Navigation — Where Are We, Where Are We Going, & When Will We Get There?

This course will allow students become masters of navigating the sea. Students explore how technology, tools, and mathematics influence navigation. They build their own compass rose, create and examine nautical charts, and utilize online mapping to determine distance. Students walk away from this lesson with the basic navigational techniques to chart their own course.

Grade: Elementary, Middle, High School

Standards Supported

Next Generation Science Standards:

3-PS2-3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
3-PS2-4. Define a simple design problem that can be solved by applying scientific ideas about magnets.
4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.
5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
HS-PS4-2. Evaluate questions about the advantages of using digital transmission and storage of information.
HS-ETS1-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

Ocean Literacy Principles:

Principle 6. The ocean and humans are inextricable interconnected C.3 The circulation of warmer water from the equator out toward the poles distributes heat around the Earth