**UNIT 6: MOMENTUM (12 DAYS)**

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

1. Define impulse and momentum and their metric units, describe their relationship, and calculate each from given data.
2. Explain Newton’s second law of motion in terms of momentum.
3. Explain the Law of Conservation of Momentum and apply it in calculating initial and final momenta, velocities, and masses of colliding objects.
4. Describe the transfer of momentum during elastic, inelastic, and explosion collisions.
5. Define center of mass and why it is important in the study of collisions.
6. Describe the relationship between center of mass and stability and balance.
7. Calculate the center of mass of two objects given their masses and relative positions.
8. Describe the motion of the center of mass of a system of objects during a collision.

**Reference: Holt Physics (Serway/Faughn), Chapters 6**

**Homework: Problem solving handout covering impulse = change of momentum, center of mass, and all three types of collisions for conservation of momentum**

**Labs: All –American Egg Drop (impulse, change of momentum), 3 Conservation of Momentum Labs (inelastic, explosion, elastic collisions), hallway Physics**