

Getting the Right Coordinates



Grades 3–6

Using AIT Products

- *Assignment: The World*, any weekly program

Overview

Assignment: The World presents global events while promoting understanding of key geography, history, science, and sociology concepts. Each program reviews the week’s key world events and explains unfamiliar vocabulary terms. This lesson uses place names of news events presented in the program and the longitude and latitude coordinates for those places to introduce skills in using world maps. This learning activity directly addresses the National Council for the Social Studies recommendations for:

Content strand III: People, Places, and Environments. “Today’s social, cultural, economic, and civic demands on individuals mean that students will need the knowledge, skills, and understanding to ask and answer questions such as: Where are things located? Why are they located where they are? What patterns are reflected in the groupings of things? What do we mean by region?”

Objectives

- Use latitude and longitude coordinates to locate a specific place on a global map
- Collect and analyze data about the locations of current and historic events
- Represent a specific location using latitude and longitude coordinates



“With the possible exception of the equator, everything begins somewhere.”

—C.S. Lewis, novelist (1898–1963)

Vocabulary

coordinates
degrees (in relation to map coordinates)
equator
latitude
longitude
meridian
parallel
Prime Meridian

Preparation

Materials Needed

- AIT video *Assignment: The World*, any weekly program—CUE the tape to the beginning of the program before the “Top Story” segment (segment length varies 3–5 minutes of the total 15-minute program)
- Print materials related to the ATW program (see Planning Notes for more information)
- Large world map showing latitude and longitude
- Small Sticky dots—at least five different colors—the smaller the better
- Access to a spreadsheet computer program such as MS Excel and a template form similar to the [attached spreadsheet](#)
- Handout explaining how longitude and latitude coordinates are written (attached)
- An orange or other spherical shape that can be written on, a black fine-tip marker, a heavy duty rubber band that fits the orange (or other sphere) for each student group
- Globe
- Optional for review activity: Internet-enabled computer and projection device

Planning Notes

- Preview tape and a copy of the program’s transcript (see <http://atwonline.org/scripts/2008/index.html>).
- Mount the map on a wall in class, so that all parts of the map can be easily reached by students.
- Assign a color to each category listed in the .xls file according to the five colors of adhesive dots you have on hand.
- Provide the handout: “Getting the Right Coordinates” to students and access to .xls file or a copy of the spreadsheet.

Time

This activity will take about three 20–30-minute sessions in class, in addition to homework and assessment time.

Procedure—Day 1

Introduce Topic: Using Longitude and Latitude to Find Locations on World Map

Explain that while the world is more or less spherical, maps try to represent the curved parts of the earth in a flat, two-dimensional way.

Preparation—Introducing Content

Have students work in small groups to create simplified globes. Use the orange and rubber band to demonstrate where the Equator is located; ask students to draw the Equator on their oranges. Explain that all latitude measurements are in relationship North or South of the Equator. Mark each orange at the poles: “N” and “S.” Have students draw two parallel circles north of their orange’s equator and two south.

Next, use a rubber band to demonstrate how longitudinal lines run through the poles. Clearly explain that longitudinal lines are NOT parallel. Have stu-

dents use the rubber bands to draw four circles equally spaced around their oranges. Ask student groups to list all the ways that they notice the latitude lines and longitude lines are different and any patterns that they notice. Make sure the discussion includes the following topics.

- Longitude lines are all the same distance from pole to pole.
- Latitude lines are various distances around the globe.
- Latitude lines are parallel.
- Longitude lines are not parallel.
- The grid lines created by longitude and latitude lines are not square.

Find the Equator on the globe. Note that parallel lines north of the Equator are measured in degrees, with the same numbers in the Southern Hemisphere. This is the angle that would be formed by a line from the center of the earth to the Equator as a base and a radius from the center of the earth to that latitudinal parallel. So, the North Pole is 90 degrees North, and the South Pole is 90 degrees South, equaling 180 total parallels. Northern points can also be designated as positive numbers while southern points are written as negatives.

Show the location of the Prime Meridian—0 degrees longitude—which runs through England. There are longitudinal lines west and east from the Prime Meridian up to 180 degrees (180° is located in the mid-Pacific, and some of this line coincides with the International Date Line). The meridians in the Western Hemisphere are designated by degrees West (or the minus sign -), and those in the Eastern Hemisphere are designed by degrees East (or are represented as positive numbers).

Further, each degree of latitude and longitude is divided into 60 segments called minutes, and each minute is divided into 60 sections called seconds. In

the episodes of *Assignment: The World*, only degrees and minutes are shown. Latitude first, and then longitude. Show students the symbols for degrees, minutes, and seconds:

° Degrees

' Minutes

Example: 32° 18' N 122° 36' W (Mention that they sometimes may see location information that is more specific, indicating seconds, like this: 32° 18' 23.1" N 122° 36' 52.5" W.)

" Seconds

Tell students that they may also see locations indicated like this, with latitude on top and longitude on the bottom.

32° 18' N

122° 36' W

SEE: http://nationalatlas.gov/articles/mapping/a_latlong.html

Procedure—Day 2

Review the longitude and latitude lesson of Day 1. For this review, if you have access to a classroom computer and projection device, take students to the *Assignment the World* Web site interactive “Finding Locations with Latitude and Longitude” at <http://atwonline.org/latitude.html>. Have students take turns reading the descriptive information on each page of the interactive.

Point out that the program you will be watching about current events uses the map coordinates of degrees and minutes to show the location of events. These coordinates will appear on screen as numbers and letters. Tell students you will PAUSE the video when the first one comes up.

Video

Begin the video at the start and continue to the “Top Story” segment, stopping whenever the first map coordinates are seen on screen. PAUSE the video and write the map coordinates on the board. Ask students to consider what they have learned about longitude and latitude to try to decipher the coordinates. (Hint: Longitude is W or E; latitude is N or S). Remind them that the first number is the degree, the second is the minutes within that degree, and the third is seconds within the minutes.

Choose a few students to find this location on the wall map. Ask students to write the map coordinates and the country and city it locates in a note pad. Pause whenever coordinates appear on screen, having them record all the map coordinates shown in the program, and include some notes about the place and event related to the coordinates.

Group Work

Following the program, have students meet in groups to share their notes and flesh out information. Provide students with a copy of the spreadsheet provided for this lesson—either electronically or in hard copy format. Tell the groups to choose a category for each event from this list:

- Human Conflict
- Natural Disaster
- Making the World Better
- Politics and Government
- Other (If students agree, additional categories for events can be added. Be sure to have more colored dots on hand.)

As a class, discuss and come to consensus on which category each event fits. Place the colored dot that is assigned to that category on the map in the proper spot, using the coordinates.

Homework

Each student should write a short reflection in his or her journal about a specific event, its location, and how that event may relate to either another event he knows of, or something similar that has happened in his life. The next day, ask students to state the country and city or region of the related event that they chose to write about, and use the map to find the coordinates of the second event. You can perform a quick assessment by having all students identify the coordinates of these secondary locations, walking around the room to check for accuracy.

Procedure—Day 3

One week or more later, using a new *Assignment: the World Program*

Repeat the activity with the new program. Ask students to record the coordinates and to make notes about the places and events in the ATW program. Once again, have them share information in their groups to flesh out their notes. And, ask them to assign a category to each event, using their spreadsheets. Place corresponding dots onto the world map.

In groups, ask students to notice if any category seems to have more events noted than another category. Ask student groups to create a graph or pie chart to represent the distribution of events within each category.

Homework

Each student should write a short reflection in his or her journal about the data contained in her spreadsheet, explaining why she thinks there is more of one type of event in the news or to predict whether or not the data represented by these two programs might change over time. Use an example in class—for instance, national elections in the United States are cyclical, so during a presidential election, we can expect more stories about politics; while natural disasters occur more randomly. The purpose here is to get students to begin to analyze

news coverage within a larger context—to get them to think about “why” something is newsworthy. As part of the journal assignment, ask students to suggest a recent local or national event not covered in the program that would fit into a specific category. Cite the location of that event by stating the city and country.

When students return to class, ask them to record at the end of their journal entries the coordinates for the event they noted.

Assessment

Individual Assessment

For the journal, use this scoring rubric:

Points	Criteria
0	No entries
10	Student journal includes inadequate entries with little or no clear indication that the student gave any thought to the assignment.
25	Student journal includes entries that show some thought and consideration.
35	Student journal includes entries for which the student uses appropriate terms and completes most of the assignment. The coordinates listed are in proper form.
45	Student journal shows active reflection and good choices in comparisons noted in the journal. The coordinates listed are in proper form and are close to being correct with no more than one large error or two very near errors.
50	Student journal demonstrates good execution and the coordinates are exactly correct and in proper form.

Group Assessment

Assess each group’s charts for accuracy in representing the data contained in the spread sheet. Use these assessments formatively to identify which groups need more time and attention to understand how to represent the data. Target those groups during upcoming weeks when more data will be collected from new programs of *Assignment: the World*.

The quality of the group discussion, collaboration, and cooperation can be assessed by direct observation and by peer review, asking students to note in their journals how well they feel their groups worked together on the assignments.

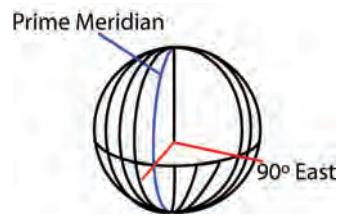
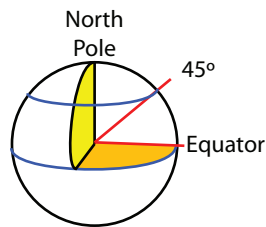
Getting the Right Coordinates

TERMS

We use two coordinates to find a place on the earth—the imaginary map lines called latitude and longitude.

Latitude: Parallel map lines that occur between 0° (the Equator) and 90° North (the North Pole) as well as 90° South (the South Pole).

Longitude: Meridian lines that are drawn from the North Pole to the South Pole. These lines are not parallel because they intersect at each pole. Longitude lines begin at the Prime Meridian (0°), which travels through Greenwich, England, and continue West and East to 180°.



WRITING COORDINATES

The form for writing coordinates includes the degree of the designated latitude or longitude, then, the number of minutes and within that measurement (60 minutes per degree).

The coordinates can be written in several ways. Most commonly they are written using one of the two following methods.

- On a single line, with longitude first, followed by latitude. Like this:

Example: 32° 18' N 122° 36' W

- Or like this (Longitude is listed on top, followed by latitude.)

38° 54' N

77° 02' W