**Honors Physics**

The high school honors physics course of study is designed to give a foundation for successful completion of college physics. The class gives an understanding of the many branches of physics while giving an introduction to the many physics related careers that are available

**Course Prerequisites**: Algebra II with a B or higher

**Course Co-requisite**: Advanced Math or Calculus unless already completed.

1. **General Objectives and Sequential Time frame:**

**Students study a variety of topics that include:**

Introduction to the study of Physics (1.0 week) 1

Measurement and Problem Solving (1.0 week) 2

Velocity and Acceleration

Velocity (1.0 week) 3

Acceleration (1.0 week) 4

Laws of Motion (1.0 week) 5

Gravitation (1.0 week) 6

Concurrent and Parallel Forces

Composition of Forces (1.0 week) 7

Resolution of Forces (1.0 week) 8

Friction (1.0 week) 9

Parallel Forces (1.0 week) 10

Two-Dimensional and Periodic Motion

Circular Motion (1.0 week) 11

Rotary Motion (1.0 week) 12

Harmonic Motion (1.0 week) 13

Conservation of Energy and Momentum

Work, Machines, and Power (1.0 week) 14

Energy (0.75 week) 14.75

Momentum (1.0 week) 15.75

Phases of Matter

Solid Phase (0.5 week) 16.25

Liquid Phase (0.5 week) 16.75

Gaseous Phase (0.5 week) 17.25 End of 1st Semester

Heat Measurements

Units of Temperature and Heat (1.0 week) 1

Thermal Expansion (1.0 week) 2

Heat Exchange (1.0 week) 3

Change of Phase (0.5 week) 3.5

Heat Engines

Heat and Work (1.5 week) 5.0

Heat Transfer Mechanisms (1.0 week) 6.0

Waves

Nature of Waves (0.5 weeks) 7.5

Wave Interactions (1.0 week) 8.5

Sound Waves (1.5 weeks) 10

Nature of Light

Reflection (0.5 week) 10.5

Refraction (1.0 week) 11.5

Diffraction (0.5 week) 12

Electrostatics

Electric Charge (1.0 week) 13

Potential Difference (1.0 week) 14

Direct Current Circuits

Sources (1.0 week) 15

Series and Parallel Circuits (1.0 week) 16

Introduction to Alternating Current

Magnetism (0.5 week) 16.5

Joules Law (0.5 week) 17.0

Power (0.5 week) 17.5

Electromagnetism (0.5 week) 18

* 1. **t include:**

**Textbook used**:

**Grading Scale:**

25% homework,  25% labs,  25% Test,   25% quiz

**Supplies needed:**

pen/paper, notebook, spiral notebook for lab reports, Scientific calculator,