

# Physics at Trinity Valley School – 2003-2004

This course introduces students to the physics of the real world. It uses all the mathematical, logical, and experimental tools of modern physics to explore the wide variety of topics usually included in a survey course. It does not explore to a depth that would require the use of (much) calculus but it does use all the mathematics through algebra II, trigonometry, and geometry, and introduces some simple calculus in the discussion at the appropriate points.

Topic areas include:

- Forces of all types (gravity, nuclear, friction, buoyancy, electrical and magnetic)
- Conservation Laws: Energy, mass, momentum, angular momentum
- Laws of Motion or kinematics
- Energy – potential and kinetic for conservative forces
- Momentum and collisions
- Gravitation, including gravitational potential energy
- Work and Simple Machines
- Simple circuits – voltage, current, resistance, and capacitance
- Magnetic and electric fields
- Fluids, pressure and buoyancy
- Introduction to calculus
- Uniform circular motion
- Rotational motion and angular momentum
- Mirrors and lenses
- Thermal properties of matter and thermodynamics
- Nuclear properties and radioactivity
- Special Relativity

The course includes a comprehensive laboratory section. Labs are held one day each week. Lab reports are due one week later.

Homework assignments and the questions at the end of each lab write-up are all handled using an internet-based collection system called WebAssign. All students must use computers, either on campus or at home, to download these assignments and to submit their answers. Use of the internet is not optional.

Grades during a Quarter are determined as follows:

- 50% – Quizzes
- 30% – Labs
- 20% – Homework – All but the first 5 Lessons are on WebAssign

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