6th Grade Science
Continuity of Learning Model

Matter and Energy – (September – October)
Composition, Properties, and Changes of the Earth – (November – January)
Plate Tectonics and Fossils – (February – March)
Ecosystems – (April – June)

Matter and Energy Unit
(September – October)

Big ideas

Objects and substances in motion have kinetic energy.
Objects and substances have potential energy due to their relative position in a system.
Heat energy is transferred by radiation, conduction, and convections.
Physically changing states of matter does not create a new substance.
Everything we do is connected to energy in one form or another.

Vocabulary – www.sciencebuilder.com/michigan.php (username: michigan password: science)

- energy transfer
- heat transfer
- states of matter
- conduction
- convection
- radiation
- kinetic energy
- potential energy
- atoms
- molecules
- mass
- closed system
- transformation

Activities that can be done at home

1. Drop different kinds of balls from different heights. How is the potential energy affected? What happens to the shape of the balls? Drop a rubber ball and ping-pong ball from a height of one meter. Measure the height of the bounce. Repeat three times. Repeat from two meters. Give an explanation. Graph the data. What relationship exists? Explain the change from potential energy to kinetic energy and back again.

2. Pop popcorn using different methods – pan on a stove, hot air popcorn maker, microwave – and explain the transfer of energy. How long did it take to pop the popcorn? Graph the data.

3. Heat ice cream, stick of butter, gelatin and ice cubes on a consistent surface. Which melt faster? Slower? Rank them. Explain the changes in states of matter

4. Drop a rubber ball and ping-pong ball from a height of one meter. Measure the height of the bounce. Repeat three times. Repeat from two meters. Give an explanation. Graph the data. What relationship exists? Explain the change from potential energy to kinetic energy and back again.

Web Resources

Energy: http://library.thinkquest.org/3042/energy.html

Potential Energy: http://www.youtube.com/watch?v=Rn470XtSYK0

Kinetic and Potential Energy: http://www.quia.com/cz/8072.html?AP_rand=846462217

Forms of Energy: http://tonto.eia.doe.gov/kids/index.cfm.html?AP_rand=846462217

Energy Quest: http://www.energyquest.ca.gov/

How Does Heat Travel?
http://coolcosmos.ipac.caltech.edu/cosmic_classroom/light_lessons/thermal/transfer.html

States of Matter: http://phet.colorado.edu/simulations/sims.php?sim=States_of_Matter