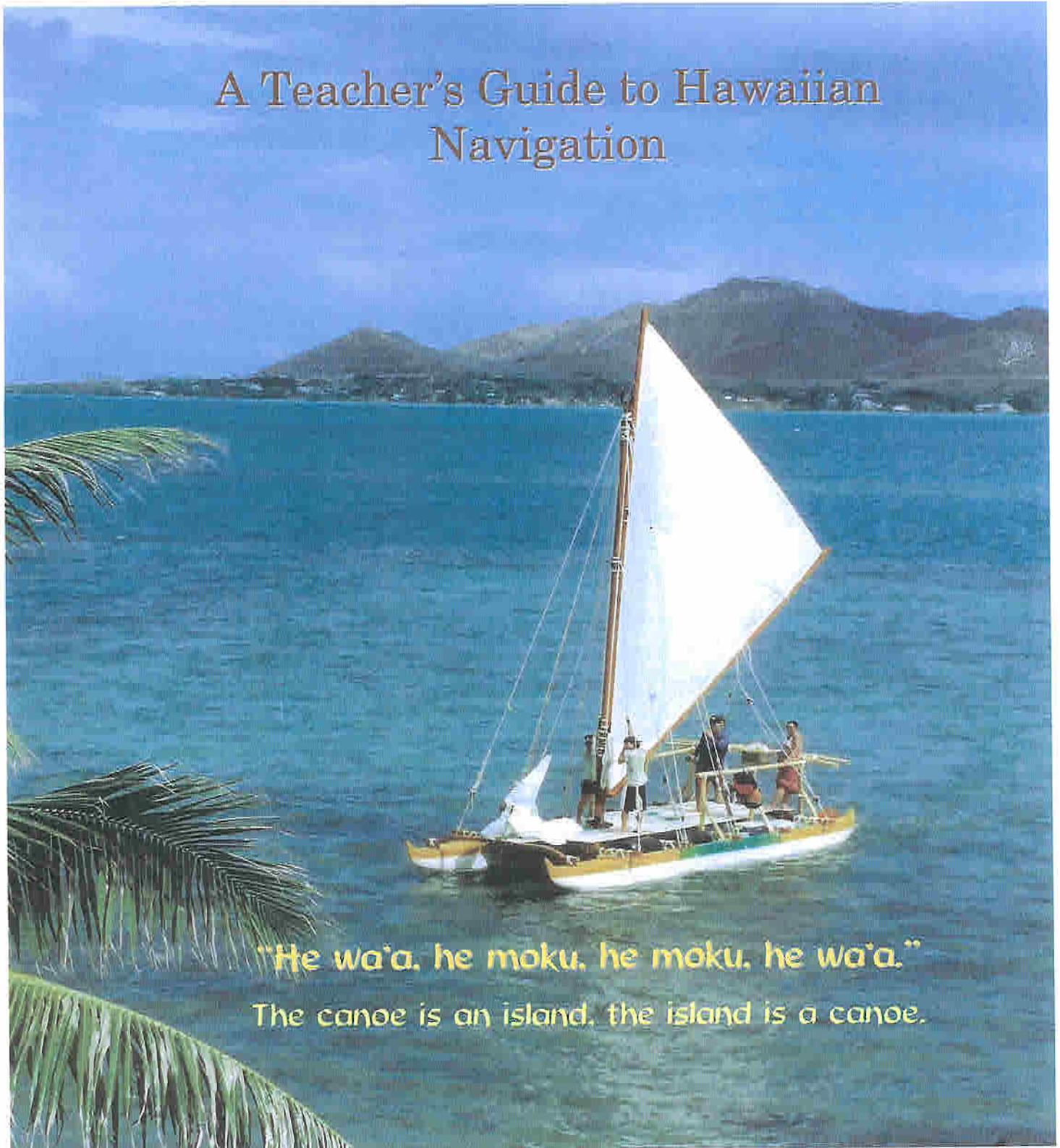




Native Hawaiian Voyaging
Curriculum (Astronomy,
Math and Science)

A Teacher's Guide to Hawaiian Navigation



"He wa'a, he moku, he moku, he wa'a."

The canoe is an island, the island is a canoe.



This project was funded by the United States Department of Education under the **Hawaiian Astronomy Curriculum Development and Teacher Training/Recruitment Project**

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Inspired by

*Nā Kālai Wa'a Moku o Hawai'i
Polynesian Voyaging Society*

and the students of **Hālau Kū Māna**

This Curriculum and all the wisdom contained here in is a reflection of two very great men, who have dedicated their lives to the preservation and the perpetuation of the art of wayfinding and seamanship. Without either of them, this would not be possible.



Clayton Norman Bertelmann (1946-2004)

Clayton Bertelmann had a big hand in the development of modern-day open ocean voyaging. Following the example of his brother, Bertelmann joined the 1985 voyage of Hōkūle‘a and sailed to Tahiti and other islands in Polynesia. By the 1992 voyage to Rarotonga, he had become captain of the ship. He later led in 1994 the Hawai‘i island canoe-building organization Nā Kālai Wa‘a in the construction of the Makal‘i‘i voyaging canoe.. When the canoe was launched, an unusual rainbow was

seen shooting straight up into the sky, a sign associated with Kamehameha One of the most significant undertakings of Bertelmann and the Makal‘i‘i ‘ohana was the 1999 voyage from Hawai‘i to Satawal in Micronesia, home of master navigator Mau Piailug.

Pius Mau Piailug

Pius Mau Piailug first came to Hawai‘i over 25 years ago from Satawal Atoll of Yap state in Micronesia. He came to Hawai‘i to share with the people of Polynesia the ancient arts of non-instrument navigation, seafaring, wayfinding, and canoe building. These arts and skills had been set aside, and not practiced by the people of Polynesia for over 150 years. Mau's unselfish and generous sharing of these ancient arts and skills made possible the building of the Hawaiian voyaging canoe Hōkūle‘a, the first voyaging canoe built in Hawaii in many generations. The ancient knowledge shared by Mau Piailug paved the way for Hōkūle‘a's epic voyage to Tahiti. Mau more than any one individual, set the stage for the rebirth of Hawaiian culture and arts enjoyed by all the people of Hawaii today.



Course Vision

Ho'okumu: Grounding and Foundation

By drawing upon the strength, wisdom, and experiences of our seafaring ancestors, this curriculum aims to introduce the student to the Hawaiian art of canoe sailing and non-instrument navigation.

Ho'okele: Direction and Connection

With an information base and skill set established, students will experience hands-on the art of sailing a double-hulled coastal sailing canoe. Through this experience, they will be able to create a deeper and more meaningful understanding of the curriculum.

Ho'omana: Nourishment and Empowerment

Empowered by their new wisdom, students will be able to create new opportunities for their own growth by expanding the curriculum to meet their new needs and curiosity.

Ultimately, it is the hope of this project to create lifelong learners who will participate in preserving the art of Hawaiian canoe sailing and non-instrument navigation. In addition, we also hope to inspire young people to pursue post-secondary degrees and careers in the science and maritime fields.

Organization of the Curriculum

The curriculum consists of six instructional units. There are five units of 6 weeks each and one unit which consists of activities which are practices continuously for the whole course.

There are three types of activities,

Ship Activities

These are activities which take place on board the wa'a or are associated directly with the sailing and navigation of the wa'a. There will typically be two instructors and six students. Students will take part in ship activities two times a week.

Beach Activities

These are activities which take place on the beach while other crews are on board the wa'a. The focus of these lessons will be to give the students the tools they will use to navigate and sail the wa'a safely. There will typically be one instructor and six students. Students will take part in beach activities two times a week.

Math and Science Activities

These are complementary activities which aim to broaden the students' understanding of the processes involved in sailing and navigation. They do not replace the traditional math curriculum but are supplementary to it. Students typically will have one math and one science class per week.

Explanation of Activity Outline

Key Concepts

An introduction to the key concepts and skills that the students are expected to gain through the activity.

Hawai`i DOE Content Standards

These are the Hawaii Content and Performance Standards II addressed for students in Grades 9-12

Grades 9-12 Performance Indicators

These are the indicator of whether or not the standards have been met.

Activity at a Glance

A brief introduction to the activity..

Time

See the introduction for the outline of time spent on these activities. It is measured in weeks and instruction periods.

Prerequisite Skills

These are skills that the students need to have prior to participating in the activity. If deficits have been identified they may address prior to or contiguous with instruction.

Skills

These are the skills which will introduced through the activity and these are the skills which will be assessed.

Assessment

The method of assessment will be explained.

Vocabulary

These are suggested words which may be used during the activity, the may be in English or Hawaiian.

Materials

Suggested material list for each activity are provided.

Background

Some background information for the teacher and/or students are listed here, these are included to give a conceptual framework to the activity being taught. This is not a comprehensive teachers guide.

Teaching Suggestions

Some suggested teaching methodologies and styles are presented.

Adaptations/Extensions

For students and teachers who have particular interest in the subject area, there are some adaptations and extensions to the activity provided.