

## Measuring the Earth – Lines of Latitude and Longitude

We can imagine the Earth as a sphere, with an axis around which it spins. The ends of the axis are the North and South Poles. The **Equator** is a line around the earth, an equal distance from both poles. The Equator is also the latitude line given the value of 0 degrees. This means it is the starting point for measuring **latitude**. Latitude values indicate the angular distance between the Equator and points north or south of it on the surface of the Earth.



Figure 1. Equator, latitude and longitude grid lines.

The Earth is divided equally into 360 degrees of **longitude**. There are 180 degrees of longitude to the east of the **Prime Meridian**; when the directional designator is omitted these longitudes are given positive values. There are also 180 degrees of longitude to the west of the Prime Meridian; when the directional designator is omitted these longitudes are given negative values (Figure 3). The 180-degree longitude line is opposite the Prime Meridian on the globe, and is the same going either east or west.

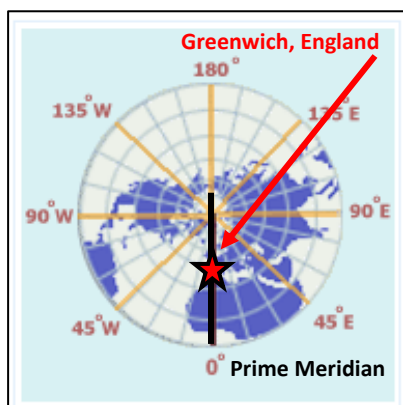


Figure 2. North Polar view showing lines of longitude, and prime meridian (dark line).

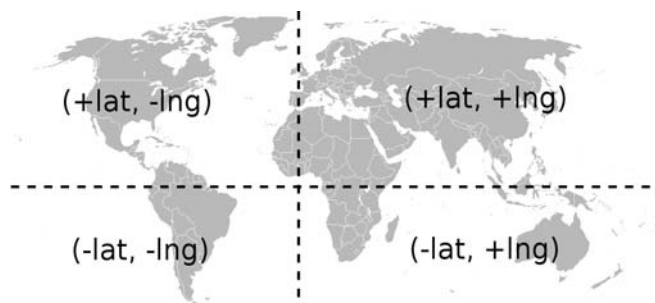
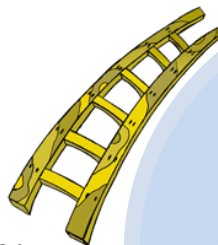


Figure 3. Global areas showing negative and positive values of longitude and latitude.

### Prime Meridian

Lines of longitude, called meridians, run perpendicular to lines of latitude, and all pass through both poles. Each longitude line is part of a great circle. There is no obvious 0 degree point for longitude, as there is for latitude. Throughout history many different starting points have been used to measure longitude. By international agreement, the meridian line through Greenwich, England, is currently given the value of 0 degrees of longitude; this meridian is referred to as the **Prime Meridian**.



**User Tip:** To remember which lines around the globe are longitude and which are latitude, think about the “long” lines from pole to pole– these are longitude. The lines of latitude form a “ladder” that you could use to step up the globe, and wrap around the earth starting at the equator.