

Unit: Motivation to Explore

Lesson #4: Henry the Navigator and the astrolabe

Time Frame: (3)-45 minute lessons

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Standards Addressed:

National History Standards

- 1.E Interpret data presented in timelines and create timelines
- 2.E Read historical narratives creatively
- 3.B Consider multiple perspectives.
- 4.B Obtain historical data from a variety of sources
- 4.C Interrogate historical data.
- 4.F Support interpretations with historical evidence

Alaska State Content Standards

Geography

- D.4 Analyze how changes in technology, transportation, and communication impact social, cultural, economic, and political activity

History

- A.1 Understand chronological frameworks for organizing historical thought and place significant ideas, institutions, people, and events within time sequences.
- B.2 Understand the people and the political, geographic, economic, cultural, social, and environmental events that have shaped the history of the state, the United States, and the world.
- C.3 Apply thinking skills, including classifying, interpreting, analyzing, summarizing, synthesizing, and evaluating, to understand the historical record.

Alaska State Performance Standards

Reading

- E.B.3 Restate and summarize information or ideas from a text and connect new information or ideas to prior knowledge and experience.

Social Studies Knowledge, Skills, Dispositions:

Thinking Skills:

- Draw inferences from factual information
- Recognize the value dimension of interpreting factual material
- Combine critical concepts into a statement of conclusions based on information
- Restate major ideas of a complex topic in concise form
- Communicate orally and in writing

Reading Skills:

- Use picture clues and picture captions to aid comprehension

- Use literature to enrich meaning
- Read for a variety of purposes: critically, analytically, ...to answer a question, ...to skim for facts
- Recognize and understand an increasing number of social studies terms

Learning Objectives: At the completion of this unit, students will know:

- That Prince Henry the Navigator made many contributions to navigational and sailing technology and to mapping the African coast.
- That the invention of the Astrolabe greatly impacted sailing technology
- Many of the techniques explorers used in determining their location

Cooperative Skills Addressed:

- Communicate own beliefs, feelings, and convictions
- Contribute to the development of a supportive climate in groups

Technology Inclusion:

None in this lesson

Lesson Plan

Prior Assignments or Preparation:

- This lesson assumes that students have already done lesson 1, have already begun their Explorer Source books and individual time lines, and are comfortable working with them.
- It also assumes teachers able to download documents from the Internet

Day 1: Prince Henry the Navigator

Materials Needed

Butcher paper or Post-It poster paper
 Explorer Source Books
 Copies of *News of the Nation, Explorers Issue #3*, "Prince Henry Launches Age of Exploration!" (attached as JPGs by page)

Procedure / Activities

1. Opening activity: Open today's lesson by posing the following question to the class:
 If you were out on the ocean and couldn't see land anywhere around you, how would you know where you were? How did early sailors know where they were going? List the answers on a sheet of butcher paper or Post-It poster paper to refer to later. Over the next couple of days we will look at navigational techniques that many explorers used, and learn about one man who made great contributions to navigational and sailing technology.
2. Introduce Prince Henry, also known as Henry the Navigator and:
 read *News of the Nation, Explorers Issue #3*, Prince Henry Launches Age of Exploration!

OR

read an informational piece to the class on Henry the Navigator, such as any of the following <http://www.mariner.org/age/princehenry.html>
<http://www.win.tue.nl/~engels/discovery/henry.html>
and then use a Kagen technique such as Think-Pair-Share or Round Writing to recall the information.

Day 2: Navigational Technology

Materials Needed

Explorer Source Books
Copies of “Early Navigation Methods” – located at
<http://www.mariner.org/age/earlynav.html>

Procedure / Activities

1. As a class, reflect on how the astrolabes worked. Did anything surprise them? How could these be useful today? What do modern explorers use in place of such tools?
2. Today, we are going to read about some early navigation methods. Read and discuss “Early Navigation Methods,” then add a paragraph and illustrations to the Explorer Source Books about some of the techniques.
3. Tomorrow you will have a chance to make your own navigational tool and then try using it.

Day 3: Building and Using an Astrolabe

Materials Needed

Explorer Source Books
Astrolabe instructions for each student (attached in JPG form)

Procedure / Activities

1. Review the previous days’ discussions. How did one of Prince Henry’s tools, the astrolabe, greatly improve navigational abilities?
2. Build an astrolabe and discuss how to use it. Then for homework on the next clear evening, have students practice using it.
3. Add the instructions for building an astrolabe to the Explorer Source Books and have students write an explanation of how to use them.
4. Guide students in adding Prince Henry and some of his contributions to their personal timelines.

Summative Assessment: Use the knowledge you have learned, to answer the following question in your explorer source books: How did early sailors know where they were going?