Please bring your textbook AND 5 Steps to a 5 for Tuesday, 3/26.

My goal for review for the AP exam is to have four practice packets with free response questions as well as take a full-length practice test (Friday, May 10 at noon is the test day & time), and go over other free response and practice as needed

Mon.   3/25   1) Complete data collection for Optics Lab applications in class
                   2) HW: Complete checklist for Learning Objectives and Topics (handed out before break) for Tuesday

Tues.   3/26   1) Discuss and go over feedback from Learning Objectives
                   2) The rationale for Modern Physics – why is it needed?
                   3) Read and summarize parts of Ch. 30 in class

Weds.   3/27   1) Present findings from Ch. 30 research
                   2) Lecture and discussion on nuclear physics
                   3) HW: Complete Ch. 30 questions 7, 10, 11, 15, 32 and problems 2, 17, 25 & 35 for Monday, 4/1

Thurs.   3/28   1) AP Practice Free Response Review set #1 – Electricity and electromagnetism (45 minutes) – in class or as HW for groups needing to finish lab work
                   2) Examples with nuclear physics

Fri.   3/29   1) LAB: Radioactive decay

Mon.   4/1   1) Check/present/go over HW
                   2) Go over and discuss AP Free Response Review Set 1
                   3) HW: Read pages 225-238 in "5 Steps to a 5" for a reading quiz on Wednesday, 4/3 → This covers content in chapters 28-29

Tues.   4/2   1) AP Review Set #2 (Fluids, thermodynamics, and density) – In class

Weds.   4/3   ***Two-hour delay schedule***
                   1) Reading quiz

Thurs.   4/4   1) **TEST (An Odyssey)**: Comprehensive through the year

Fri.   4/5   1) PhET activity – The photoelectric effect
                   2) Go over AP Review Set 2
                   3) HW: Quantum packet → Due Weds., 4/10

My objectives for the Modern Physics Unit:

- Understand that inconsistencies with classical physics led to a need of modern physics (both with relativity and quantum physics)
- Understand how to write and interpret a nuclear reaction (conservation of nucleons and conservation of charge)
- Understand the root cause of the energy from nuclear reactions is a mass defect ($\Delta E = \Delta mc^2$)
- Understand how half-lives can be applied and used
- Understand and apply the photoelectric effect as it relates to electrons, photons and a work function
- Understand that all matter is both particle-like and wave-like (and how to find the De Broglie wavelength of a particle)
- Understand that photons (despite not having mass) have finite amounts of energy and momentum (E = hf, or $E = \frac{hc}{\lambda}$)
- Understand that energy is quantized (as related to De Broglie wavelengths) and how to read and interpret energy level diagrams
- Understand how absorption and emission of quantized photons relate to absorption and emission spectra
- Understand how the Bohr model of the atom relates to quantum physics and spectra
- Understand that electrons can become excited via photons or collisions with other electrons
- Understand the practical application of a LASER ((Light Amplification by the Stimulated Emission of Radiation)

The Ohio State Freshman Engineering Honors program's robot competition is on Saturday, April 6. Although the time shown is from 12-6 PM, normally the public competition is from 4:15-6:15 PM. I'll check it out, but I'd encourage you to go! At least two AP Physics C alumni will be competing!

Robotics Competition

Students create robots that complete specified tasks on a course designed and built by the program's teaching assistants. Each year has a different course and theme to give each class of students a unique experience in applying their knowledge and skills to a simulated real-world situation. The 2018 competition challenges the teams to prepare a pit stop area for an upcoming car race.

As part of their coursework, teams of four students work for approximately 8 weeks designing, building, coding, and documenting autonomous robots to meet the challenge. The project culminates with this final public competition, an in-class oral report, and a thorough documentation package.

At the competition, robots have up to 2 minutes to complete the tasks on the course, and points are associated with each task. All robots compete in three round robin matches, where 3 or 4 robots run simultaneously, and those accumulating the most points are recognized for being the most consistent robots. In the case of a tie, time is used as a tie-breaker.

For the head-to-head competition, the teams are seeded based upon previous in-class performance and attempt to advance through a tournament-style bracket. Four robots compete at a time, with only the highest-scoring team advancing to the next round. Again, in the case of a tie, time is used to determine a winner. The robots who make it to the "final four" receive special recognition.

2018 FEH Honors Robot Competition
Saturday, April 6, 2019, 12:00 pm (round robin) and 4:15 pm (head-to-head)

Venue: Davis Gymnasium, Recreation and Physical Activity Center (RPAC), 337 Annie and John Glenn Ave
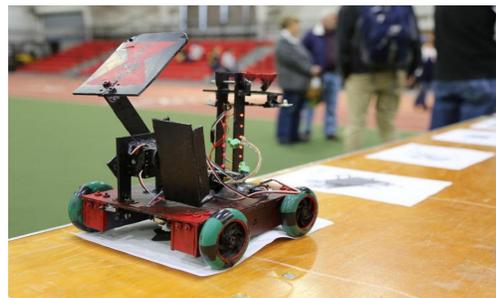
Remember, this comic is a joke. That's why it's in the comics!