



# 4-H Energy Management Project

(Including: electric, electronics, small gas engines and power of the wind)

Kansas 4-H focuses on the mastery of 5 life skills:

1. A positive self-concept
2. An inquiring mind
3. A concern for the community
4. Healthy interpersonal relationships
5. Sound decision making

The subject matter content in 4-H focuses primarily on three mission areas:

1. science
2. healthy living
3. citizenship and leadership

## Advice from a 4-H'er

*From: Jayden, Age 12 (2015)*

I am beginning my 6th year in the Energy Management project. Energy Management includes Electricity, Electronics, Small Motors, and Wind Power. I have explored both the Electricity and Electronics parts of this project.

Electricity is good to know because it is a life skill that you can use later in your life. I learned the basics of how electricity works and have built and rebuilt lamps using this knowledge.

Electronics is a great way to explore using your creativity because you use the things you learn to create whatever you can imagine. I have made a watch, a clock, a plant waterer, and light-up goggles.

I have learned that sometimes even if you work hard on a project, it doesn't turn out the way you wanted it to. My plant waterer didn't work, but I learned a lot from making it and was able to use what I learned on other electronic projects.

I have been able to share my love of electricity and electronics with others by doing demonstrations to explain how to make things and how they work. It has taught me how to speak in public and explain my ideas to others.

This is a great project that allows me to learn and have fun doing it!



Jayden with the lamp he made for the county fair

## Project levels

Age 7-9	Age 10-13	Age 14 +
<ul style="list-style-type: none"> <li>◆ Make a simple circuit, a flashlight, and a switch.</li> <li>◆ Importance of clean air to an efficient running engine.</li> <li>◆ Find out about magnetism and make a compass.</li> <li>◆ How to service a small engine and replace a spark plug.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Label a circuit diagram.</li> <li>◆ Build a three way switch.</li> <li>◆ Design and build a wind powered boat.</li> <li>◆ Design and build wind turbines.</li> <li>◆ Learn engine cycles.</li> <li>◆ Learn different engine types and sizes.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Determine your family's electrical usage.</li> <li>◆ Measure electric usage of appliances.</li> <li>◆ Build simple radios, microphones, computers and other equipment.</li> <li>◆ Learn to trouble shoot and repair and rebuild an engine.</li> </ul>

The activities above are ideas to inspire further project development. This is not a complete list.



Events	Curriculum	4-H Record Book
<p>State &amp; County Opportunities</p> <ul style="list-style-type: none"> <li>◆ Club Day</li> <li>◆ County Fair</li> <li>◆ State Fair</li> <li>◆ Discovery Days</li> </ul> <p>Check with your club to see what opportunities are offered at the club level as well.</p>	<p>Available to purchase at the Extension Office (check to make sure it's in stock)</p> <ul style="list-style-type: none"> <li>◆ Electricity Project Book</li> <li>◆ Power of Wind Project Book and Leader Guide</li> <li>◆ Small Engines 1, 2 and 3 Project Book</li> </ul> <p>Energy Management curriculum can also be purchased at the K-State online bookstore or the 4-H Mall.</p>	<p>4-H Record Books give members an opportunity to record events and reflect on their experiences. For each project, members document their personal experiences, learning and development.</p> <p>4-H Record Books also teach members record management skills and encourage them to set goals and develop a plan to meet those goals</p> <p>For more information visit <a href="http://www.johnson.k-state.edu/4-h/forms-resources/record-books.html">www.johnson.k-state.edu/4-h/forms-resources/record-books.html</a></p>

## Resources:

### Visit

[www.johnson.k-state.edu/](http://www.johnson.k-state.edu/)  
to also find the following links.

### Kansas 4-H Energy Management Website:

- ◆ <http://www.kansas4-h.org/projects/science-engineering-and-technology/energy-management.html>

### Other helpful Energy Management websites around the country:

- ◆ <http://www.eia.gov/electricity/state/>
- ◆ [http://pubs.ext.vt.edu/388/388-800/388-800\\_pdf.pdf](http://pubs.ext.vt.edu/388/388-800/388-800_pdf.pdf)
- ◆ <http://home.howstuffworks.com/home-improvement/repair/how-to-repair-small-engines5.htm>
- ◆ <http://www.sae.org/>
- ◆ <http://www.awea.org/>
- ◆ <https://www.ag.ndsu.edu/energy>

## Exploring Opportunities

- ◆ Attend project meetings with your club or county.
- ◆ Help your family figure out ways to decrease the energy bill in your home.
- ◆ Share your knowledge with other 4-H'ers in the project.
- ◆ Visit with a professional in a related topic to learn more and find out possible career opportunities.

## Exhibit Ideas

- ◆ Enter an energy management project at the fair.
- ◆ Create a poster or notebook that teaches about an energy management topic.
- ◆ Give a talk or demonstration at county club day to share your knowledge about the energy management project.



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