



4-H Renewable Energy Camp badge

Description: This Renewable Energy Camp badge was developed in collaboration with [Michigan Department of Education](#). This badge is earned by youth who conduct experiments, research new ideas and explore innovative opportunities in the exciting fields of renewable energy.

Criteria: (Recipient has done these specific things that demonstrate or as proof of the description)

- The Student has attended and actively participated in the learning experiences provided by 4-H Renewable Energy Camp through Michigan State University Extension, 4H Youth Development.
- For more information about the specific learning experiences students can engage in to earn this badge, please see our [4-H Renewable Energy Camp](#) web page.

Michigan Content Expectations

E2.2B Identify differences in the origin and use of renewable (e.g., solar, wind, water, biomass) and nonrenewable (e.g., fossil fuels, nuclear [U-235]) sources of energy.

E2.4A Describe renewable and nonrenewable sources of energy for human consumption (electricity, fuels), compare their effects on the environment, and include overall costs and benefits.

P4.10B Identify common household devices that transform electrical energy to other forms of energy, and describe the type of energy transformation.

P4.1A Account for and represent energy into and out of systems using energy transfer diagrams.

P4.2C Explain how energy is conserved in common systems (e.g., light incident on a transparent material, light incident on a leaf, mechanical energy in a collision).

P4.2B Name devices that transform specific types of energy into other types (e.g., a device that transforms electricity into motion).

B3.4C Examine the negative impact of human activities.

1.1A Generate new questions that can be investigated in the laboratory or field.

1.1B Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.

1.1C Conduct scientific investigations using appropriate tools and techniques (e.g., selecting an instrument that measures the desired quantity—length, volume, weight, time interval, temperature—with the appropriate level of precision).

1.1D Identify patterns in data and relate them to theoretical models.

1.1E Describe a reason for a given conclusion using evidence from an investigation.

1.2B Identify and critique arguments about personal or societal issues based on scientific evidence.

1.2D Evaluate scientific explanations in a peer review process or discussion format.

1.2E Evaluate the future career and occupational prospects of science fields.