



Energy

Section 1 The Nature of Energy

- A. Energy is the ability to cause _____.
- Kinetic energy**—Energy in the form of _____.
 - The amount of kinetic energy an object has depends on its _____ and its _____.
 - Kinetic energy = $\frac{1}{2}$ _____ \times velocity²
 - _____—The SI unit used to measure energy
 - Potential energy**—Energy stored in a _____ object, giving it the potential to cause change
 - Elastic potential energy**—Energy stored by things that _____.
 - Chemical potential energy**—Energy stored in _____ between atoms
 - Gravitational potential energy**—Energy stored by things that are _____.
 - The amount of GPE an object has depends on its _____, the acceleration due to _____, and its _____.
 - GPE = mass in kilograms \times 9.8 m/s² \times height in _____

Section 2 Conservation of Energy

- A. Energy conversions—energy changing from one _____ to another
- Fuels store energy in the form of _____ energy.
 - _____ **energy**—the total amount of potential and kinetic energy in a system
- B. **Law of Conservation of Energy**—Energy may change from one form to another, but the _____ of energy never changes.
- Example—As a swing moves back and forth, its energy continually converts from _____ to _____ and back.
 - If the energy of the swing decreases, then the energy of some other object must _____ by an equal amount.
 - Friction converts some of the mechanical energy into _____ energy.

Note-taking Worksheet (continued)

C. Converting _____ into energy—You must think of mass as energy when discussing nuclear reactions. The total amount of mass and energy is conserved.

1. Nuclear _____—Two nuclei are fused together. Takes place in the sun.
2. Nuclear fission—Two nuclei are _____.

D. Conservation of energy in your body

1. _____ energy from food that is stored in your body is used to fuel the processes that keep you alive.
2. The food _____ is used to measure how much energy you get from various foods. One Calorie is equivalent to about 4,180 J.