

Physics

Lesson Plan #1
What is Physics?
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Objective – Overview of Physics

Self-Introduction

Student Introduction

Discipline Discussion

No Excuses - assign homework of two excuses

Requirements – Scientific Calculator and Lab Notebook

Physics – study of the physical world from the sub-atomic particle to the universe, matter and energy and how they relate

- Astronomy, Rocket Science, Nuclear Energy, Lasers, Computers, Weather, Electronics.
- Areas we will cover – linear motion, acceleration, forces, 2 dimension motion, gravity, momentum, energy, work, simple machines, sound, light, electricity
- Math is a primary tool in Physics
- 2500 years ago Greeks thought every thing was made of four elements: earth, water, air & fire – motion was due to elements traveling to their natural place.
- These ancient writings eventually came to Europe and were accepted as truth – not to be questioned or tested (Dark Ages)
- In the 1600's Galileo came onto the scene – first recorded observations by a telescope (invented by a Dutchman named Lippershey)
- Galileo developed a systematic method of observing, experimenting and analyzing now referred to as the **scientific method**.
- Galileo is considered to be the father of modern experimental science.
- Leaning Tower of Pisa – do demo of falling objects – why do they fall at different rates
- Galileo was tried for treason to the Church since he made statements that were in contradiction to current belief (the ones from the Greeks). He was placed under house arrest for life. The Catholic Church issued an apology in the 1980's that they had been wrong.

Mars – mythological known as the God of War - red color

- Percival Lowell drew maps of Martian canals in the early 1900's leading to a belief of life on Mars
- October 31, 1938 Orson Wells broadcast of War of the Worlds
- 1964 first space probe photos of Mars
- 1993 US lost Mars space probe (error in units miles vs. km)

- 1996 first low cost lander – Pathfinder
- 2004 another successful return to Mars
- 2003 – President Bush outlines goal of man landing on Mars
- Why study Mars – geology and atmospheric physics. Mars has almost no atmosphere – why, where did all the water go (evidence shows it was there)

Why Study Mars?

- Con - It is very expensive
- Pro – Help us to understand what can happen to Earth
- Pro – Space Program provides us with new technology – microchips, Teflon, GPS, lightweight metal alloys, allows us to dream
- Grants come from government, private foundations and private corporations. Presenting a sound project proposal is important.