Looking for Landmarks: Using Latitude/Longitude and Geometry Coordinates

Students compare and contrast the use of latitude and longitude and coordinates while locating sites around the United States.

Author: Patricia Hutchinson
Grade Level: 5
Duration: 1-2 class periods

National Geography Standards

ELEMENT ONE: THE WORLD IN SPATIAL TERMS
1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

Arizona Geography Strand

CONCEPT 1 World in Spatial Terms
PO 2 Locate features in the world on a map using latitude and longitude

Overview

This lesson allows students to compare the use of longitude and latitude in geography with the use of geometry coordinates in math through a simple search for states.

Purpose

In this lesson, students will use latitude and longitude (coordinate math) to locate sites around the United States.

Materials

• Famous Landmarks of the United States map

Other Arizona Standards

Mathematics Common Core Standards

Geometry

5.G.1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

5.G.2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Objectives

The student will be able to

1. Accurately locate the given latitude and longitude on a map of the United States.

• Pencil
• Ruler
• Latitude and longitude worksheets and Answer Key
• Landmark sheets grids #1, #2, #3, #4
• Landmark sheets #1, #2, #3, #4 answer keys
• Quiz and Answer Key (transparency)
Looking for Landmarks: Using Latitude/Longitude Geometry Coordinates

2. Name the geographical feature that can be found at that location.

3. Complete a coordinate sheet that will show the outline of the state by using XY axes.

4. Name the state that has been draw on the coordinate sheet.

Procedures
Students should have knowledge of latitude and longitude prior to attempting this lesson. On the globe, lines of constant longitude ("meridians") extend from pole to pole, like the segment boundaries on a peeled orange. On a globe of the Earth, lines of latitude are circles of different size. The longest is the equator. Students should have an understanding of simple XY coordinate procedures (X = horizontal; Y = vertical).

1. Open the lesson with a discussion of what are landmarks (a human or natural feature that is easily recognizable and may have special meaning to a group of people). Have the students discuss the landmarks listed on the Famous Landmarks of the U.S. map.

2. Then ask students to find the latitude and longitude of 4 sites (Carlsbad Caverns, Niagara Fall, Mount Rushmore, and Grand Canyon) on the Famous Landmarks of the U.S. map.

3. When students locate the latitude and longitude, they should identify the geographical landmark that is located at this intersection.

4. Give students a blank coordinate sheet to complete. The coordinates will be listed. The student should sketch the coordinates.

*TEACHER NOTES:

There are several levels of difficulty on the coordinate worksheets – #1- easiest, #2- moderate, #3-difficult, #4-easy.

5. A picture of the state in which the landmark is found will appear if the student has followed the coordinates correctly. Tell the students to write the name of the state at the top of the page.

6. The four sites are:
   1) GRAND CANYON
      City: Grand Canyon
      State: Arizona
      Latitude: 35.9°N Longitude: 112.1°W
   2) MOUNT RUSHMORE
      City: Rapid City
      State: South Dakota
      Latitude: 43.5°N Longitude: 103.2°W
   3) NIAGARA FALLS
      City: Niagara Falls
      State: New York
      Latitude: 43.0°N Longitude: 79.0°W
   4) CARLSBAD CAVERNS
      City: Carlsbad
      State: New Mexico
      Latitude: 32.1°N Longitude: 104.2°W

Assessment
In this lesson, students will complete a simple coordinate sketch that will reveal the state and location of the landmark that was pinpointed by the latitude and longitude coordinates. Work should be graded in the following manner.

Math: Coordinates done correctly, i.e., state is correctly drawn = 15 points. A score of 12 or higher will be considered mastery.
Looking for Landmarks: Using Latitude/Longitude Geometry Coordinates

Geography: Name of state is given = 2 points
Name of the Landmark is given = 2 points.
Quiz = 8 points.
A score of 10 or higher will be considered mastery.

Additional points could be given for naming if the landmark is natural or man-made.
Grand Canyon (natural)
Mount Rushmore (man-made)
Niagara Falls (natural)
Carlsbad Caverns (natural)

Sources
Definitions of Latitude and Longitude - Glossary p. 64. National Geographic Map Essentials. NGS. 2001