

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. For more resources and materials in this category refer to the resource section at the bottom of the page.

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 the 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 1/4-inch thickness. A height of 24 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-foot by 8-foot sheet of plywood. Nothing should be mounted within 3/4 inch of the top or bottom of the board. (Example: Woodworking & Electricity.)
 - Fabricated boards such as plywood, composition board, or particle-type lumber may be used for demonstration displays.
 - Demonstration boards should be sanded and finished to improve their appearance. The finish on a demonstration board will be judged as a woodworking exhibit.
 - Demonstration boards should include an overall title for the display, plus other necessary labeling.
 - 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.

Scoresheets, Forms, and Contest Study Materials

Scoresheets, forms, contest study materials, and additional resources can be found at <https://go.unl.edu/ne4helectricity>.

Special Awards

Premier 4-H Science Award is available in this area. Please see [click here](#) for more details.

Divisions

Electricity – Magic of Electricity: Unit 1

Class

87061L – Not Eligible for State Fair – Any project as introduced in Unit 1 project manual.

Electricity – Investigating Electricity: Unit 2

Class

87062L- Not Eligible for State Fair – Any project as introduced in Unit 2 project manual

Electricity - Wired for Power: Unit 3

Class

H870001 - Electrical Tool/Supply Kit - (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 - (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 - (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 - (SF227) - Poster should exemplify one of the lessons learned in the Wired for Power Project. Posters can be any size up to 28” by 22”.

Electronics: Unit 4

Class

H870005 - Electrical/Electronic Part Identification - (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 - (SF229) - Show an application of one of the concepts learned in the entering Electronics project. Examples include components of an electronic device (refer to p. 35 of the Entering Electronics manual).

H870007 - Electronic Project - (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 voltmeter.

H870008 - Poster - (SF231) - Poster should exemplify one of the lessons learned in the Entering Electronics Project. Posters can be any size up to 28 inches by 22 inches.

Resources

STEM: Electricity

Explore electrical insulation; Learn about the effects of magnetism; Build an electromagnet and electric motor; Decode circuit diagrams; Build circuits and test voltages; Build a rocket launcher and a burglar alarm; Measure electrical usage; Replace electrical switches; Evaluate light bulbs and test for electrical power; Explore LED's and SCR's, transistors, and the construction of an SCR intruder alarm; Learn the basics of solid-state electronics; Build a blinking flasher and an amplifier; Explore LED's and SCR's

URL: https://4hcurriculum.unl.edu/index.php/main/program_project/126