

# **Energy Unit Organizer**

## **6th Grade Crisafulli /Huey /Jordan**

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### **Previous Unit**

Science Processes  
Astronomy

### **Next Unit**

Lymphatic System  
Diseases

### **Integrated Units**

Extension to Astronomy Unit  
Industrialization and Urbanization in America  
The Enlightenment

### **Core Knowledge Content (Knowledge)**

#### A. Energy

- Six forms of Energy
- Many forms of energy are interchangeable
- Sources of energy
- Fossil fuels
- Nuclear energy

#### B. Heat

- Heat and Temperature
- Three ways that heat energy can be transferred

#### C. Physical Change: Energy Transfer

- States of matter
- Most substances are solid at low temperatures, liquid at medium temperatures, and gaseous at high temperatures
- A change of phase is a physical change
- Matter can be made to change phases by adding or removing energy
- Expansion and contraction
- Changing phases; condensation; freezing; melting; boiling
- Distillation

### **State and District Guidelines (Patterns)**

6.2.H know that energy can be carried from one place to another by heat flow or by waves including water waves, light and sound, or by moving objects

6.5.C describe uses of renewable and non-renewable resources (e.g. forests and fossil fuels)

### **Standards for Achievement and Performance (Mental Modeling)**

Students will -

- demonstrate how chemical energy is converted into kinetic energy
- identify sound waves as kinetic energy
- build a simple circuit to demonstrate how chemical energy changes to electrical energy, light, heat, and sound
- know the Law of Conservation of Energy
- be able to identify ways solar energy powers life on Earth
- describe some biomass energy sources
- describe and assess the idea of a space mirror
- conduct an investigation to see that heat is absorbed by dark colors more than light colors
- list advantages and disadvantages of solar energy as an energy source
- identify characteristics of wind as an energy source
- identify characteristics of hydroelectric and geothermal power
- identify the pros and cons of building more nuclear power plants
- be able to describe how to separate a mixture of two liquids with different boiling points
- be able to demonstrate thermal expansion and contraction
- be able to demonstrate conduction and convection of heat

### **Types of Assessments (Creativity)**

- Students will take a variety of quizzes over the content covered.
- Students will demonstrate their understanding of the content through experiments and will record findings in an experiment log.
- Students will review the content covered in a game of Jeopardy
- Students will take a final exam