

Energy Skill Objectives

What you should know and be able to do by the end of the unit:

1. Make the distinction between energy storage and transfer.
2. Be able to recognize and identify energy storage mechanisms: gravitational, kinetic, elastic, thermal.
3. Recognize the universal, fundamental nature of energy as opposed to different forms of energy.
4. Use Hooke's Law to analyze elastic energy systems.
5. Recognize and identify modes of energy transfer: working, heating, radiating.
6. Use representational tools (bar graphs, energy flow diagrams) to analyze a system in terms of energy storage and transfer.
7. Analyze a system of energy interactions appropriately according to the system designation.
8. Recognize a force acting along a displacement as a means of transferring energy.
9. Determine the quantity of energy transferred between various energy accounts (kinetic, elastic potential, gravitational potential, and thermal) during an interaction.
10. Explain "Working" as:
 - energy transfer to/from a system via an external force (energy transferred across a system boundary by means of a force)
 - $F \cdot \Delta x$ (for a force, F , that is parallel to the displacement, Δx)
11. Define power, P , as the rate of energy usage, measured in units of watts, W .
12. Be able to draw a graphical representation of E_{el} , E_g , E_{th} , and E_k .

