

Where in the World Are You?

Rosemary Wagner, WVPT

Overview

Topic: Mapping Skills, Longitude, Latitude. This lesson will help students to locate places on a map using longitude and latitude lines. They will gain an understanding about how lines of longitude and latitude are identified using the sun and moon.

Length of Lesson

2 45-minutes lessons

Video/Technology Hardware/ Software

TV/VCR with remote control

1 classroom computer with Internet access and TV hook-up (or a computer lab).

Geography Skills #3, Latitude

Geography Skills #4, Longitude

AppleWorks software or another database software

Websites: www.fourmilab.ch/earthview/vplanet.html

Web Applications

The World Wide Web is used for problem solving. Using a specific website, students will create a database to view simulations of the earth in order to compare the locations based upon lines of longitude and latitude.

Problem Solving: Simulation of different ways to view the earth from either the sun or moon. (Post-Viewing)

Learning Objectives

The students will be able to:

- identify the prime meridian, and equator

- use latitude and longitude to locate specific sights on a map
- relate how the sun and moon helps locate exact places in the world
- construct a paragraph describing one of the climate regions

(This lesson addresses Va. SOLs Social Sciences: 3.5, 4.1, 4.2; Science 3.8, 4.7, 6.10; English (Assessment) Computer/Technology 5.2, 5.4.

Materials and Teacher Preparations

For each student:

- maps with longitude and latitude lines
- pencils
- paper plate
- crayons

For every two students:

- 1 orange with four horizontal cut lines on it

For the teacher

- orange slicer [Using the orange slicer make four horizontal lines (do not actually cut orange) on the orange from top to bottom, so that the lines evenly separate the orange into four equal sections.]
- class size map of the world with longitude and latitude lines



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Preparatory/Pre-Viewing Activities

1. Give each pair of students an orange that has cut lines on it. Ask students what this reminds them of. Lead students to say that the orange is like a model of the world. Discuss what the cut marks on the orange would represent. Students should be able to identify that these marks are like some of the lines on a map or globe.

2. Show students a map that uses a grid. Look at the labels on the grid map, and compare them to the class size world map.

Focus for Viewing/Other/Technology

Tell students you're going to show them a video that will explore what the lines on a map are and how they help us find specific locations on a map. Tell students they will learn how to find a location on a map with gridlines. Ask them how they think the sun, and moon, help us find directions.

Pause vs. Stop

When using a video interactively with students, teachers need to decide when to use **PAUSE** and when to use **STOP**. **PAUSE** the video when the anticipated discussion or activity will take less than two minutes. **STOP** for longer periods. Pausing for too long at one time can cause video heads on the VCR to become clogged which may require cleaning to correct.

Viewing and/or Online Activities

1. **FOCUS:** In this first, segment I want you to listen for why we need imaginary lines on a map. **CUE *Geography Skills #3***, until just after a picture of a globe is shown. **PAUSE** when imaginary gridlines are mentioned. Ask: How did the Ancient Greeks use the sun? (to help draw gridlines)

2. **FOCUS:** Look for a special gridline that divides the earth in half. **RESUME. PAUSE** after equator is shown and mentioned. Ask: What is this special

line? (Have a student point to this line on the TV.) Pass out paper plates to the students. Explain that this will represent a model of earth. Instruct students to draw the equator on their model earth.

3. **FOCUS:** In this next segment, you will notice other lines on a map. What are these lines called and how are they different from or alike the equator? **FAST FORWARD** to sun and earth. **PLAY. PAUSE** after Arctic Circle is shown and Land of the Midnight Sun is mentioned. Ask: How can these lines help us? What are these lines called? (Latitude lines) Tell students to add the other latitude lines to their model earth.

4. **FOCUS:** What does the map you are about to see have that our map does not? What are they called? Why are they important? **FAST FORWARD** to after yellow earth and Arctic Circle are mentioned. **PLAY. PAUSE** after lines of latitude are shown and each zone is described. Ask: Can we find a place on earth now? Explain.

5. **FOCUS:** Since we use the sun to help us during the day what might we use at night to help us find our location? In this segment let's see if there is a way. **FAST FORWARD** to where the narrator says, "Moving an eye to the center of the earth." **PLAY. PAUSE** after you see the star Polaris. Ask: What did you find out about determining locations at night? What are the two stars we use to help find where we are? (sun, and Polaris)

6. **FOCUS:** Now we're going to look for what else we need to find a location on the globe. **CUE *Geography Skills #4*** to just after Descartes is shown and his contributions are described. **PLAY. PAUSE** when the narrator says, "Let's look at the traffic jam at the North Pole," and the top of earth is shown. Ask: How does this compare to your orange? How is it divided? (equal sections)

7. **FOCUS:** How do you think these lines can help you? **RESUME. PAUSE** when the earth is divided into two parts and the hemisphere names are given. Ask: How is the earth divided? (eastern and western hemisphere by degrees)

8. FOCUS: We have seen how the sun helps with latitude, how do you think the sun would help us determine longitude? Allow students to share predictions. **FAST FORWARD** until you see the sun. **PLAY. PAUSE** before clocks are shown and the narrator says, “This system would not become effective until the 18th Century.” Ask: Were any of your predictions correct? How does the sun help with determining longitude? (Where the sun is at noon is your line of longitude.)

9. FOCUS: Why do you think this method wasn’t effective until the 18th century? **RESUME. PAUSE** after chronometer is mentioned and shown. Ask: Can you tell me the invention that helped determine time on the Prime Meridian? (Chronometer) At this time have students draw the prime meridian on their paper plate earth.

10. FOCUS: In this last segment, pay careful attention. How are lines of longitude and latitude used together to determine specific locations? **RESUME. STOP** after use of latitude and longitude is demonstrated. Instruct students to add longitude lines to complete their paper plate maps. Then tell students to draw a picture of North America on the map. After all students have drawn their lines show them a real map with latitude and longitude and assist students in putting the degrees on the lines.

Post-Viewing and/or Online Activities

1. Have students go to www.fourmilab.ch/earthview/vplanet.html and go to the section of the site that they can enter in latitude and longitude lines to view that part of the earth. Have them first view an area close to where they live, and then let students chose their own location using the map with longitude and latitude lines.

2. As a whole group have students list words that are associated with the sun, or finding locations on a map. Instruct each student to write a poem about the sun’s influence on earth. Students should demonstrate knowledge of the connection between the sun and longitude and latitude lines in their poems.

3. The teacher will need to make a template for students with fields named *Latitude*, *Longitude*, and *Place* to use before students begin entering data. Directions for defining fields, and editing the Layout can be found at home.adelphia.net/~rwagoner/applehom.htm. Using AppleWorks Database program fill in latitude and longitude of a point in Virginia, North America, and three places of the student’s choice. The students will need their maps with longitude and latitude lines to complete this assessment. The students will enter latitude, longitude, Continent, and Hemisphere. Then they may sort by Hemisphere. After the database is complete students will write a paragraph describing any patterns they found when they sorted their locations. Clip art may be added if desired to decorate the form. **Special Needs Students Modifications:** For the Database, provide a student helper to assist with getting the information entered correctly.

Assessment

The database and paragraph should be graded for accuracy in entering data, processing data, and analyzing data.

Action Plan

1. Take students on a field trip to a science museum to explore the sun’s effect on earth.
2. Have students write letters to someone involved in making maps to find out more about using longitude and latitude lines in creating maps.
3. Have a fisherman or pilot come in to talk to the students about how they use latitude and longitude.
4. Invite a cartographer to speak to the class about making maps and demonstrate part of the process to the students.

Extensions

Language Arts: Students write letters to someone from ancient times describing how to use latitude and longitude.

History and Social Science: Make a map of the classroom using gridlines.

Physical Education: Work with the Physical Education teacher to play games that use directions or that have students work in parallel lines.

About the Author

Rosemary Wagoner

Rosemary Wagoner is in her twelfth year of teaching with Waynesboro Public Schools. She is currently teaching at William Perry Elementary, which is a member of the Basic School Network. She has taught grades K-4, and is currently teaching third grade. Rosemary has taught in the Extended School Year program with Waynesboro Public Schools for nine years. She has also served on the Evaluation Committee, and Budget Review Team for the Waynesboro School Board. She is active in the Waynesboro Education Association and enjoys working toward what's best for Waynesboro's children.

Rosemary has served on various school committees and is currently Chair of the Technology Committee at William Perry Elementary. She has used technology with her students for the past eleven years. She also enjoys showing teachers new ways to use technology with their students. She was awarded Outstanding Young Citizen in 1992, by the Waynesboro Jaycees. Rosemary received her Bachelor's degree from Bridgewater College and is currently working on her Master's degree from George Washington University in Educational Technology Leadership.

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