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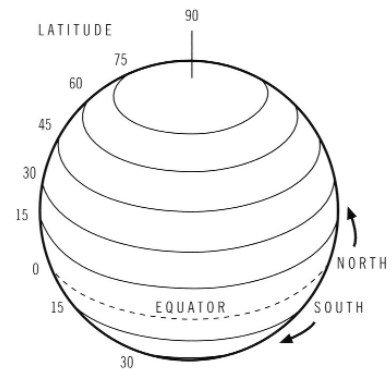
Showcase: Ocean Drifters— Investigating Ocean Currents

ACTIVITY 1: WHERE ON EARTH ARE WE? (STUDENT VERSION)

How can we find a certain place on a map or globe of the Earth? One way is to use latitude and longitude. These words refer to a system that helps us locate places on the Earth.

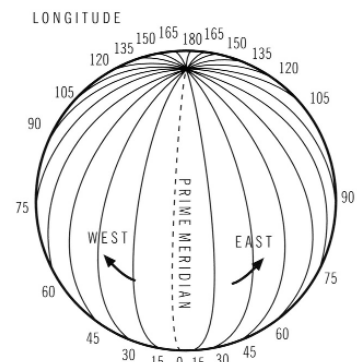
What is latitude?

Latitude is a way to measure the distance north or south of the Earth's Equator. The lines of latitude are parallel to the Equator. The Equator is at 0 degrees latitude (0°). The North Pole is at 90 degrees north (90°N). The South Pole is at 90 degrees south (90°S). Lines of latitude can be called "parallels," as in "the 45th Parallel."



What is longitude?

Longitude is a way to measure the east-west distance on Earth. It is measured from zero longitude, also called the Prime Meridian. The Prime Meridian passes through the North Pole, the South Pole, and Greenwich, England. The other longitude lines are measured as being either east (E) or west (W) of the Prime Meridian. Lines of longitude can be called "meridians."



How does the system of latitude and longitude help us find places on Earth?

Any place on the Earth can be found by showing where a latitude line and a longitude line cross each other. However, many places do not lie exactly on a main line of latitude and longitude. So, degrees have to be divided into smaller units. Each degree can be broken down into 60 smaller units, called minutes. Each minute is made of 60 seconds.

The sign $^\circ$ stands for degrees. So, if you see 45° , that is the same as saying "45 degrees."

$$45^\circ = 45 \text{ degrees}$$

The sign $'$ stands for minutes. So, if you see $25'$, that is the same as saying "25 minutes."

$$25' = 25 \text{ minutes}$$

The sign " stands for seconds. So, if you see 30", that is the same as saying "30 seconds."

$$30'' = 30 \text{ seconds.}$$

Look at the globe to the right. "P" stands for a specific point on the Earth. That point is found where the latitude line 40 degrees north, or 40°N crosses the longitude line 60 degrees west, or 60°W. The latitude measurement is always written first, before the longitude measurement. As you can see, the point is found at 40°N, 60°W.

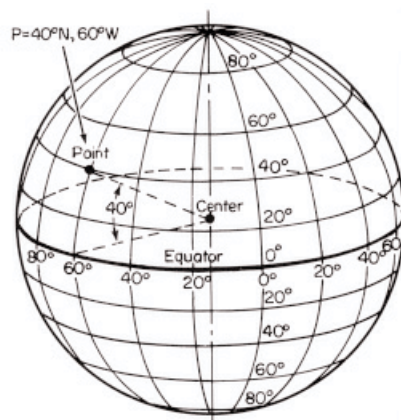


Figure 1: Diagram of latitude, longitude grid on a spherical Earth (After Charton, 1988).

Now, practice finding points on a chart. Use the YOTO Drifter Tracking Chart.

Find these locations on the YOTO Drifter Tracking Chart.

Latitude	Longitude	Where are you?
26°N	80°W	
15°N	90°W	
42°30'N	71°W	

Now, practice giving locations by reading the chart. For each place listed below, write its latitude and longitude intersection (where the lines of latitude and longitude meet on or near the locations.)

Place	Latitude	Longitude
New Orleans, Louisiana		
The island of Martinique		
Key West, Florida		

This activity was adapted from "Track a NOPP Drifter" written by Anna C. Switzer for the NOPP-Consortium of Oceanographic Activities for Students and Teachers (COAST). To find out more, please visit: <http://drifters.doe.gov/> and www.coast-nopp.org. All rights reserved.

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