

Engaging Students by Modernizing High School Physics Curriculum

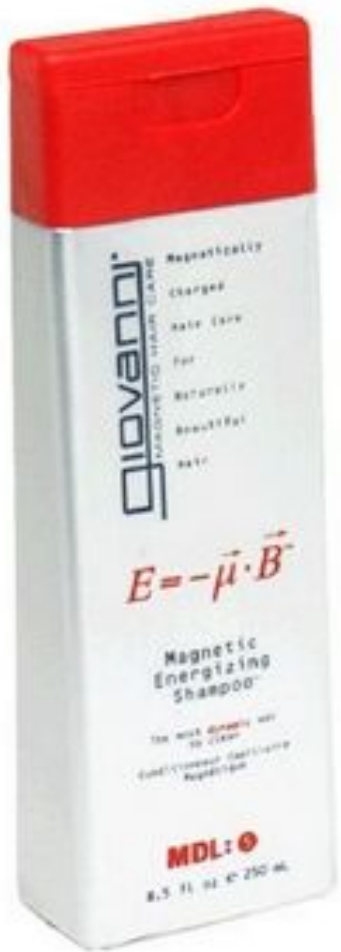
Amber Henry
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Paradise Valley High School



The Motivation

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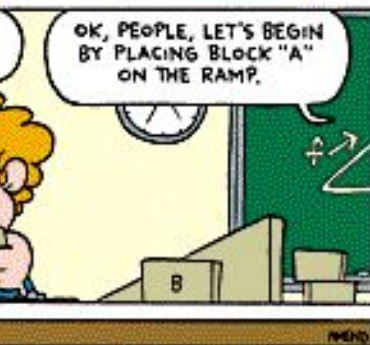
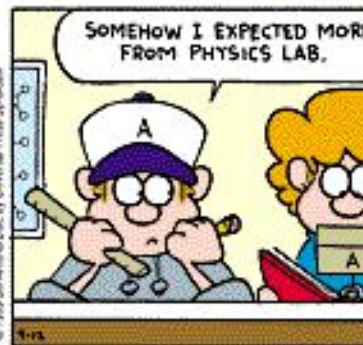
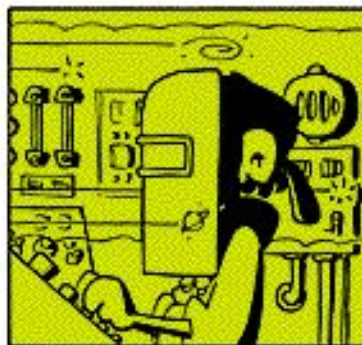
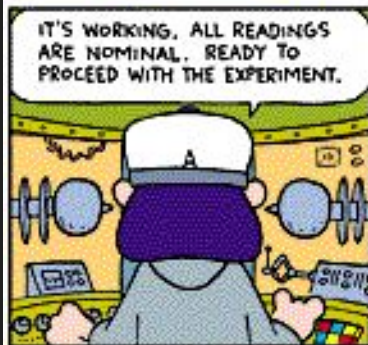
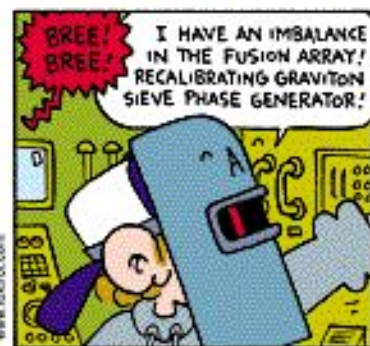
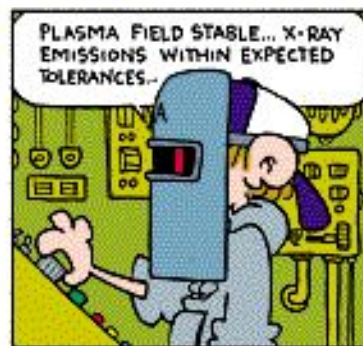
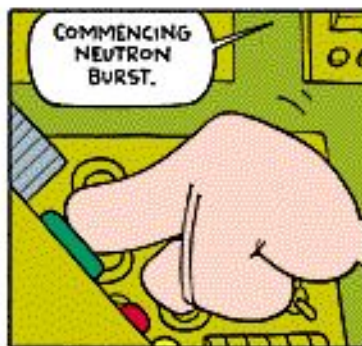
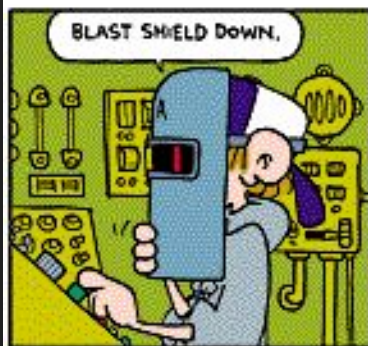
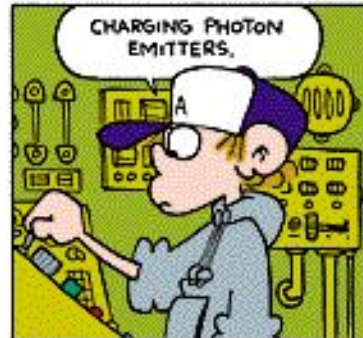


Why Physics?

- “A footnote about quantum mechanics in my high school Chemistry textbook” Michael Landry LIGO Hanford Observatory Head
- “The aesthetics and power of simple physics ideas to describe vast realms of space and time and their applicability across many scientific disciplines became a source of joy that has remained with me across an entire working lifetime.” Fred Raab LIGO Associate Director of Operations

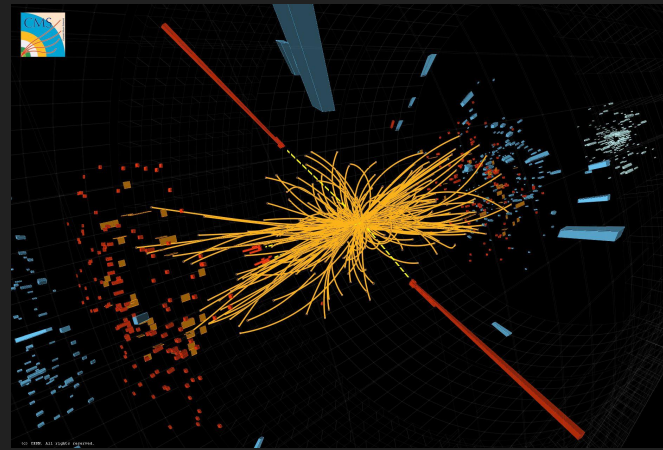
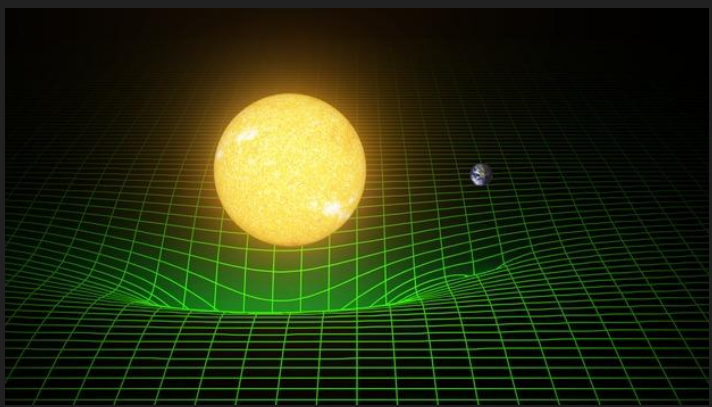
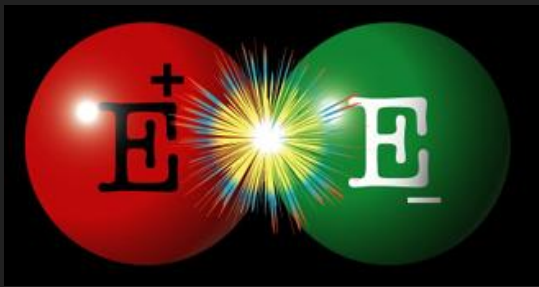
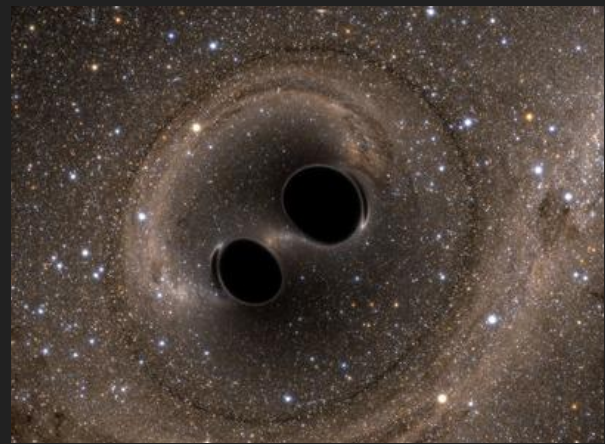
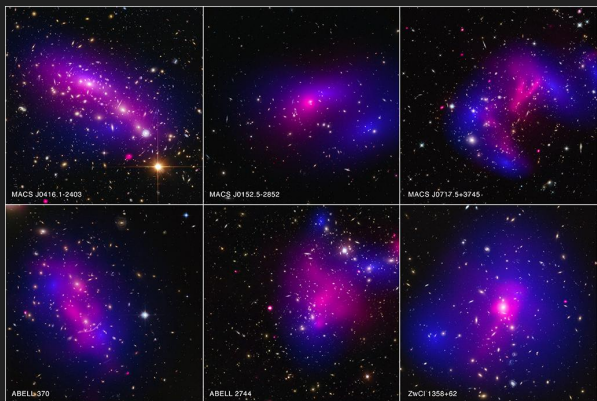
FoxTrot

by Bill Amend



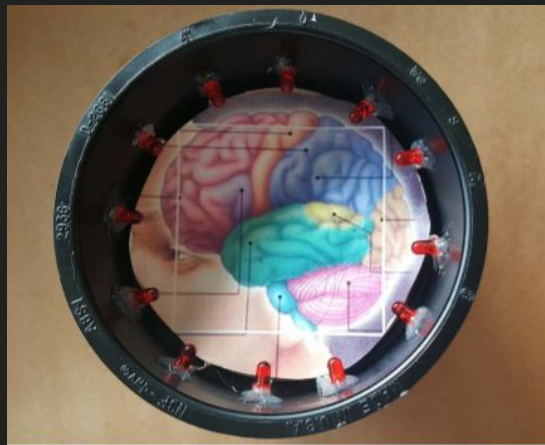
Typical High School Curriculum

- Kinematics
- Newton's Law
- Momentum
- Energy
- Free fall equation
- Newton's law of gravitation
- Rotational Motion

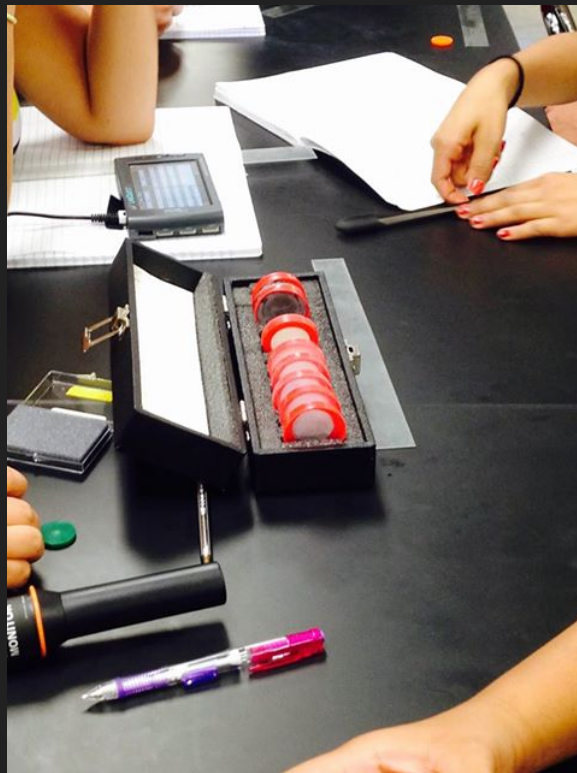
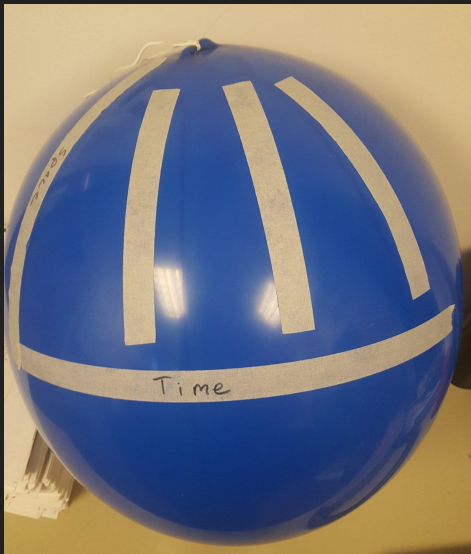
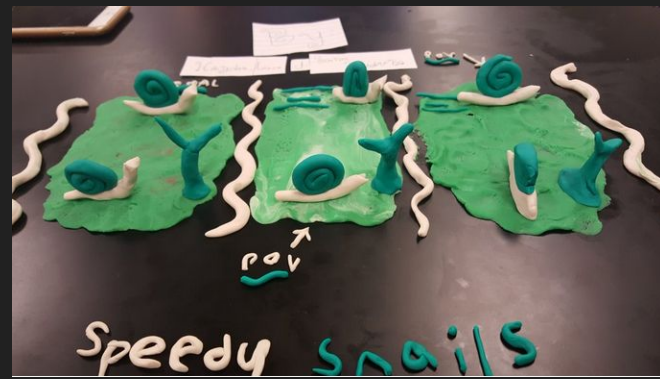


Our Curriculum

- States of matter
- Kinetic Molecular Theory
- Atomic Theory
- Particle physics
- Radioactivity
- Velocity
- Momentum
- Special Relativity
- Relativistic Momentum
- Impulse
- Acceleration
- Gravity
- General Relativity
- Newton's Laws
- Energy
- Nuclear Fission & Fusion
- Cosmology
- Social Justice



The activities



The results

Excitement

Engagement

Curiosity

Resources

- [LIGO e-Lab](#)
- LIGO Virtual Visits - contact me
- [CERN Masterclass](#)
- [Beamline for schools](#)
- [ATLAS Virtual Visits](#)
- [Perimeter Institute](#)
- Quarknet

- CERN High School Teacher Program
- Perimeter High School Teacher Program
- LIGO High School Teacher Program (coming 2018)

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