

LATITUDE & LONGITUDE

RECOMMENDED GRADES: 4-8



TIME NEEDED: 20 MINUTES

Description

Students walk on lines of latitude and longitude on the map and compare these to lines on a globe. They use latitude and longitude to describe their location.

Learning Objectives

Students will:

- learn about the concepts of latitude and longitude and absolute location
- be introduced to physical features on the map

Materials

- Globe (inflatable or other)

Preparation

4 minutes

- Read over the activity and make adaptations for student grade level.

Rules



Have students remove shoes before walking on the map.

DIRECTIONS

Latitude

1. Have students begin on the southern yellow border of the map. Ask for seven students to line up on the Equator and face the teacher at the North Pole. Younger students may wish to hold hands (this assures continuity of movement). All seven take steps to the next line (10° north latitude) and stop. Then, take steps to the next line of latitude line (20° north latitude) and stop. Again, to the next line (30° north latitude.)

LATITUDE & LONGITUDE

- *You are measuring distance from the Equator. This is what latitude means! Latitude is a way we can measure distance going north and south. These lines do not really appear on Earth. They allow us to accurately measure distance.*

2. Ask students to return to the yellow border. Have four new students move to the blue circle in the lower right corner of the map. Ask one student to stand on the Equator, another on 10° north latitude, another on 20° north latitude, and another on 30° north latitude. Ask that they hold hands and step across the map only on their line of latitude.

- *Are these lines getting closer?* [No, they are parallel. Because they measure distance from the Equator, they have to be equal distances from each other.]
- *What is the Equator's number?* [0°. That is where this measurement begins on all maps.]

Have students return to the southern yellow border.

Longitude

1. Ask for a new group of eight students to line up along the Equator. Place each student at the “crossroad” with a line coming from the north. This line is called longitude and measures distance from the line known as the prime meridian.

2. Direct students to hold hands (or reach out toward their neighbor), walk five steps toward the North Pole and stop. Remind them to stay on their line of longitude. Walk five more steps and stop. *What is happening to the distance between you?* Take a few more steps until all get to 80° north latitude. Now students will be standing shoulder to shoulder.

- *Why do lines of longitude appear to be curved?* [Lines of longitude are straight lines drawn upon the curved surface of Earth.]

3. Show students these lines on the globe. Explain that they are straight lines on the surface of the globe, but when drawing these lines on a flat map, these lines will be arched, which is the distortion that occurs when representing a sphere on a two-dimensional surface. Each line of longitude cuts Earth in half; whereas the Equator is the only line of latitude that does this. All other lines of latitude make smaller and smaller rings around the Earth.

Prime Meridian

Direct all students to return to the southernmost yellow border. Assign them to identify different lines of longitude and observe their number. Ask someone to go and stand on the prime meridian (known as the Meridian of Greenwich, or prime meridian, on this map).

- *What number is this line given on the map?* [0°]

Location, Location, Location!

Direct all students to stand on an intersection of latitude and longitude. Call them out one by one and have them give their coordinates. Explain that this is how all locations on the planet can be identified. The location of any place on the planet can be accurately described by a latitude and longitude “crossroads.”

EXTENDING THE LEARNING

- Have students determine their school's coordinates either by use of a local map, research online, or the use of a GPS unit.
- Introduce **minutes** and **seconds** to show how longitude and latitude may be identified with greater specificity.
 - Not every location on Earth can be found by finding a point of intersection of longitude and latitude as represented on this map. Only every tenth degree of latitude and longitude is drawn on this map. Even if every line of latitude and longitude were drawn on the map, there would still be significantly large areas between the points of intersection. Ask: *How do you describe the coordinates for locations with more specificity?* [using minutes and seconds]
 - Tell students that a minute is $1/60$ of a degree, and a second is $1/60$ of a minute.