

Unit 6: Energy

Content Outline: Conservation of Energy (6.3)

I. Law of Conservation of Energy

- A. Energy cannot be *created* or *destroyed*; it may be *transformed* from one form into another or *transferred* from one object to another; but the total amount of energy never changes.
- B. The most common energy conversion is the conversion between potential and kinetic energy.
 1. In an automobile engine, fuel is burned to convert chemical energy into heat energy. The heat energy is then changed into mechanical energy. Chemical → Heat → Mechanical
- C. Energy conversions may produce *unwanted forms* of energy, when energy conversions take place the total amount of energy is split between *desired* (usually some form of work) and *undesired* energy (usually heat or friction).
- D. **Energy efficiency** is the measure of *usable energy* after a conversion has taken place.
 1. Technology can *improve* the efficiency of energy conversions.
 - a. LEDS convert almost all electricity to light.
 - b. Hybrid cars increase the fuel efficiency of cars.