

CARDINAL POINTS

FOR EARLY LEARNERS

RATIONALE

Understanding cardinal points is a fundamental skill that helps us orient ourselves wherever we might be. This skill can be scaffolded to further strengthen students' pilina with their `āina.

ESSENTIAL QUESTION

What is wayfinding? What is a wayfinder?

How did wayfinders know where they were going?

How can we tell which way or direction we are heading?

MATERIALS

- Computer, laptop, or tablet
- Internet connection
- Other materials listed in individual activities

LEARNING OBJECTIVES

After this lesson, keiki will be able to:

- Locate the four cardinal points on a compass.
- Explain where the sun rises and sets.
- Show awareness of Hawaiian Islands.
- Demonstrate unplugged coding skills.

VOCABULARY

- Wa'a
- Polynesia
- Wayfinding/ Wayfinder
- Voyager
- Direction
- Compass
- North ('Ākau)
- South (Hema)
- East (Hikina)
- West (Komohana)

OPENING DISCUSSION

<https://ksdigitalfiles.ksbe.edu/assets/waa/content/cardinalpointsnkk/story.html>
(Select the "Overview" button)



- Ask keiki if they have ever noticed the sun in the sky. What do they know about the sun?
- Ask keiki if they know what a wayfinder or voyager is. Discuss in general terms what they do. Then let them know that wayfinders used the sun to help guide them when they were sailing.

ACTIVITY IDEA #1: Acting Out the Sun Rising/Setting

<https://ksdigitalfiles.ksbe.edu/assets/waa/content/cardinalpointsnkk/story.html>
(Select the "Acting Out the Sun Rising and Setting" button)



- Begin the lesson by showing keiki pictures of wa`a kaukahi and wa`a kaulua. Ask keiki to share their thoughts about what these things are.
- Guide the discussion to have keiki ponder how Polynesian Wayfinders knew where they were going.
- Share with keiki that the voyagers used stars to guide them. When can you see stars? Usually at night, right? Well, did you know that there is a nui (big) star (hokū) that you can see during the day? Does anyone know the name of that star? It's the sun (lā)!
- The sun makes a similar path in the sky every day. The sun rises in the east and sets in the west. Wayfinders used this knowledge to help guide them.
- Ask keiki, "Would you like to play a game?"
- Choose a keiki (or a small group) to be the sun.

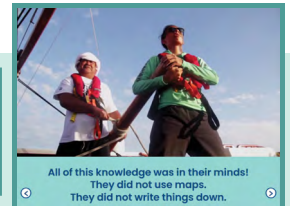
- At night, we cannot see the sun, it's like the sun is sleeping... (have keiki pretend to sleep).
- Early in the morning, at sunrise, the sun begins to rise in the east (hikina)...have keiki rise from their sleeping position.
- The sun goes high in the sky and travels to the west (komohana)...have keiki move across the circle area.
- Ask keiki to stand still for a moment and hold out both hands. Their right hand is pointing north (ākau) and their left hand is pointing south (hema).
- These directions, N, S, E, and W are called the cardinal points.
- This is how Pacific Wayfinders knew where they were going!
- Have keiki continue to move to the west and then slowly lower themselves like the setting sun.
- Ask if any other keiki would like to try.



ACTIVITY IDEA #2: Draw Your Own Compass

<https://ksdigitalfiles.ksbe.edu/assets/waa/content/cardinalpointsnkk/story.html>

(Select the "Draw Your Own Compass" button)



- Begin by reviewing what keiki already know (types of wa`a, wayfinding—how they knew where they were going; stars/sun; cardinal points—N,S,E,W).
- All of this knowledge was in their minds! They did not use maps. They did not write things down. It's really amazing how they were able to store all that knowledge and have it (point to your head) whenever they needed it.
- Well, today many voyagers use maps, a compass, and other tools.
- Have keiki look at a map of Big Island (from Ka Na`i Aupuni Curriculum) or another map your keiki are familiar with.
 - Where is the island?
 - What is all around Hawai`i?
 - What is this (point to the compass)?
 - Remember when we pretended to be the sun rising and setting? We were able to use our bodies to find N, S, E, and W. This is a compass and we can use it to identify where things are on the map.
 - What shape do you see?
 - What other things do you notice about the compass?
 - Could you draw a compass?
 - Let's draw one together!
 - First, draw a circle in the middle of your paper.

- Now, let's draw the two straight lines that cross in the middle. One should begin from the top and go to the bottom, the other should begin on one side and go to the other side
- Now let's add the cardinal points. The N for north goes on top. If we travel all the way down to the bottom of that line we will be south, we can add an S there.
- Remember how we used our right and left hands to find east and west when we were pretending to be the sun? Okay, our right hand was east, so let's put an E on the right side of our compass. Our left hand was west, so let's put a W on the left side of our compass.
- Maika'i! I wonder if we could use our compass and/or bodies to indicate N, S, E, and W for our school. How could we do that keiki? What is in the sky that might be able to help us?

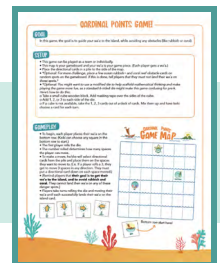
Activities to further learning:

- Find cardinal points of the school
- Add N, S, E, W, and the sun rising and setting cards to the map of Hawaii. This is a group activity that gives keiki an opportunity to actively participate during the lesson and will scaffold their understanding of the concepts being introduced. Additionally, kumu can include `Ōlelo Hawai`i of the cardinal points.
- Ask keiki to pretend that the whiteboard is the ocean. Add the N, S, E, and W cards to the whiteboard.
 - Just like the sun travels a path through the sky, the wa`a travels from place to place.
 - Use two wa`a cut-out cards and have keiki place them somewhere on the whiteboard. The first card placed on the whiteboard shows where the wa`a began and the second shows where it went. Keiki are asked to discuss what direction the wa`a traveled.
 - Keiki will use a variety of positional words, kumu reinforces the use of cardinal points.



ACTIVITY IDEA #3: Unplugged—Coding with Cardinal Directions

https://ksdigitalfiles.ksbe.edu/assets/waa/content/cardinalpointsnkk_activity/mapgame.pdf



- Begin by calling keiki to participate in a small group.
- Today, we are going to play a game. We are going to help our wa`a travel.
 - This is our map. Show keiki the grid they will be using. Your wa`a will start down here. Where would you like your wa`a to start? Keiki can choose any column along the bottom.
 - Here is where you're getting your wa`a to go. Kumu shows keiki a picture card of an island and places it on the map.
 - Kumu also shows keiki the directional cards. Keiki will roll a die to begin

their voyage to the island. Each roll will be worth the corresponding number of directional cards. The keiki will chart a course to the island over a series of rolls. Keiki each take turns rolling the die.

- This game can be played as a team, the keiki will work together to chart the course to the island. Once keiki are familiar with the game, they can play the game board independently.

- Obstructions can be added to the game later to create more challenging code sequences.

Using a modified die

Using a standard 6-sided die could possibly make this game confusing for pre-k keiki. Creating a modified die helps scaffold their mathematical thinking and makes playing games more fun.

- Take a small cube wooden block. Add masking tape over the sides of the cube. Add 1, 2, or 3 to each side of the die.
- If a cube is not available, take the 1, 2, 3 cards out of a deck of cards. Mix them up and have keiki choose a card for each turn.

SHOW US WHAT YOU DID!



Send us a photo or video of your class doing these activities for a chance to be featured on the Holomoana website!

Email it to ittraining@ksbe.edu.



SUPPLEMENTAL LINKS

<http://www.hokulea.com/kau-ka-pea-holo-ka-waa/>

<https://www.ksbe.edu/digital/holomoana/>

<https://kaiwakiloumoku.ksbe.edu/moananuiakea>

(Learning standards are on the next page)



Kamehameha Schools®



POSSIBLE LEARNING STANDARDS CONNECTIONS

E Ola! <https://blogs.ksbe.edu/eola/>

'Ike kūpuna: ancestral experiences, insights, perspectives, knowledge, and practices.

Aloha 'aina: Hawaiian patriotism; love for the land and its people.

Transfer Goal A: Students will independently use their learning to construct an explanation from observations of scientific phenomena. Overarching Understanding: Observations can lead to questions, predictions and conclusions.

- **Essential Question:** How can observations create evidence?
- **Explanation:** Construct meaning from observations.

E Ola! Aligned Work Sampling

<https://sites.google.com/ksbe.edu/nakulakamalii/iii-n%C4%81-kula-kamali%CA%BBi/n%C4%81-kula-kamalii-e-ola-booklet>

Personal and Social Development

D3-Participates in the group life of the class. (P3/P4)

Mathematic Thinking

A3-Uses words and representations to describe mathematical ideas. (P3/P4)

Scientific Thinking

A2-Uses senses and simple tools to explore. (P3)

A2-Uses senses and simple tools to explore solutions and problems. (P4)

A4-Communicates experiences, observations, and ideas with others through conversations, representations, and/or behavior. (P3/P4)

ISTE Standards <https://www.iste.org/standards/iste-standards-for-teachers>

1.1.a: Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

1.1.b: Students build networks and customize their learning environments in ways that support the learning process.

1.7.c: Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

— KS DIGITAL HOLOMOANA —

Cardinal Points for Early Learners

<https://www.ksbe.edu/digital/holomoana/>