



Latitude & Longitude

Social Studies Problem Solving - Where are you on the Planet?

You and your best friend are on a small island in the Atlantic Ocean. You are at a very interesting place in the world, the exact intersection of the Equator (0° Latitude), and 30° W Longitude ($0, -30$)

One day you decide to take a trip in your Cessna 172, a small single engine seaplane. You decide to fly due north (true not magnetic) to see if there are any interesting islands close to your location. You'll be flying all day, so you pack food, fresh water, life jackets, a life raft, some maps, paper plates and a roll of paper towels, your school supply pack (pencils, calculator, protractor, paper, ruler), satellite phone, and fishing equipment.

You take off in the morning flying due north on the 30° W Line of Longitude. One thing you didn't think about though was the limited fuel range of your Cessna. You also didn't check the speed of the headwinds, how much fuel you had or the exact time you left. After several hours of great flying over the Atlantic, your engine dies; you are out of fuel! You bring her down like a glider and make a safe landing on the water. Everyone is OK, but all of your navigation electronics are out.

It's getting dark; you need to call for help but you don't know your exact location. It's a big ocean out there; you'll need to give the rescue team the Longitude and the Latitude to find you. You know you are on 30° W Longitude, but you don't know your Latitude. You look through the plane to find a solution in your backpack and fishing gear. You figure out a plan and work quickly to solve this problem. In matter of minutes, you call the Coast Guard with your satellite phone and give them your coordinates. Within an hour, the Coast Guard comes and brings you the fuel you need to fly back home. **How did you determine your latitude? (scroll down for solution)**

1. If you had enough fuel to keep going north, at what latitude would you first see land? Where would you be?
2. If you took another trip the next day, and flew west along the equator, at what longitude would you first see land? Where would you be?
3. If you took another trip the next day, and flew east along the equator, at what longitude would you first see land? Where would you be?
4. What did you learn about navigation and Latitude and Longitude?

Solution: Using the cardboard tube from the paper towel, find and view the North Star, Then sight down to the horizon. Use the protractor to find the angle between the Horizon and the North Star. The angle between the North Star and the horizon line is your approximate latitude.

For example, if you were on the equator, the difference would be 0 degrees which is the latitude of the Equator.