UNIT 7: ENERGY, THE FINAL VIEW OF MOTION

Upon completion of this unit, the student should be able to:

1. Define pressure and its metric units, and calculate it from given data.
2. Define work and energy and their metric units, and calculate each from given data.
3. Explain the Work-Energy Theorem and apply it to problem solving.
4. Define kinetic energy and its metric units, describe its relationship to work and potential energy, and calculate it from given data.
5. Define potential energy and its metric units, describe its relationship to work and kinetic energy, and calculate it from given data.
6. Contrast elastic and inelastic collisions in terms of the energy involved.
7. Describe and calculate the relationship between mechanical and thermal energy and their units.
8. Define power and its metric units and calculate it from given data.
9. Define efficiency and apply it to work-energy problem solving.
10. Define the Law of Conservation of Energy and who formulated it, and apply it to problems dealing with horizontal and vertical motion, roller coasters, trajectories, simple pendulums, ballistic pendulums, and inclined planes.
11. Apply the energy concept to the study of ballistics and bullet-resistant vests.

Reference: Holt Physics (Serway/Faughn), Chapter 5

Homework: Work-Energy worksheet

Labs: Alka-Bomb, Pile Driver, Joules/Cal, How Fast Can You Work?, Loop-the-Loop, Dart Gun, Ballistic Pendulum