

Latitude and Longitude

When pilots or a ship captains want to find a place on a map, they look for its coordinates. The coordinates tell the exact location of a place, either to find it, or to know where you are.

Each place or location on earth has its own coordinates, which is like a special address. Since the coordinates of every location are made up of numbers, people can use them no matter what language they speak.

The coordinates are a series of numbers marking where the latitude and longitude of a place intersect on a map.

Latitude refers to a series of imaginary east-west lines that encircle the earth. These lines are called "parallels" because they run parallel to the equator. Each parallel has a number -- measured in degrees -- that indicates its distance from the equator, either north or south. All of the locations on a parallel, no matter where they are on the globe, have the same latitude. The latitude of the equator is measured as 0, while the latitude at the north and south pole 90 degrees north or south.

Longitude refers to a series of imaginary north-south lines that stretch between the north pole and the south pole. These lines are called "meridians." Each meridian has a number that indicates its distance from the "prime meridian." This is the place chosen as zero longitude. The Prime Meridian line runs vertically, north and south, right over the British Royal Observatory in Greenwich England, from the North Pole to the South Pole.

Just like with parallels, every location on the same meridian line has the same longitude. there are 180 vertical longitude lines east of the Prime Meridian and 180 vertical longitude lines west of the Prime Meridian. The 180 degree line is called the International Date Line, and it is directly opposite of the Prime Meridian.

Maps, therefore, have a series of lines going north and south, which correspond to longitude, and a series of lines going east and west, which correspond to latitude. This is known as the grid, and grid systems help us to pinpoint locations by showing us where the lines cross.

You can find the exact location of any place on earth when we know where the latitude and longitude lines intersect. For example, Death Valley, California, is at 36 degrees north (latitude) and 116 degrees west (longitude).

In the early days, sailors would measure latitude by looking at the sun's position in the sky. That way they would have an idea of how far they were

from the equator. They would estimate their longitude by checking the position of the stars in the sky at exact times in order to understand how far north or south they had traveled.

It was very easy to make a mistake, though, especially if the sky was cloudy or the weather was bad. Ships could go many miles off course during a storm, for example, and this could be very dangerous.

Today, with the aid of satellites that fly above the clouds, GPS (Global Positioning System) systems can tell us the exact location of a place whether it is cloudy or sunny, day or night. A GPS device in our cars or on our phones tells us the location of a place by pinpointing its latitude and longitude.