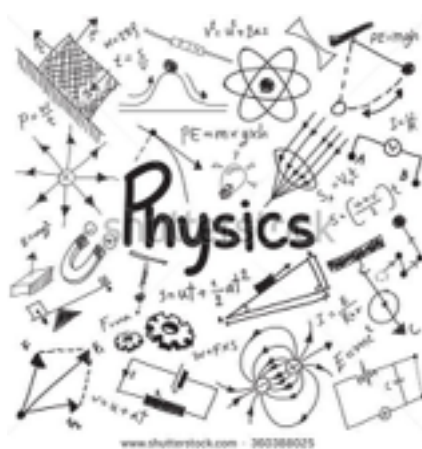


Physics

essential understanding:



Everything we call real is made of things that cannot be regarded as real.
Niels Bohr

Overview: You will observe and analyze all aspects of motion. Motion can be observed on the microscopic scale while looking at atomic movement and interactions. It can also be observed on the macroscopic level when your body moves or you see a car on the freeway. What “things” can you observe and calculate about both examples? What laws can you derive to govern both scales?

guiding question 1: What tools do we need to use in order to perform physics calculations?

Lesson:

Week 1:

Day 1

_____ Receive a lesson on Universal Tools of Science

_____ Classroom Etiquette, Intro to Units

Day 2

_____ Intro to Physicist Project, Numbers with Units

Week 2

Day 3

_____ no lesson

Day 4

_____ Scientific Notation

Week 3

Day 5

_____ Prefix Multipliers

Individual Work: All daily work should be completed by the end of class.

Observations on Measure Units

Matching units to abbreviations

Measure different objects in the classroom and report them in 4-5 different measurements

Scientific Notation worksheet

Prefix multiplier worksheet

Group Work: Presented at the end of week 3

Physicist Project

Pick a physicist you would like to research. Create a 5 minute Powerpoint presentation that answers the following questions.

- Background information
- What idea/concept is the physicist most known for? When did they come up with it?
- Did the physicist have any less known ideas/concepts? If yes, what is it?
- How do you use their concept in everyday life?
- How long were they working on their concept?

guiding question 2: How can you analyze different types of motion?**Lessons:**

____What is motion?

Group Work: To be presented at the end of the week 6

Motion Lesson

A type of motion will be given to your group and each group will need to become the “expert” on the topic and create a lesson to explain this type of motion to the entire classroom

Each lesson must include

15-20 minute presentation explaining the type of motion including necessary vocabulary

An interactive activity

Example word problems demonstrated to the class

Create an assignment for the to do as classwork that will ensure each person understands the concept and can do the problems

Topics:

- Linear Motion
- Projectile Motion
- Newton's First Law
- Newton's Second Law
- Newton's Third Law

individual work:

___ Lab write up of group laboratory experiment: see handout "how to write a notebook laboratory write up"

___ Problems at end of chapter that are for your topic

___ Review problems from different presentations

assessment:

Quiz: Dimensional Analysis (week 3)

10 questions needing dimensional analysis(conversions)

Project: Build a contraption (week 7)

Exam: Motion (week 8)

readings:

Conceptual Physics pages

Conceptual Physics Laboratory Manual handouts

links

The Physics Classroom

<http://www.physicsclassroom.com/>