

## Science Lesson 2: Using a Compass

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### Hawaii DOE Content Standards:

Science Standard 2: Nature of Science: Understand that science, technology and society are interrelated. *The invention of the compass and clock allowed western navigators to circumvent the globe. Indigenous Polynesian way finding practitioners developed unique ways of orienting in the environment. Use a compass to orient in the environment and compare to orientation based on the sun's position.*

### Key concept:

Identify and explore sense of place through mapping, cultural stories, and learning place names and locations, and geographic mapping and orientation from a global to a local scale.

**Performance indicators:** After completing this lesson, students will . . .

- take compass readings
- use a compass and the sun to orient in the landscape

### Note to the Student:

"When you have completed this lesson you will be able to orient in the landscape with a compass and use line of sight, landmarks, a compass, and a map to identify your location."

### Activity at a glance:

Introduce students to the compass as a direction indicator of magnetic north. Have students orient themselves using the sun as an east-west indicator.

**Time:** One class period

**Prerequisite skills:** None

### Skills to be introduced:

Orienting and taking a directional reading with a compass

### Assessment:

Students will create a journal entry of the class activities.

### Vocabulary:

Compass, degrees, orientation, navigation, magnetic north, way finding

### Materials:

Compasses, grid paper and clip board





## **Activity Overview**

1. Ask the students to orient themselves facing east to the point of the rising sun. Have the students name the cardinal directions or the houses of the Hawaiian compass and indicate the direction of each.
2. Give each student a compass and explain the function of the magnet and arrow to point to magnetic north. Explain the system of degrees that divides the compass into cardinal directions at 0, 90, 180, 270 degrees. Note the difference in direction from the first orientation with the sun. How many degrees difference was the solar and compass orientation to east?

## **Cultural Values**

### **Pono**

Being correct, accurate, and precise when describing orientation. This would be important for any navigator responsible for the safety of the crew and vessel.

### **Malama**

Perpetuating other ways of knowing in the face of technology to preserve culture and history

### **Laulima**

Working together as a team

### **Kokua**

Taking initiative, service, clean up maintenance

### **Lokahi**

Unity, harmony, leadership skills

## **Adaptations/ Extensions**

Create an orienteering course where directions from a starting point are given in degrees direction and paces to next point. For example: face 270 degrees and walk twenty paces. When you reach that point take a new heading and number of paces: face 180 degrees and walk fifty paces. Allow students to create directions for each other to reach a specific goal or move through a course of obstacles.

### **Connections to other curricula or lessons:**

Orient with point line of sight, notice the creation of data or information when numbers are given context, in this case degrees and paces.

**Background, teaching suggestions, resources:** See Science lecture 2: "Using the Compass" in Appendix B.

## **Safety**

Be aware of the environment you are working in and potential safety hazards of the terrain.