 Physics Syllabus 2014-2015

Mr. Shull

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| Chapter | Content | Time | ***Possible*** Labs |
| 1. The Science of Physics | Introduction, significant figures, accuracy, precision, dimensional analysis, SI | 1 week | Observation and Inference (CSI Inquiry) |
| 2. Motion in one Dimension | Displacement, velocity, acceleration, gravity | 1-2 weeks | TBD |
| 3. Two-Dimensional Motion and Vectors | Vectors, Projectile motion, Relative motion | 2-3 Weeks | Motion of a falling object.  Egg Drop - Pending |
| 4. Forces and Laws of Motion | Changes in motion, Newton’s Laws of Motion, Force diagrams, Inertia | 2 week | Mousetrap race car |
| 5. Work and Energy | Work, energy, potential, kinetic, power, conservation of energy | 2-3 Weeks | Roller coaster construction |
| 6. Momentum and Collisions | Momentum, conservation of momentum, elastic and inelastic collisions, impulse cart | 1-2weeks | Impulse cart |
| 7. Circular Motion and Gravitation | Centripetal force, Centripetal acceleration, Newton’s law of Universal gravitation, Kepler’s Laws of planetary motion, weight. | 2-3 Weeks | Centripetal force  Rube Goldberg |
| 8. Fluid Mechanics | Buoyant forces, gas laws, fluid pressure | 1-2 weeks | TBD |
| 11. Vibrations and Waves | Wave properties, Harmonic motion, Wave interactions, Measuring wave motion | 1-2 weeks | Measuring wave motion  Harmonic Motion |
| 12. Sound | Sound waves. Doppler effect, acoustics | 1-2 Weeks | TBD |
| 13. Light and reflection | Light characteristics, color, concave and convex mirrors. | 1 week | Mirrors |
| 14. Refractions | Index of refraction, lenses, focal points | 2 weeks | Index of refraction  Converging Lenses |
| 15. Inferences and Diffraction | Interference, diffraction, lasers | 1 week | TBD |
| 16. Electric forces and fields | Electric fields, electric charges. | 1-2 weeks | Electric field with Iron shavings |
| 17 Electrical energy and current | Current, resistance, capacitance | 2 Weeks | TBD |
| 18. Circuits | Parallel and series circuits | 2 Weeks | Construction of open and closed circuits |
| 19. Magnetism | Magnetic fields, right hand rule | 2 weeks | TBD |
| 21. Atomic Physics | Models of the atom | 1 week | TBD |
| 22. Subatomic Physics | Nuclear decay, nuclear reactions, | 1 week | TBD |

* ***This is a tentative schedule***; we will more than like not finish all of these topics.
* Lab will typically take up to 2-3 days’ time. You will conduct a pre lab, lab, and a post lab where you will analyze and report out your findings to discuss as a class.
* The lab column is all subject to change, I may change my mind on a lab due to availability, time restraints, or I just may find a lab I like better.