

meet the design problem stated in #1 above. Its design was modified multiple times, please indicate what change was made with each modification, and what prompted the need for the change. i.e. I printed it and the design was too fragile, so I resliced the print to make thicker external walls, or it have a denser infill.

3. Define your process for designing/printing. What software and/or hardware was used (indicate type of 3D printer or if item was created with 3D pen)?

4. What materials were selected for your project?

5. If your final design has any moving parts, define how you determined appropriate allowance in your design.

6. Identify any changes that you would make to improve your design.

H860008

Maker Space/Digital Fabrication (Scoresheet SF1051)

This project is a computer generated project created using a laser cutter, vinyl cutter, heat press or CNC router. Vector or 3D based software such as CorelDRAW or Fusion 360 would be an example of an appropriate software used to create your finished project. Project should include a notebook with the following:

1. What motivated you to create this project.

2. Software and equipment used.

3. Directions on how to create this project.

4. Prototype of plans.

5. Cost of creating project.

6. Iterations or modifications made to original plans.

7. Changes you would make if you remade the project.

Team Entry Option: To qualify for entry materials entered in H860008 – Maker Space/Digital Fabrication must clearly be the work of a team instead of an individual, must have at least 50% of all team members enrolled in 4-H. Additionally, all enrolled 4-H members on the team should complete and attach an entry tag to the material. A supplemental page documenting the individual contributions to the project should be included. The entry will be judged as a team, with all team members receiving the same ribbon placing.

STEM ELECTRICITY

In this category 4-H'ers have the opportunity to create informational exhibits about the different aspects of electricity. Through involvement in this category 4-H'ers will be better educated about electricity and be able to present their knowledge to others.

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 the 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 inches and not to exceed $\frac{1}{4}$ inch in thickness. A height of 24 $\frac{7}{8}$ inches is acceptable to allow for the saw kerf (width) if two 24-inch boards are cut from one end of a 4 feet x 8 feet sheet of plywood. Nothing should be mounted within $\frac{3}{4}$ inch of the top or bottom of the board. (Example: Woodworking & Electricity.)
3. Fabricated board 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.

Entries per Individual - One entry per exhibitor per class. Limit of 4 entries per exhibitor per project.

All static exhibits must have received a purple ribbon at the county fair to advance to the State Fair.

Premier 4-H Science Award is available in this area. Please see General Information for more details.

Scoresheets and additional resources can be found at <https://go.unl.edu/ne4helectricity>.

ELECTRICITY - MAGIC OF ELECTRICITY - UNIT 1 (Denotes NOT State Fair Eligible)**

PREMIUMS: Purple, \$4.00; Blue, \$3.00; Red, \$2.00 and White, \$1.00 (**Scoresheet CF224**)

H870901 **Switch (see page 13 of manual for instructions)

H870902 **Electromagnet (see page 29 of manual for instructions)

ELECTRICITY - INVESTIGATING ELECTRICITY - UNIT 2 (Denotes NOT State Fair Eligible)**

PREMIUMS: Purple, \$4.00; Blue, \$3.00; Red, \$2.00 and White, \$1.00 (**Scoresheet CF225**)

H870903 **Rocket Launcher - Build a rocket launcher and create a poster using photographs to show the "step by step process" you used to build your launcher (instructions available at the Extension Office).

H870904 **Burglar Alarm - Build a burglar alarm and create a poster using photographs to show the "step by step process" you used to build your alarm (see page 33 of manual for instructions).

ELECTRICITY - WIRED FOR POWER - UNIT 3

PREMIUMS: Purple, \$4.00; Blue, \$3.00; Red, \$2.00; and White, \$1.00

H870001 **Electrical Tool/Supply Kit (Scoresheet SF224)**

Create an electrical supply kit to be used for basic electrical repair around the house. Include a brief description of each item and its use. Container should be appropriate to hold items.

H870002 **Lighting Comparison (Scoresheet SF225)**

Display studying the efficiency of various lighting (incandescent, fluorescent, halogen, Light Emitting Diodes, etc.). Exhibit could be a poster display or an actual item.

H870003 **Electrical Display/Item (Scoresheet SF226)**

Show an application of one of the concepts learned in the Wired for Power project. Examples include: re-wiring or building a lamp, re-wiring or making a heavy-duty extension cord or developing an electrical diagram of a house. Exhibit could be a poster display or an actual item.

H870004 **Poster (Scoresheet SF227)**

Poster should exemplify one of the lessons learned in the Wired for Power project. Posters can be any size up to 28 inches x 22 inches.

ELECTRICITY - ELECTRONICS - UNIT 4

PREMIUMS: Purple, \$4.00; Blue, \$3.00; Red, \$2.00; and White, \$1.00

H870005 **Electrical/Electronic Part Identification (Scoresheet SF228)**

Display different parts used for electrical/electronic work. Exhibit should show the part (either picture or actual item) and give a brief description, including symbol of each part and its function. Display should include a minimum of 10 different parts.

H870006 **Electronic Display (Scoresheet SF229)**

Show an application of one of the concepts learned in the Entering Electronics project. Examples include: components of an electronic device (refer to page 35 of the Electronic manual).

H870007 **Electronic Project (Scoresheet SF230)**

Exhibit an electronic item designed by the 4-H'er or from a manufactured kit that shows the electronic expertise of the 4-H'er. Examples include: a radio, a computer, or a volt meter.

H870008 **Poster (Scoresheet SF231)**

Poster should exemplify one of the lessons learned in the Entering Electronics project. Posters can be any size up to 28 inches x 22 inches.

STEM GEOSPATIAL

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

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 the exhibit may be identified if the entry tag is separated from the exhibit.