

Class 7 Kit Labeled Robot (cannot be programmed) – This class is intended for explorations of robotic components such as arms or vehicles OR educational kits marketed as robots that do not have the ability to be programmed to “sense, plan and act.” This exhibit should include a project the youth has constructed, a description of what it does and an explanation of how it is similar to and different from a robot.

DEPT. H / DIV. 880

GEOSPACIAL

Youth enrolled in Geospatial or GEAR TECH 21 may exhibit in any class within this division.

- Class 1 Poster – Create a poster (not to exceed 14”x22”) communicating a GPS theme such as How GPS or GIS works, Careers that use GPS or GIS, How to use GPS, What is GIS, GPS or GIS in Agriculture, Precision Agriculture, or a geospatial topic of interest.
- Class 2 4-H Favorite Places or Historical Site Poster – The 4-H exhibitor identifies a favorite place or historical site (including grave sites) in Nebraska. Exhibit should include latitude and longitude, digital picture, and local area map. Poster size should not exceed 14” x 22”.
- Class 3 GPS Notebook – Keep a log of at least 5 places visited using a GPS enabled device. For each site, record the latitude, longitude and elevation. Also include a description of the site, a paragraph explaining what was interesting about the site or finding it. Photos of each site and/or cache are optional but encouraged.
- Class 4 Geocache – Assemble a themed geocache. Each geocache should be a watertight container. It should include a log book and pencil for finders to log their visits and may include small trinket, geocoins, etc. for the finders to trade. Documentation should include a title, teaser description and the geographic coordinates of intended placement. **Register the site at geocaching.com, include a print-out of its registry.** The entry may include a photograph of the cache in its intended hiding place.
- Class 5 GIS Map – Create a GIS map with at least three data layers. The GIS should include both vector and raster data. Data may be obtained by using a GPS-enabled device, downloading data from a reputable web site or digitizing. The GIS should have a theme/purpose and include a title, north arrow, legend, labels, scale bar and source. Maps may be of any subject of interest to the 4-Hers. Include a 1-3 page report on why you chose the subject and maps, how you created the maps and the source of your data (use reliable sources such as the US Center for Disease Control or the US Census Bureau). This project could include Hurricane Tracking maps. Create a GIS map for Hurricane Tracking with a geographic information system (GIS) computer software application of the Atlantic Ocean, Pacific Ocean, or the Gulf of Mexico. The map should appear similar to the National Oceanic and Atmospheric Administration (NOAA) (<http://www.nhe.noaa.gov>?). Poster size should not exceed 22”x30”. Place report in plastic cover or notebook attached to the poster.
- Class 6 GIS Thematic Map – Using any GIS software, create a thematic map. Thematic maps can utilize any subject of interest to the 4-Her. Maps could be of Amelia Earhart’s journey, Sit Francis Drake’s voyage, population density maps, water usage maps, or 4-H projects in Nebraska (examples). Create a GIS Map using data from books and/or internet. Use reliable data, ex. U.S. Center for Disease Control or U.S. Census Bureau. Map any size up to 36”x24”, should include title, base map, neat line, north arrow, and legend. Identify the source of your information on the back of the map.

Class 7 4-H History Map – include in a notebook: State Name (Please identify the State for this historical point or person.) County where this historical point or person is located. City or town associated with the historical point or person. Provide the street number and street name for the historical point or person. Include the name of the historically significant place or person in your county/state. Write a brief description of historical significance place or person in your county/state. Write a brief description of historical significance of 4-H place or person. (a minimum of one paragraph) Date of significance: This date could be a founding date or event date for a significant site or a range of dates or event date for a significant person: Name of founder: for the historically significant 4-H site, please name the individual credited with founding the site. Resources: Photos or video for the site or person of significance, include where you got the information. Please provide any other relevant information you would like to add. Report must include Latitude in decimal degrees and longitude in decimal degrees. Please submit your 4-H Historical Map information on line and include a copy of the submission in your notebook. <http://goo.gl/vGF9nt>

CAREER EXPLORATION

Class 10 Careers Interview – Interview someone who is working in a geo-spatial field and include research that career. Interviews can either be written or in a multimedia format (CD/DVD). Written interviews should be in a notebook. Written reports should be 3 to 5 pages, double spaced, 12 point font, and 1” margins. Multimedia reports should be between 3 to 5 minutes in length.

WELDING

STATE FAIR ENTRIES:
Premier 4-H Science Award is available in this area.

WELDING GUIDELINES

All metal welding process accepted. All welds exhibited in Class 1 or 2 must be mounted on a 12" high x 15" long display board of thickness not to exceed 3/8". Attach each weld on a wire loop hinge or equivalent so the judge can look at the bottom side of weld when necessary. Each weld should be labeled with information stating:

- 1) type of welding process (stick, MIG, TIG, Oxy-Acetylene, etc.)
- 2) kind of weld
- 3) welder setting
- 4) electrode/wire/rod size
- 5) electrode/wire/rod ID numbers.

Attach a wire to display board so it can be hung like a picture frame.

DEPT. H / DIV. 920

ARC WELDING

Class 1 Welding Joints: A display of one butt, one lap and one fillet weld.

4-H Welding Project Tips and Suggestions

- 1) All welds should be made with the same electrode/wire/rod size and number.
- 2) Welds should be made only on one side of metal so penetration can be judged.
- 3) Welds should be cleaned with chipping hammer and wire brush. Apply a coat of light oil (penetrating oil) to the metal to prevent rusting. Wipe off Excess oil.