2017 SC 4-H Engineering Challenge

GPS Challenge

Teams will use a Garmin eTREX 30 GPS unit to find hidden caches to be described and completed on a score sheet. Hidden at each cache will also be items for each team to engineer and invention.

What to bring:

Materials for this challenge will be provided on site.

This challenge is open to teams of 2 to 4 people.

Competition Instructions:

Each team will be given 1 GPS unit and 1 score sheet to record the geocache, coordinates, and information. At each point on the geocache course, there will be an engineered item that the team will need to describe with the correct terminology. Each team will then open the cache box and read the instructions in the bos to find out how many items they will need from that cache. Teams will leave all other items in the cache box for other teams (items will be identified that day). When all caches and items are found, the team will return to their challenge room and proceed to build their engineered invention.

The teams will be given 30 minutes to follow the coordinates to each cache, and 30 minutes to complete their cache finds and 30 minutes to Engineer invention. Junior ages (9-13) senior ages (14-19) will have different caches they must complete and build.

Each team will have the same number of points to find in their age category.

Rules:

1. Teams will consist of a minimum of 2 participants and a maximum of 4 participants.
2. Each team may only use 1 GPS unit during the challenge.
3. Each team will be given 1 score sheet to record their caches that they find.
4. Each coordinate must be found and then written on the score sheet. The descriptions and terminology will also be judged.

Background Information:

The GPS challenge will be set up using a Garmin eTREX 30 GPS unit. The coordinate system that will be used is degree decimal minutes (DDM). This is a decimal version of Degree Minutes Seconds. DDM is used by geocachers and a growing number of other GPS enthusiasts. In this format, coordinates look like this:

Example: N47° 37.216' W122° 19.75'.

The north/south and east/west position remains unchanged. The difference is that the seconds' part of the location is converted to a decimal by dividing the seconds by 60. Position format is a feature that should be adjustable in the GPS unit.

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Judging:

Points will be awarded for each cache found.

Each cache will carry the same value.

Attention to details will be judged as well as terminology.

The team that completes a score sheet correctly and engineers an invention correctly in the shortest amount of the allotted time (90 minutes) will be the first place winners.

If more than one team completes the challenge at the same time, there will be a final competition with the engineered invention.

Sample Judging Rubric:

GPS Coordinates (25 pts.)	Engineered Item (10 pts.)	Descriptive Terminology History/Information (15 pts.)	Invention Cache item (50 pts.)
Point 1 Coordinates N 34*06.847' W080*50.910'	**Item list** Side walk	**Description** Made of cement. Forms are used to make cement squares. Cement is a liquid turned into a solid.	**Cache** Cotton balls (2)
Point 2 Coordinates N 34*			
Point 3			
Point 4			
Point 5			