

ELECTRICITY

RULES

- A. 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.
- B. Several classes require a display board which should be a height of 24 inches and not to exceed $\frac{1}{4}$ -inch 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 foot by 8-foot sheet of plywood. Nothing should be mounted within $\frac{3}{4}$ inch of the top or bottom of the board.
- C. Fabricated board such as plywood, composition board, or particle-type lumber may be used for demonstration displays.
- D. Demonstration boards should be sanded and finished to improve their appearance. The finish on a demonstration board will be judged as a woodworking exhibit.
- E. Demonstration boards should include an overall title for the display, plus other necessary labeling.
- F. 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.
- G. 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.

MAGIC OF ELECTRICITY - UNIT 1

- H870011** **Electricity Safety Poster:** Must deal with a specific topic. Examples: "Overhead Power Line Safety", "Electrical Safety in the Home", "On the Farm Safety", etc.
- H870012** **Electricity Energy Conservation:** Must show useful methods of efficient use of electrical energy and conservation.

INVESTIGATING ELECTRICITY - UNIT 2

- H870019** **Case of the Switching Circuit** – (SF226) - Follow directions on page 27 of the project manual. Write a short essay or create a poster that illustrates how 3-way switches function.
- H870020** **Rocket Launcher** – (SF226) - Follow directions on page 31 of project manual. You must successfully build a rocket launcher and light 2 rocket igniters with your launcher. You DO NOT have to actually fire a rocket off the launcher. Create a poster using photographs to show the "step-by-step process" you used to build your launcher.
- H870021** **Stop the Crime** – (SF226) - Build an alarm following the directions on page 33 of the project manual. Create a poster using photographs to show the "step-by-step process" you used to build your alarm.

WIRED FOR POWER - UNIT 3

- *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 inches x 22 inches.

ELECTRONICS - UNIT 4

- *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 Electronic 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. Poster can be any size up to 28 inches x 22 inches.

Resources:

- Electric Excitement 1 – Explore electrical insulation; Learn about the effects of magnetism. Build an electromagnet and electric motor.
- Electric Excitement 2 – Decode circuit diagrams; Build circuits and test voltages; Build a rocket launcher and a burglar alarm.
- Electric Excitement 3 – Measure electrical usage; Replace electrical switches; Evaluate light bulbs and test for electrical power.
- Electric Excitement 4 - 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" "