



4-H Electricity Project



Are you Into It?

Learn about electricity and all the fun activities involved in this project.

The 4-H Electricity Project explores how electricity is made, how it works and how it is used. In this project you will:

- Explore the use of electricity and magnetism
- Learn engineering and design skills, increasing understanding of mechanics and the underlying physics related to electricity
- Build and test your own electronic devices
- Gain experience in problem solving, decision-making and logical reasoning using science process skills
- Improve communication and teamwork skills by working in teams

Here's what you can do all year!

Starting Out Basic

- Learn about safety and equipment used in working with electricity
- Identify tools and parts used in working with electricity
- Wire a simple circuit
- Build a compass
- Build a flashlight
- Construct a simple switch
- Build an electric motor
- Visit an electrical cooperative to learn about careers and where your electricity comes from

Learning More Intermediate

- Work with electrical equipment and tools
- Build and test circuits
- Measure circuit voltage
- Read circuit diagrams
- Build a momentary switch and communicate in Morse Code
- Develop a basic electrical tool and supply kit
- Understand the symbols on wires and cables
- Locate your home wiring system
- Make simple electrical repairs

Expanding Horizons Advanced

- Research the influence of electricity on society
- Identify electrical and electronic parts and devices
- Learn how to solder and prepare parts for assembly
- Assemble a circuit using a transistor
- Job-shadow an electrical engineer

Step It Up!

Pass it on! Now that you know how, share it with others. Here are ideas to get you started

Citizenship/ Leadership

- Check friend's or relatives' homes for any electricity hazards
- Mentor younger youth enrolled in the electricity project
- Teach an electricity workshop
- Develop an electricity skill a thon that club leaders can check out from the Extension office

Communication

- Create a video about how to build a compass
- Make a poster about closed and open circuits
- Give a speech about the history of electricity
- Demonstrate how to communicate in Morse Code

Healthy Living

- Give a talk about common electrical hazards around the home
- Demonstrate how to dispose of broken light bulbs safely
- Make a poster about electrical safety

Science

- Build a 3-way switch, rocket launcher, or burglar alarm
- Conduct experiments with magnetism
- Build an electromagnet, galvanometer, or electric motor
- Research how a diode operates in a circuit



Expand Your Experiences in Electronics!

- Organize a club field trip to your local power plant or electric cooperative
- Explore fields of study and careers in electricity. Schedule a visit with the University of Florida: ufl.edu
- Register for 4-H University to attend workshops, participate in community service events, hear keynotes, compete in contests, have fun, and meet other youth from across Florida who may share common interests: florida4h.org/programsandevents/
- Contact your county IFAS Extension Office for workshops, activities, and events related to community service
- Participate in program planning, development, and implementation for new electric programs in your 4-H Club

Project Sharing Ideas

- Build an electronic game board on the basic symbols used in electronic diagrams
- Make a display about basic electrical tools and parts and what they are used for
- Give a presentation on how electricity is produced
- Demonstrate how to measure voltage
- Demonstrate the differences between a closed and open circuit
- Make a poster on ways to conserve energy use

Resources

4-H Project Resources

Project materials to assist youth in learning may be available through your county 4-H office or you can order directly. Available at National 4-H:

4-hmall.org

- Magic of Electricity
- Investigating Electricity
- Wired for Power
- Entering Electronics
- Electricity Project Leader's Guide

Power of Electricity Member's Manual

edis.ifas.ufl.edu/4h127.

Power of Electricity Leader's Guide

edis.ifas.ufl.edu/4h127.

Connections and Events

Attending events and taking advantage of opportunities that will expand your project learning will help you become the best you can be. Contact your county 4-H office.

Take part in:

- Local workshops and day camps
- 4-H County Events Day

Experience

- 4-H Summer Day and Residential Camps
- 4-H University

Attend other statewide events.

Check them out at florida4h.org

Record Keeping

Learning to take good records of what you do and what you spend for your project is a 4-H lifeskill.

The following record keeping forms can help you keep a record of your activities.

Project Report Forms can be found at florida4h.org

- Junior (grades 4-6)
- Intermediate (grades 7-8)
- Senior (grades 9-12)
- Financial Summary
- Member Portfolio (ages 8-13)

Awards and Recognition

Florida's Recognition Program involves feedback through:

Participation
Setting Goals
Meeting Standards
Peer Competition
Cooperation

Certificates, pins, ribbons, trophies, trips and/or scholarships are awarded based on quality of performance at the county, district, state and national levels.

To learn more about current recognition opportunities visit the Florida 4-H website at florida4h.org or contact your county 4-H agent.

Learn more at florida4h.org
or contact your local UF/IFAS Extension County Office

4-H You
GROWING TOGETHER