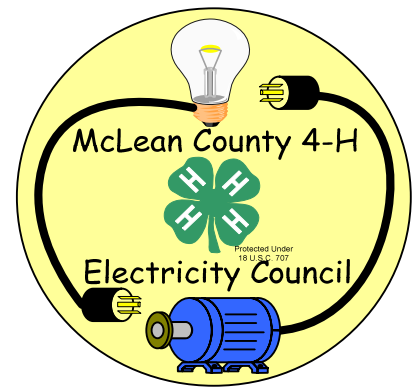


4-H Electricity Section

McLean County Fair Book Supplement



Exploring the Magic of Electricity

Simple Switch

Exhibit a simple circuit with a hand made switch or a switch that shows the mechanical switching action (i.e. knife switch or similar) with one or more loads (i.e. light bulb), powered by a dry cell battery. Wire colors should be chosen so as a dark color wire represents negative battery terminal and light color wire is the positive terminal.

Simple Motor

Exhibit a simple electric motor. Any design is allowed as long as the 4-H member hand winds the armature (rotor) and/or stator (field) electromagnet coils. No kits or pre-assembled motors allowed. Power must be by dry cell battery(s). Project is to be mounted on board. Switch is recommended but not required.

Magnetic Telegraph/Buzzer Device

Exhibit an electromagnetic telegraph or buzzer device. Any design allowed as long as 4-H member hand winds the electromagnets. No kits or pre-assembled coils allowed. Power must be supplied by dry cell battery(s).

Investigation of Electricity

DC Circuit Board (Series and/or Parallel)

Exhibit a circuit board with Direct Current loads (i.e. light bulbs) and a hand made switch or a switch that shows the mechanical switching action (i.e. knife switch or similar), demonstrating a series electrical circuit, parallel circuit or both. Project must be mounted on a board. Dry cell battery(s) must supply power. Wire colors should be chosen so as a dark color wire represents negative battery terminal and light color wire is the positive terminal.

DC 3-way or 4-way Switch Circuit Board

Exhibit a circuit board with **direct current** loads (i.e. light bulbs) and switch(s) demonstrating the application of 3-way and/or 4-way switch action. Exhibit may feature series or parallel circuits. The switches used for this project must expose the mechanical switching action (i.e. knife switch or similar) or are hand made by the exhibitor. Dry cell battery(s) must supply power. Wire colors should be chosen so as a dark color wire represents negative battery terminal and light color wire is the positive terminal.

Basic Electrical Device (i.e. Alarm, Rocket Launcher, etc.)

Exhibit any DC electrical device built by the exhibitor. The "Investigating Electricity" handbook shows two similar projects: Rocket Launcher and Burglar Alarm. Device must be rugged and wires can be terminated by solder, crimping connectors, or screw terminals. There are no limitations on the selection of electrical components in this class.

Wired for Power

Outdoor Utility Lamp

Exhibit a work/utility lamp that can safely be used both indoors **and** outdoors. Lamps or light bulbs selected for project must be rated for outdoor use. Project may include a service outlet and must have ground fault interruption. All parts including outlets, switches, lamp holders, lamps, power cords must be rated for outdoor application.

Indoor Lighting Fixture

Exhibit any type of indoor lamp or light fixture. Exhibit must use UL approved lamp cord, switches and lamp holders. Use cord restraints where applicable. **Exhibitor must wire plug, switch, and lamp socket (no factory molded plugs or pre-assembled fixtures allowed).**

Motor Driven Device (Alternating Current Only)

Exhibit any device powered by a commercially available AC electric motor. Project must include proper size wiring, disconnects, and circuit interrupters if required (i.e. GFCI for water pumps). Project must be mechanically safe as well as electrically safe. Proper guarding required if belts, pulleys, gears, grinding wheels and/or blades etc. are present.

Wired for Power (cont.)

AC Circuit Board

Exhibit a circuit board using AC components such as outlets, disconnects, switches, GFCI, lamps etc. to demonstrate any typical AC house wiring. Project should follow safe wiring practices and use UL approved wiring and devices. Circuit board should be able to plug into wall outlet and must be grounded.

Entering Electronics

Electronic and/or Solid State Devices

Exhibit a circuit or device using electronic or solid state components. Projects may contain semi-conductors, resistors, capacitors, inductors, Integrated Circuits, transformers etc. Semi-conductors refer to transistors, LEDs, SCRs, or other similar devices. Kits welcomed.

Advanced

Heating Equipment

Exhibit open to any type of heating equipment utilizing a heating element or heat lamp. Such projects include incubators, baseboard heaters, cooking equipment etc.

Alternative Energy Devices or models

Exhibit may be a model or poster board demonstrating or showing an alternative energy source such as wind power, solar panel devices, solar power, water power, nuclear power or any other type of alternative power producing source.

Any Device(s) that do not fit into the above categories

Open to any electrical exhibit that does not fit into any of the above classes.