

Energy & Waves Study Guide

Energy is the ability to do work or cause change.

Energy transfer is movement of energy from one place or object to another

Friction is the rubbing of surfaces. Friction can produce heat energy.

Kinetic energy is the energy an object has due to its motion.

Potential energy is energy that is stored and held in readiness.

Sound is what is heard with the vibrations of matter.

Sound waves are made up of vibrating matter that pushes against other matter, creating waves that can travel through solids, liquids, and gases.

Vibrations are the regular back-and-forth movements of matter.

Pitch is a property of sound that is produced through vibrations. Vibrations that are fast and close together are high pitch. Vibrations that are slow or farther apart are low pitch.

Heat is related to the motion of particles in that make up matter. It is energy associated with change in temperature.

Bounce is to spring back after hitting something.

Absorb is to take in or soak up.

Frequency is the number of complete wavelengths that pass a point in a given time.

Collision is when two or more objects hit each other.

Decrease is to become or make less.

Increase is to make bigger or more.

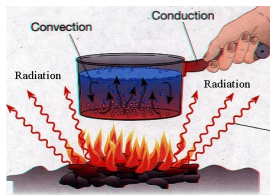
Reflect is to bend or throw back light or heat; to fold or turn back.

Gravity is a force that pulls object toward each other. It causes object to be pulled toward the earth.

Wavelength is the distance from the peak of one light or sound wave to the peak of the next.

Temperature is a measure of the average energy of motion of the particles of a substance

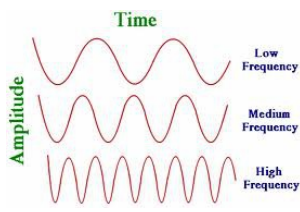
Students need to be able to match these pictures to their term:



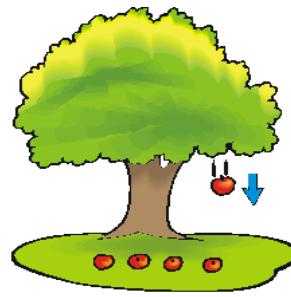
energy transfer



friction



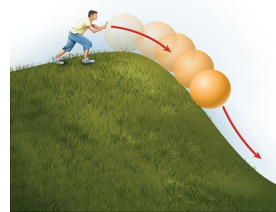
sound waves



gravity



potential energy



kinetic energy

Students Should Be Able To Explain these:

- What happens when one rolling tennis ball hits a stationary tennis ball? *The moving ball comes to a stop and the stationary ball begins rolling because the energy is transferred from one ball to the next.*
- What is the best strategy for knocking down bowling pins? *Use a heavier ball rolling at a faster speed down the lane.*
- How does color effect the transfer of the sun's heat energy? *Darker colors like black absorb more heat than lighter colors like white.*
- What is the best example of heat transferring from one place to another? *Use an example in which a heat source is warming something like a hot dog roasting on a campfire.*
- Explain how a tuning fork produces sound, and what happens when it is placed in water. *When a tuning fork is struck, it vibrates and creates sound waves. Once it is placed in a cup of water the energy is absorbed by the water causing the sound to stop. This is because the water stops the vibration faster than the air.*