

# "Where Am I?" Reading guide and activities

BY PAULINE S. JOHNSON

The following lesson will enable students to learn, discuss, and write about the methods and technologies that enabled sailors to travel across the sea during the Age of Exploration and about improvements in mapmaking. This lesson can be done by individual students or in cooperative groups.

## Learning outcomes

Students will:

- Learn about the methods and technologies that enabled sailors to travel across the sea during the Age of Exploration and about improvements in mapmaking
- Use high levels of thinking in reacting to primary and secondary source material
- Experience historical empathy as they put themselves into the stories of early explorers
- Assess the importance and impact of technological innovations
- Write about the information they have discussed using supporting details from the reading and discussion

## Teacher planning

### **MATERIALS NEEDED**

- Computer with internet access for each group of students **or** one computer with an LCD projector
- Students will need notebook paper and pencils
- Copies of graphic organizer for each student **or** each group of students
- Copies of reading guide for each student **or** each group of students

## TIME REQUIRED FOR LESSON

40 to 50 minutes

## Procedure

1. Preview activity: Have the students get out a piece of notebook paper. Instruct them to draw a map from your description. Then without mentioning proper names, describe the way to a particular room in the school that is some distance from your own. For example, this describes the walk from my classroom to the main office in my school:

Go to the classroom door and take one pace straight out. Then turn to the right and go about 12 paces. Next, turn left and go out a door and walk 3 paces and turn directly right. Go about 10 paces and turn left and walk 25 paces to another door. Open the door, and walk 15 paces and then turn 45 degrees to the right and walk another 40 paces. Turn to the left and open the door. Where are you?

2. The students may complain that this was too difficult and was not exact enough for them to determine the position accurately enough. If they don't, ask them if this was easy for them. Why or why not? Would my paces be different from theirs? How would that affect the directions? Would they like to try to find their way to another town in North Carolina with directions like these? What about to a particular place in Europe or Africa with these kind of directions? Why would this be difficult?
3. Explain to the students that they will learn about location, direction, navigation, mapmaking, early explorers, and how technology affected them all.
4. Read aloud the introduction from the article "Where Am I? Mapping a New World."<sup>1</sup> Ask students for their impressions of the introduction. *For many students, this will be new information. Some students will not have a good grasp of chronological time and will not understand that there was a time when humans were unaware of the regions of the earth. It is important that the students understand that this is **not** an example of "they were stupid back then." You may want to make a connection with modern mapping of the floors of the oceans or of distant planets — places that we are still exploring with modern technology. We have to fill in the maps as we acquire new information.*
5. Ask the students how the early explorers were able to find their way across the ocean to the New World. *Answers will vary. Most students will mention a compass; some may mention latitude and/or longitude.*
6. Introduce the article by telling students they will read about the methods and technologies that enabled sailors to travel across the sea.
7. Put the students into groups of three or four with a computer for each group. Have them access the article "Where Am I? Mapping a New World."
8. Give each student or group a graphic organizer and reading guide and have them complete both as they work through the article.
9. Allow students time to read, discuss, and write. The amount of time needed will depend on the ability level of the students.
10. After students have completed the graphic organizer and the reading guide, discuss several of the higher level thinking questions as a class. Suggested questions are:

Questions 3 and 4 under “The Science of Cartography”, question 2 under “Finding a Way on the Seas,” question 2 under “Exploring and Explaining New Lands, and questions 3 and 4 under “Imagining America.”

11. You may choose to follow up this activity with a written assignment:
  - Imagine that you are the navigator on a ship bound for the New World in the early 1500s. How do you find your way?
  - What was the impact of technology on the navigation and mapmaking of the Age of Exploration and the early colonial period?
  - What do you believe was the most important of the technological advances in navigation/mapmaking? Why?
  - Students can also elaborate on the reading guide question “Would you have been willing to make the trip from Europe to the New World during the Age of Exploration? Why or why not?” They could put this in the form of journal entries, much like those they have read about the Columbus voyage.

## Assessment

- Assessment for this activity will be completed reading guides and graphic organizers. The teacher’s guide for each of those items appears below with suggested answers.
- The discussion should include high levels of thinking and analyzing. Suggestions are included in the teacher’s guide.
- The writing assignments should be grammatically correct and well-written. They should also include supporting details from the reading and/or discussion.

## “Where Am I?” graphic organizer

Problem	Technology/Idea	Solution	Usefulness/Success in Age of Exploration
Making a flat map of a round earth			
	Magnetic compass/dry compass		
		Was used to sight a star or the sun and the horizon to measure the angle so they could figure latitude	
Determining longitude (distance east and west): Sailors had to measure ship speed, then multiply by the time they had traveled; portable accurate clocks had not been invented yet.			Dead reckoning was not accurate because it was based on estimation. Chip log measured in knots was also approximate. The marine chronometer developed by Harrison was quite accurate but wasn't invented until 1765.

# Reading guide: “Where Am I?”

## “THE SCIENCE OF CARTOGRAPHY”

1. Why is it so difficult to make a map that shows accurate distances and shapes of regions?
2. Who developed the first map using lines of latitude and longitude?
3. Look at the map in the left sidebar of the article. Why do you think the map was created with Jerusalem in the center?
4. The article states, “Only when Europeans discovered the Americas and wanted to exploit the wealth of the new lands did they find a need to treat mapmaking more scientifically.” Give an example that explains this statement.
5. Why was it so difficult for cartographers to draw maps during the Age of Exploration?

## “FINDING A WAY ON THE SEAS”

1. What were the major difficulties in trying to navigate in the open seas before the modern era?

2. Would you have been willing to make the trip from Europe to the New World during the Age of Exploration? Why or why not?

3. How did technology help to solve many of these problems?

### **“EXPLORING AND EXPLAINING NEW LANDS”**

1. As you read the journal from the first Columbus voyage, think about the ways that Columbus and his sailors determined that they were close to land each day. List four specific examples after you have finished the reading.

2. You will notice that for many of the journal entries the author wrote that even though they had traveled a certain number of leagues, he actually wrote down less. For example:

19 September. Continued on, and sailed, day and night, twenty-five leagues, experiencing a calm. Wrote down twenty-two.

Why do you think he believed that was necessary?

3. How do you think the explorers estimated the daily mileage that they traveled on foot?

### **“IMAGINING AMERICA”**

1. Look at the Waldeesmuller’s map and read the information about it. List four areas of the world that he obviously knew about. Then list three areas that he drew incorrectly.
2. Even after discovering the Americas, why were the Europeans so anxious to find an easier route to Asia?
3. How did it happen that Giovanni da Verrazano saw the Pamlico Sound and believed it was the Pacific Ocean?
4. By the time Verrazano was looking at the Pamlico, the survivors of the Magellan voyage were back in Europe. Why do you think the “Sea of Verrazano” was still drawn on maps even though the Magellan voyage had proven how large the earth is?
5. Why is the true “Northwest Passage” too difficult to prove useful?

### **“THE SHAPE OF THINGS TO COME”**

1. What technological advances have made it possible to determine locations very accurately?

## Graphic organizer: Teacher's guide

Problem	Technology/Idea	Solution	Usefulness/Success in Age of Exploration
Making a flat map of a round earth	<i>Mathematical formula to "project" points on the earth's surface onto a map based on latitude and longitude</i>	<i>Mercator projection</i>	<i>Useful, but distorts — when it was devised people didn't know the accurate size of the earth or the correct location and shape of continents</i>
<i>Figuring out direction on the seas</i>	Magnetic compass/dry compass	<i>Could use the compass to follow directions</i>	<i>Magnetic north isn't true north and can change</i>
<i>Determining latitude (distance north or south of the equator): Sailors had to measure by sighting stars or the sun</i>	<i>Cross-staff, astrolabe, sextant</i>	Was used to sight a star or the sun and the horizon to measure the angle so they could figure latitude	<i>The cross-staff and astrolabe were difficult to hold and measure since it was required to do it manually; the sextant was more successful</i>
Determining longitude (distance east and west): Sailors had to measure ship speed, then multiply by the time they had traveled; portable accurate clocks had not been invented yet	<i>Dead reckoning, chip log, marine chronometer</i>	<i>Was able to keep accurate time so that they could know how far they had traveled from the home port (one hour was 15%)</i>	Dead reckoning was not accurate because it was based on estimation. Chip log measured in knots was also approximate. The marine chronometer developed by Harrison was quite accurate but wasn't invented until 1765.

# “Where Am I?": Teacher's guide

## “THE SCIENCE OF CARTOGRAPHY”

1. Why is it so difficult to make a map that shows accurate distances and shapes of regions?

*The earth is round and maps are flat. The distortion that results makes it difficult to accurately indicate distances and shapes of regions.*

2. Who developed the first map using lines of latitude and longitude?

*Ptolemy*

3. Look at the map in the left sidebar of the article. Why do you think the map was created with Jerusalem in the center?

*Answers will vary, but students should make the connection between Christianity and the Holy Land. The reading mentions that Europeans represented maps “symbolically and were drawn based on religion and philosophy.”*

4. The article states, “Only when Europeans discovered the Americas and wanted to exploit the wealth of the new lands did they find a need to treat mapmaking more scientifically.” Give an example that explains this statement.

*Answers will vary. Students may indicate that once the Europeans had found valuables such as gold or silver they would want to find it again. They could also interpret the statement to mean items that were used to improve mapmaking, such as the Mercator projection, compasses, or the technological improvements in measuring distance and determining longitude and latitude. If students do the latter, ask them to explain the section about exploiting wealth of the new lands so that they see the connection between the improvement of mapmaking and the desire to acquire more riches easily.*

5. Why was it so difficult for cartographers to draw maps during the Age of Exploration?

*The students should understand that methods of measurement were inefficient and examples of estimation at best.*

## “FINDING A WAY ON THE SEAS”

1. What were the major difficulties in trying to navigate in the open seas before the modern era?

*“... they had neither sextants nor accurate chronometers, and their compasses' readings were often misleading. Their measurements of latitude were inaccurate, and their measurements of longitude were barely more than guesses.”*

2. Would you have been willing to make the trip from Europe to the New World during the Age of Exploration? Why or why not?

*Answers will vary. The reasons given should reflect the information from the reading.*

3. How did technology help to solve many of these problems?

*Students should make connections between the first section where the technology for accurate mapping and finding location is described and the difficulties that hampered the early explorers.*

## “EXPLORING AND EXPLAINING NEW LANDS”

1. As you read the journal from the first Columbus voyage, think about the ways that Columbus and his sailors determined that they were close to land each day. List four specific examples after you have finished the reading.

*There are many examples for this. Some include:*

- *September 14 — saw sea birds that they believed lived within 100 miles (25 leagues) of land*
  - *September 16 — they sighted weeds*
  - *September 19 — pelicans, the weather (drizzled without wind)*
  - *October 8 — weeds, land birds*
  - *October 9 — birds*
  - *October 11 — birds, cane, log, a carved stick, a board, a stalk with rose berries*
2. You will notice that for many of the journal entries the author wrote that even though they had traveled a certain number of leagues, he actually wrote down less. For example:

19 September. Continued on, and sailed, day and night, twenty-five leagues, experiencing a calm. Wrote down twenty-two.

Why do you think he believed that was necessary?

*Answers may vary, but students should recognize in the first entry that the phrase “determined to count less than the true number, that the crew might not be dismayed if the voyage should prove long” expressed the wish that the crew of the ships would not worry about how far they had traveled. The logs were being adjusted to make the voyage seem shorter.*

3. How do you think the explorers estimated the daily mileage that they traveled on foot?  
*Most students will indicate that the explorers just guessed. They would have had experience at traveling specific distances, particularly in a military situation, and would have been able to use that to estimate distance.*

## “IMAGINING AMERICA”

1. Look at the Waldeesmuller’s map and read the information about it. List four areas of the world that he obviously knew about. Then list three areas that he drew incorrectly.  
*He knew about: Europe, Middle East, Africa, Florida, Cuba and Caribbean islands (although drawn too large), Yucatan Peninsula, coast of Mexico, Panama, east coast of South America — these were mentioned in the reading.*  
*Incorrect: Southeast Asia, Indonesia, North America, west coast of Mexico and South America, North Africa was too large — mentioned in the reading. If students look at the map, they may notice other incorrect areas. The east coast of Asia is not accurate and Australia is missing.*
2. Even after discovering the Americas, why were the Europeans so anxious to find an easier route to Asia?  
*They wanted the trade goods that they knew were in the Far East and India.*
3. How did it happen that Giovanni da Verrazano saw the Pamlico Sound and believed it was the Pacific Ocean?

*Since the Europeans didn't know the geography of the Americas, when da Verrazano saw a large body of water to the west of the Outer Banks he imagined it was the Pacific.*

4. By the time Verrazano was looking at the Pamlico, the survivors of the Magellan voyage were back in Europe. Why do you think the "Sea of Verrazano" was still drawn on maps even though the Magellan voyage had proven how large the earth is?

*Answers will vary. Students should realize that communication was very slow and sporadic. There was no guarantee that members of the different expeditions would have shared information.*

5. Why is the true "Northwest Passage" too difficult to prove useful?  
*Too cold and icy.*

#### **"THE SHAPE OF THINGS TO COME"**

1. What technological advances have made it possible to determine locations very accurately?

*GPS, computers, accurate maps from satellites, compasses that adjust to local magnetic deviance.*

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## North Carolina Curriculum Alignment

### **SOCIAL STUDIES** (2003)

#### **Grade 8**

- **Goal 1:** The learner will analyze important geographic, political, economic, and social aspects of life in the region prior to the Revolutionary Period.
  - **Objective 1.03:** Compare and contrast the relative importance of differing economic, geographic, religious, and political motives for European exploration.

### National Standards

In addition to meeting objectives of the North Carolina Standard Course of Study, this lesson plan addresses the following national standards.

#### **NATIONAL GEOGRAPHY STANDARDS**

Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.

Standard 9: The characteristics, distribution, and migration of human populations on Earth's surface.

### On the web

#### **Where am I? Mapping a New World**

<http://www.learnnc.org/lp/editions/nchist-twoworlds/3.2>

Early European travelers to the Americas reported bits and pieces of information back to Europe. Over the centuries, mapmakers assembled these reports into maps. As time went by, explorers and mapmakers compiled an increasingly accurate understanding of the Americas and of the world. To do so, they had to invent new tools for mapmaking, embrace radical new ideas about the shape of the world, and discard cherished beliefs.

#### **More from LEARN NC**

Visit us on the web at [www.learnnc.org](http://www.learnnc.org) to learn more about topics related to this article, including America, Ferdinand Magellan, Giovanni da Verrazano, Martin Waldesmuller, Martin Waldsemuller, Mercator projection, Mexico, North America, Northwest Passage, Pacific Ocean, United States, cartography, exploration, history, latitude, longitude, magnetic compass, maps, measurement, navigation, sextant, tools, and world.

### Notes

1. See <http://www.learnnc.org/lp/editions/nchist-twoworlds/3.2>.

### About the author

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I am currently the Director of a Teaching American History Grant for Buncombe County Schools, Asheville City Schools, and Madison County Schools. I have taught history and English in the

seventh and eighth grades for over twenty-six years at Reynolds Middle School in Asheville, North Carolina. I am currently doing adjunct work for Mars Hill College and Western Carolina University. I have a Masters Degree from Western Carolina University and am Nationally Board Certified in Early Adolescence/Social Studies-History. I am certified to teach K-12 and I also have Academically-Intellectually Gifted certification.