

PHYSICS

Syllabus

TEACHER: Lisa Macha
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TEXTBOOK: *Conceptual Physics*, Hewitt 12th Edition. Pearson 2015

Daily Supplies: Textbook with cover, 1 ½" 3 Ring binder, Notebook/graph paper/unlined paper, **Pencil** and big eraser, **NO PENS**, Scientific or graphing calculator. We have graphing calculators for student use, but students **must bring batteries 4AAA**.

*Access to Physics Mastering for HW/Quizzes (school accounts will be used)

Online Content: Mastering Physics

Students will work on HW and some quizzes on the online environment. The textbook is also available through this access as well. This can be accessed with any device with an internet connection, however, I wouldn't recommend using a cell phone, but a tablet or small laptop/Chromebook will suffice.

COURSE OBJECTIVE: As this is an introduction to Physics we want to cover a broad array of topics so that students gain a decent understanding of how Physics is applied in the world around them. If we move slower than anticipated then we will cut more material if needed, however we will move on to the new topics each quarter. Our focus will be to gain conceptual understanding and not rote memorization of formulas. We will try and cover the first 6 parts of the textbook, whatever isn't covered we will have class projects to cover remaining material (except for possibly parts 7 and 8).

Content Covered

1. About Science

Part One – Mechanics

2. Newton's 1st Law – Inertia
3. Linear Motion
4. Newton's 2nd Law
5. Newton's 3rd Law
6. Momentum
7. Energy
8. Rotational Motion
9. Gravity
10. Projectile and Satellite Motion

Part Two – Properties of Matter

11. The Atomic Nature of Matter
12. Solids
13. Liquids
14. Gases

Part Three – Heat

15. Temperature, Heat, and Expansion
16. Heat Transfer
17. Change of Phase
18. Thermodynamics

Part Four – Sound

19. Vibrations and Waves
20. Sound
21. Musical Sounds

Part Five – Electricity and Magnetism

22. Electrostatics
23. Electric Current
24. Magnetism
25. Electromagnetic Induction

Part Six – Light

26. Properties of Light
27. Color
28. Reflection and Refraction
29. Light Waves
30. Light Emission
31. Light Quanta

Part Seven – Atomic and Nuclear Physics

32. The Atom and the Quantum
33. The Atomic Nucleus and Radioactivity
34. Nuclear Fission and Fusion

Part Eight – Relativity

35. Special Theory of Relativity
36. General Theory of Relativity

This is an outline of material to be covered in the course listed. Dates of tests, homework, etc. will vary as necessitated by the pace at which the material is covered. Homework expectations, absences, the course grading system, etc. are explained on the Procedures for Room 112 handout.