Pikoi.** Honolulu: The Kamehameha Schools Press, 1949.
- Pukui, Mary Kawena and Caroline Curtis. **Tales of the Menehune.** Honolulu: The Kamehameha Schools Press, 1985.
- Pukui, Mary Kawena and Caroline Curtis. **The Water of Kane.** Honolulu: The Kamehameha Schools Press, 1951.

Pukui, Mary Kawena and Samuel H. Elbert. **Hawaiian Dictionary**. Honolulu: University of Hawaii Press, 1986.

### **Suggested Audio-Visual Resources**

- The Coming of the Polynesians**. Honolulu: George Tahara, 1975. (16 mm film, 11 min.)
- Hawai'i: The Continuing Traditions**. San Francisco: Chevron, U.S.A., Inc., 1986. (videotape, 20 min.)
- Hokule'a: In the Path of the Ancients**. Honolulu: Lee Enterprises, Inc., 1985. (videotape, 30 min.)
- Hokule'a: Ka Wa'a Kaulua**. Honolulu: Polynesian Voyaging Society, 1984. (16 mm film, 25 min.)
- Hokule'a: Proud Voyage Home**. Honolulu: Lee Enterprises, Inc., 1987. (videotape, 60 min.)
- Hokule'a: The Rediscovery Begins**. Honolulu: Lee Enterprises, Inc., 1985. (videotape, 30 min.)
- The Launching of the Hokule'a**. Honolulu: Tip Davis, 1975. (16 mm film, 30 min.)
- Na Ki'i Hana No'eau (Series): "Ka Wa'a: The Canoe" (Program 11)**. Honolulu: Office of Instructional Services, General Education Branch, Department of Education, State of Hawai'i, 1986. (videotape, 20 min.)
- The Navigators: Pathfinders of the Pacific**. Honolulu: Sam Low, 1983. (videotape, 60 min.)
- Voyage of Rediscovery**. Honolulu: Hawaii Public Broadcasting Authority, 1987. (videotape, 60 min.)
- The Voyage of the Hokule'a**. Washington, D.C.: National Geographic Society, 1976. (16 mm film, 90 min.)

### **Additional Resources**

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- Kahalewai, Marilyn. Ahupua'a Poster**. Honolulu: Kamehameha Schools Press, 1982.
- Kane, Herb Kawainui. Canoes of Polynesia**. Honolulu: Island Heritage House, 1974. (portfolio of 12 lithographs with accompanying booklet)
- Lanternman, Ray (cartographer). The Polynesian Triangle**. Honolulu: Department of Education/State of Hawai'i and Kamehameha Schools, 1986. (map)