

1. Skills

- a. Experimental design
- b. Measurement
- c. Generating hypothesis
- d. Graphing data
- e. Record observations (quantitative and qualitative)
- f. Representing ideas mathematically
- g. Collect data in a table
- h. Drawing conclusions
- i. Appropriate vocabulary
- j. Communication (writing and reading/interpreting)

2. Topics

- a. Energy is transformed and conserved
- b. Sugar as energy
- c. Biofuels
- d. Energy is conserved, may be transformed (thermodynamics)
- e. During energy transformation some energy is converted to heat (efficiency)
- f. How humans obtain energy affects the environment and society
- g. Electricity is the flow of charged particles (electrolytes, batteries, etc.)
- h. Metals conduct electricity differently

3. Standards

- a. Standard #1
 - i. Communicate ideas mathematically (deductive and inductive)
 - ii. Generating questions, hypothesis, gather observations, make inferences, draw conclusions
- b. Standard #4 (Physical Setting)
 - i. Key Idea 4: Energy exists in many forms, when these forms change, energy is conserved
 - ii. 4.1a Sun is a major source of energy
 - iii. 4.1b Fossil Fuels
 - iv. 4.1c Transformation of energy forms
 - v. 4.1d Energy forms
 - vi. 4.5a Energy cannot be created or destroyed
 - vii. 4.5b Energy can be converted to heat as inefficiency
- c. Standard #7
 - i. Interdisciplinary problem solving
 - ii. Math, science, and technology