



Engineering & Physics Applications

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Brief Snap Shot of Rocky

- Rocky will have about 2150 students next school year
- It will be the first year for freshman to join the high school
- Rocky has a full block schedule
 - Have a max of 4 classes (see same students every day for 90 min)
 - Teach one full year in a semester



What do I teach?

- Fall 2009
 - 2 sections of Physics
 - 1 section of Earth System Science
- Spring 2010
 - 2 sections of Physics
 - 1 section of AP Physics
- Given Rocky is a full block, there is at least 7.5hr a week you see the same student



In Depth

- Physics

- Overall is 60% Juniors, 35% Seniors, 5% Sophomores

- AP Physics

- Normally 50% Juniors and 50% Seniors

- ESS is a required for sophomores and based on an systems approach to science from the environment



How to Get There

- Both courses have the delivery is similar, then adapted to each class
- Key parts for each unit:
 - Introduction/notes
 - Demos
 - Connections to current issues/ research
 - Labs
 - Assignments
 - Evaluations

Connecting Engineering to Science

- **Science** says, "Why?"
- **Engineering** says, "How?"
- **Teaching** says, "How to...?"



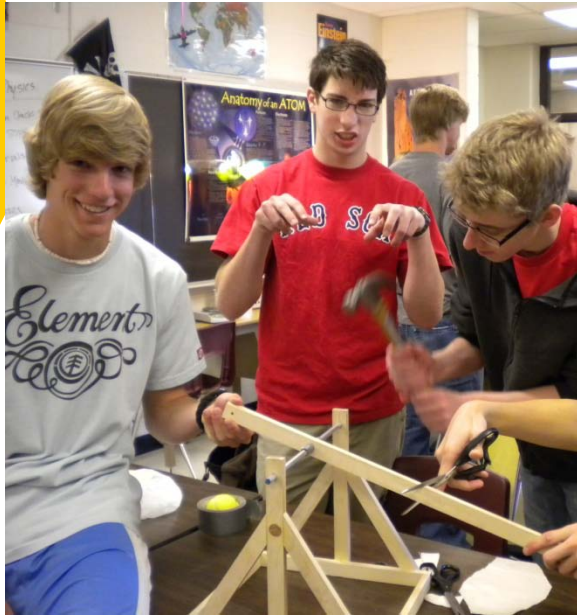
- **Physics** is the exploration of fundamental explanations in the everyday world.



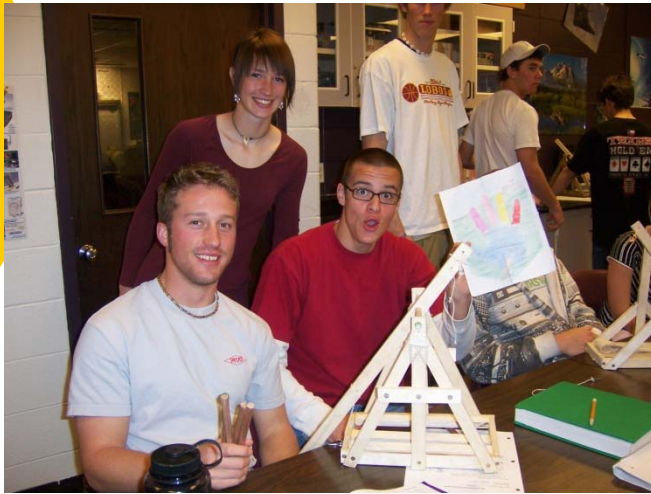
Physics Units

- Measurements & Unit Analysis
- Basic Kinematics (Velocity/ Acceleration, etc.)
- Newton's Laws of Motion
- Force
- Circular Motion & Gravitation
- Work, Power Energy
- Waves (Sound & EM)
- Optics
- Momentum
- Final Project Trebuchet Analysis

Production...



Examples of the final product



Applications of Circular Motion





AP Physics Units

- Electrostatics & Electric Potential
- Electricity & Circuits
- Magnetism
- Nuclear Physics & Quantum Mechanics
- Thermodynamics & Fluids
- Relativity & General Relativity
- Mechanics

Students with Radiation





Applications for GK-12

- Involving real world connections in each unit in physics
- Further applications in electronics and magnetism
- Biology and engineering connected to physics in kinematics, fluids, thermodynamics and forces

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- Any questions?