

Geocaching: Learning to Use a Garmin etrex® GPS Receiver

Geology

Version B

Mr. Traeger

Your Name: _____ Period: ____ Date: _____

Partner's Name: _____

Purpose

The purpose of this fun activity is to learn how to use a Garmin etrex® GPS unit. Becoming more familiar with latitude/longitude coordinates and spatial awareness is another goal of this activity.

Materials

- Garmin etrex® GPS Unit
- Notebook
- Magnetic Compass
- Pencil or Pen
- Textbook page 50

Procedure

1. Go around the LCHS campus and find the locations and elevations of the following coordinates. Also state the direction that you had to travel. Your journey will start at the base of the outside western stairway.

Number	Latitude (N)	Longitude (W)	Location?	Elevation?	Direction you had to travel from the last location to get here?
1	34° 11q35.2+	118° 10q42.5+			
2	34° 11q32.3+	118° 10q44.5+			
3	34° 11q27.4+	118° 10q43.7+			
4	34° 11q24.1+	118° 10q43.9+			
5	34° 11q29.2+	118° 10q50.7+			
6	34° 11q30.8+	118° 10q48.7+			
7	34° 11q34.2+	118° 10q48.4+			
8	34° 11q37.3+	118° 10q50.9+			
9	34° 11q37.4+	118° 10q49.5+			
10	34° 11q37.9+	118° 10q44.9+			
11	34° 11q35.5+	118° 10q45.2+			

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Questions

1. How does a GPS system work? You must draw a diagram here and explain how the formula rate x time = distance is used to calculate the distance to each satellite!

2. How many satellites are in the GPS network? Are they in a geostationary orbit or a polar orbit?

3. How many satellites must you be receiving at the same time in order to use your GPS?

4. Where can you not use GPS?

5. Will your GPS tell you your heading and speed if you are not moving? Why?

6. How accurate (in meters) is your GPS for measuring

your horizontal position?	your vertical elevation?
3.28 feet = 1 meter	3.28 feet = 1 meter

7. What kinds of things could someone use a GPS for? List as many as you can think of.

8. Please put the correct direction of travel in the chart below. Your choices are north, northeast, east, southeast, south, southwest, west, and northwest. Assume you are in the Northern and Western Hemisphere.

If latitude...	And longitude...	What direction are you heading?
decreases	stays the same	
stays the same	decreases	
increases	stays the same	
stays the same	increases	
increases	increases	
decreases	decreases	
increases	decreases	
decreases	increases	