Name of Team or Individual: ______________________

Description: Get outside with your GPS receiver with activities focused on geography, science, and mathematics, while thinking about coordinate systems, landscapes, land use, and other topics.

Activity: Turn on your GPS receiver and go outside.

1) How many satellites are visible to your GPS receiver when it says “ready to navigate? _______.

2) What does the outer circle symbolize on the satellite view screen? ____________________.

3) Mark a waypoint at a location. What is the latitude at your location? ___________________________. What is the longitude at your location? ____________________.

4) Where is 0 degrees latitude? ______________.

5) Where is 0 degrees longitude? ______________.

6) What direction is the building that you exited when you came outside from where you are standing right now? ______________.

7) What time is sunrise at your current location at this time of year? ______________.

8) What time is sunset at your current location at this time of year? ______________.

9) Calculate how many hours of daylight at your current location at this time of year based on the sunrise and sunset times you noted above. Show your work: ____________________________________________________________.

10) Go to 39.74334 North Latitude, 105.004399 West Longitude. What 2 things intersect here? ____________________________.

11) What building is due east of 39.743579 North Latitude, 105.003787 West Longitude? ____________________________.

12) What is your average speed at which you walk? ______________.
13) What is the maximum speed at which you can run? ______________.

14) Change to the map screen and zoom in as far as you can. Draw the first letter of your first name by tracing it on the ground as you walk, noting the letter’s shape on your GPS screen. What letter did you draw? ______. What are the challenges of drawing this letter accurately? ___________________________________________.

15) Mark a waypoint and change the latitude of this waypoint to 51 Degrees North and change the longitude to 0 Degrees East. This is the approximate location of the Royal Observatory in Greenwich, England. Save the point and use the Go To function. How far is it to the Royal Observatory from where you are now? Include the units: _______________________.

16) If you were to walk at your average walking speed all the way to the Royal Observatory, how long would it take you to get there? Show your work: _____________________________.

17) Examine the following data and fill in the blanks:

- 100 km = 1 degree of latitude
- 10 km = .1 degree
- 1 km = _______ degree
- 1000 m = .01 degree (because 1 km = 1000 m)
- 100 m = .001 degree
- 10 m = _______ degree
- 1 m = .00001 degree

18) Verify as you walk due north or south that for every meter you walk, the latitude numbers increase or decrease by .00001. Is this the case? Circle your answer: Yes | No.

19) If geometry tells us that it is 360 degrees around the Earth, and 1 degree is 100 km distance, what is the distance (the circumference) all the way around the Earth? Show your work: _____________________________.

20) At the average walking speed noted above, how long would it take you to walk around the Earth? Show your work: _____________________________.

21) At your top running speed noted above, how long would it take you to run around the Earth? Show your work: _____________________________.

22) If you could run all the way around the Earth, at what date would you be back here on campus at the starting point? Show your work: _____________________________.