

Physics Honors
2007 - 2008 Course Syllabus
Dr. Goldhaber
Peak to Peak High School

I. **Newtonian Mechanics**

- A. Measurement and Mathematics
- B. Measurement and Mathematics
- C. Motion in One Dimension
- D. Vectors
- E. Motion in Two and Three Dimensions
- F. Force and Newton's Laws
- G. Applications of Newton's Laws
- H. Work, Energy, and Power
- I. Momentum
- J. Uniform Circular Motion
- K. Rotational Kinematics

II. **Thermodynamics**

- A. Temperature and Heat
- B. Kinetic Theory of Gases
- C. First Law of Thermodynamics, Gases, and Engines
- D. Second Law of Thermodynamics, Efficiency, and Entropy

III. **Mechanical Waves**

- A. Oscillations and Harmonic Motion
- B. Wave Motion
- C. Sound
- D. Wave Superposition and Interference

IV. **Electricity and Magnetism** \Leftarrow **Current Unit**

- A. Electric Charge and Coulomb's Law
- B. Electric Fields
- C. Electric Potential
- D. Electric Flux and Gauss' Law
- E. Electric Current and Resistance
- F. Capacitors
- G. Direct Current Circuits
- H. Magnetic Fields
- I. Electric Currents and Magnetic Fields
- J. Electromagnetic Induction
- K. Alternating Current Circuits
- L. Electromagnetic Radiation

V. **Modern Physics**

- A. Special Relativity
- B. Quantum Physics Part One
- C. Quantum Physics Part Two
- D. Nuclear Physics

VI. **Textbook**

Bruce Jacobsen, Rich Louie, Glenn Brooks, *et. al.*, Principles of Physics, Kinetic Books Company, 2005.

This class conforms to the relevant standards of the Colorado Department of Education Science Standards.