SCIENCE, ENGINEERING & TECHNOLOGY STEM (ENGINEERING)

Unlimited entries per class number may be made per exhibitor.
Premium Code: STATIC ITEMS

Rules:
1. The name and county of each exhibitor should appear separately on the back of each board, poster, or article and on the front cover of the notebooks so owner of exhibit may be identified if the entry tag is separated from the exhibit.
2. Several classes require a display board which should be a height of 24" and not to exceed 1/4" in thickness. A height of 23 7/8" is acceptable to allow for the saw kerf (width) if two 24" boards are cut from one end of a 4' X 8' sheet of plywood. Nothing should be mounted within 3/4" of the top or bottom of the board. (Example: Woodworking, & Electricity). Posters can be any size up to 28" by 22" when ready for display. Example: tri fold poster boards are not 28" by 22" when fully open for display.
3. Fabricated boards such as plywood, composition board, or particle-type lumber may be used for demonstration displays.
4. Demonstration boards should be sanded and finished to improve their appearance. The finish on a demonstration board will be judged as a woodworking exhibit.
5. Demonstration boards should include an overall title for the display, plus other necessary labeling.
6. Reports should be written using the scientific method whenever possible (Background, the Question or hypothesis, what you plan to do and what you did. Method used and observations. Results: What you learned. All reports should be computer generated and enclosed in a clear/plastic cover. The reports should be attached securely to the display.

GEOSPATIAL

Geospatial is a diverse category that includes a variety of exhibits 4-Hers can get involved in. Through participation in this division 4-Hers will gain more knowledge about Nebraska's rich history and diverse geography. Take close note of the rules to ensure your exhibit qualifies.

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What you learned. All reports should be computer generated and enclosed in a clear, plastic cover. The reports should be attached securely to the display.

3. NO FIREARMS, ITEMS WITH A BLADE (broadheads, knives, saws, etc.) or related items of any other kind, may be exhibited.
4. No copywritten images allowed.

Dept H Division 880
Classes

1   **Poster-** Scoresheet SF299- Create a poster (not to exceed 14" x 22") 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.

2   **4-H Favorite Places or Historical Site Poster-** Scoresheet SF299- The 4-H exhibitor identifies a favorite place or historical site (including grave sites) in Nebraska. The exhibit should include latitude and longitude, digital picture, and local area map. Poster size should not exceed 14" x 22".

3   **GPS Notebook-** Scoresheet SF300- Keep a log of at least 5 places visited using a GPS enabled device. At least one site should be from a community other than where you live. 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 of finding it. Photos of each site and/or cache are optional but encouraged.

4   **Geocache-** Scoresheet SF301- Assemble a themed geocache (physical geocache is REQUIRED with exhibit). Each geocache should be a water-tight container. It should include a logbook and pencil for finders to log their visits and may include a small trinket, geo-coins, etc. for the finders to trade. Documentation should include a title, teaser description and the geographic coordinates of intended placement. **Register the site at geocashing.com include a print-out of its registry**. The entry may include a photograph of the cache in its intended hiding place.

5   **Agriculture Precision Mapping-** Scoresheet SF302- 4-Hers will assemble a notebook that will include a minimum of 2 digital copies of various data layers that can be used in precision agriculture to identify spatial patterns and/or correlation (printed copies of websites were application can be purchased is acceptable). A report of how the analysis of the various data will be used to make a management decision.

6   **4-H History Map/ Preserve 4-H History-** Scoresheet SF303- Nominate a Point of Interest for the 4-H History Map Project include copy of submitted form in folder or notebook. To nominate a site for

the 4-H history map go to http://arcg.is/1bvGogV For more information about 4-H history go to http://www.4-hhistorypreservation.com/History_Map For step by step video on nominating a point, please go to this link: http://tinyurl.com/nominate4h Write a brief description of historical significance of 4-H place or person.(A minimum of one paragraph.)

7   **GIS Thematic Map-** Scoresheet SF302- Using any GIS software, create a thematic. Thematic maps can utilize any subject of interest to the 4-Her. Example maps would be Amelia Earhart's or Sir Francis Drake's voyage, population density maps, water usage maps or 4-H project in Nebraska. Create GIS Map using data from books and or internet. Use reliable data, (U.S. Center or U.S. Census Bureau, etc.) Map any size from 8 ½" x 11" up to 36" x 24", should include Title, Base Map, Neat Line, North Arrow, and Legend. Identify the source of your information on the back of the map.

8   **Virtual Geocache-** Scoresheet SF300- Keep a log of at least 5 places visited using a virtual geocache platform. At least one site should be from a community other than where you live. 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 highly encouraged.