



Dear Parent

Your student is beginning a science unit created at the Battle Creek Area Mathematics and Science Center. This unit was designed to promote inquiry-based science, and is complete with classroom materials to accompany the activities. During the next eight weeks, your student will be actively involved with this unit. The unit, *Energy Effects*, is geared for seventh grade students and focuses on energy and waves. The unit includes the following areas of study:

1. Nuclear reactions that take place on the sun produce heat and light.
2. A fraction of the sun's light energy provides heat energy on Earth.
3. Light travels in waves.
4. Waves transfer energy when they interact with matter.
5. Sound waves, seismic waves, and waves on water are produced by vibrations in matter.

The unit builds on a previous unit presented in the 6th grade, *Energetic Connections*, and takes a closer look into the effects of the sun's warming of the Earth and how light travels from the sun to the Earth. The class will investigate how the light from the sun is transformed to heat energy on Earth and how different earth materials absorb and reflect light energy. The unit takes an in-depth look into the concept of light waves, sound waves, waves on water, and seismic waves, their similarities and differences, and finally the transfer of energy involved in each type of wave.

The unit encourages small group work in class as well as at home. Students will be asked to do research, build models, and give presentations of their findings. Your student may be asked to contribute to the investigation into ultraviolet light, building of a musical instrument, designing and building a seismograph, and research of what other scientists have discovered.

Suggestions for activities to do at home are included with this letter. These activities will reinforce the concepts taught during this unit of instruction.

We hope you enjoy discussing the concepts involved in *Energy Effects* with your student. Let us know if we may be of assistance.

The Outreach Staff  
Battle Creek Area Mathematics and Science Center  
(269) 965-9598 or (269) 965-9584



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### Activities to Do At Home

1. Take a walk on a beach or near a pond and discuss how waves are generated and ask your student to explain waves on water and the energy transfer involved in the motion of waves.
2. Visit an instrument exhibit in a local museum or art center. Discuss and research the origin of the vibration that causes the sound produced by the instrument.
3. The unit includes research of the findings of other scientists. Make a trip to the library and check out books regarding scientists that made discoveries regarding the electromagnetic spectrum. Visit web sites with your students on topics related to light, sound, and energy.
4. Visit a hands-on science exhibit and explore the whisper tubes and chambers and echo chambers on display.
5. Visit a cave or canyon and explore the echoes heard in different areas.
6. Visit a medical lab and ask the technician to explain and demonstrate the use of sound waves in echo-cardiograms and ultrasound medical equipment.
7. Go fishing or visit a charter fishing company and ask the guides to explain and demonstrate the use of sound waves in fish detectors used in fishing boats.