

The Energy Transformation curriculum aligns with 6th grade Essential Standards—Energy Conservation and Transfer. The curriculum was developed in partnership with Progress Energy and North Carolina State University. Each lesson is grade-level appropriate and has been correlated with U.S. National Science Education Standards.

National Science Standards objective include:

- The order of Scientific Inquiry
- Physical Science (motion and forces)
- Science and Technology (abilities of technological design)
- Science in Personal and Social Perspectives

The Energy Transformation curriculum includes a support lesson and activity that allow teachers (volunteers) and students to explore energy sources and heat transfer, historical aspects of energy sources, and energy's economic and environmental implications for the future.

Energy Transformation challenges students by guiding them in conducting investigations and examining models to build an understanding of the characteristics of energy transfer through the process of engineering design.

Students work in teams to build, improve, and test the efficiency of a small model “home” developed by the curriculum designers. Students learn about stack effect, air pressures, temperature differentials, heat flow, and insulation values. The purpose of the exercise is for students to understand the relationship between various behaviors and building practices and how those behaviors and practices affect energy efficiency as it relates to heat flow and energy transfer.

Life skills help a person live a productive, and satisfying life. Within this curriculum, students will have the opportunity to develop life skills related to critical thinking, problem solving, teamwork, communication, and acquiring and evaluating information.

Contact your local Cooperative Extension office and ask the 4-H agent about the Energy Transformation curriculum.

Essential Standards

6.P.3 Understand characteristics of energy transfer and interactions of matter and energy.

Clarifying Objectives:

6.P.3.1 Illustrate the transfer of heat energy from warmer objects to cooler ones using examples of conduction, radiation and convection and the effects that may result:

- ✓ **Energy Transformation** - Control the Flow
- ✓ **Energy Transformation** - The Heat is On
- ✓ **Energy Transformation** - It Just Makes Cents

6.P.3.3 Explain the suitability of materials for use in technological design based on a response to heat (to include conduction, expansion, and contraction) and electrical energy (conductors and insulators):

- ✓ **Energy Transformation** - Don't Lose Your Cool Don't Blow Your Stack
- ✓ **Energy Transformation** - It's a Wrap