

Honors Physics

Physics introduces the basic underlying principles that govern the physical universe and an opportunity to meet these principles through group work, discussion, laboratory experiences and projects. It is presented in a logical manner and is designed for students who plan to continue their education after high school. Mathematics is the language of physics; therefore, a strong mathematical background is needed for the course. A scientific calculator is a necessary tool for the course.

Class Website - <https://sites.google.com/site/daysphysicsclass/>

Email - mday@efsd.net

Phone - 412-896-2349 ext. 7902

Twitter - @MDayEF

BE SAFE

Listen to staff and maintain personal space

RESPECT OTHERS

Be on time, be polite, and use appropriate language and tone

ACCOUNTABLE

Be prepared, be honest, do your own work, and use electronic devices only when permitted

VICTORIOUS

Do your best work and celebrate academic success

ENTHUSIASTIC

Have a positive attitude and Take ownership of learning

ACADEMIC INTEGRITY - SCIENCE

- Try! Listen! Think!
- Use your iPad and phone for educational purposes
- Be prepared for your class
- Follow directions
- Be safe in the lab
- Do not cheat
- Do not get off task or give up
- Do not damage school property

Grading Procedures

1. Grades are based on tests, quizzes, labs, projects, and homework.
 - Assignments will be given and collected daily.
 - Laboratory write-ups will be completed mainly in groups.
 - Quizzes will be given at various times during a chapter.
 - Make-up quiz will be different than the quiz given on the scheduled quiz date.
 - Tests will be given at the end of each chapter.
 - Bonus points will be offered at various times during the year.
2. **As per school policy:** No assignments will be taken late. Any assignment that is not turned in on the due date will be given an automatic zero.
3. **As per school policy:** Students will be given one day to make up assignments for every day they are absent. Any assignments not turned in by this make-up date will be given a zero.
4. **As per school policy:** No credit will be given for assignments that are partially or completely copied from someone else's work.

Classroom Rules and Procedures

1. Be in your seat and ready to work when the bell rings.
2. Students will only be allowed to leave class with permission.
3. Answer bell ringer questions as soon as you enter class and prepare for class to begin. Bell ringers are timed (4 minutes after bell rings) and reviewed every day.
4. Your iPad is all you will be required to bring to class daily.
 - a. Your iPad is a school issued resource; I expect it to only be used as such during my class.
 - b. If you choose to use your phone it may only be used for educational purposes as well.
 - c. All electronics must be always placed flat on the table.
5. All students will be paired with another student.
 - Your partner is the person sharing your table.
 - You will be expected to help each other understand class material.
 - Groups will be split, and students will work individually if both students are not actively working.
 - Students will only be permitted to talk to their partner.
6. Students are responsible for all their own make-up work.
 - The daily list of topics covered, and assignments given will be listed on the calendar on the classroom website, on Canvas, and in the weekly email.
7. Closers will be given with 3 minutes remaining in each class.

Actions for breaking classroom rules

1. Warning
2. Student conference / Parent email
3. Teacher detention / Parent phone call
4. Office referral – An office referral will be issued for all following offenses

❖ **I have reviewed and understand all the information presented on this page.**

Student: Name _____

Signature _____

Email Address: _____

Parent / Guardian: Name _____

Signature _____

Email Address: _____

Syllabus for Honors Physics 1

Introduction to classroom rules and class website

Chapter 1 – Introduction, Measurement, Estimating

Nature of Science

Physics and Relation to other Fields

Models, Theories and Laws

Measurement and Uncertainty; Significant figures

Units, Standards, and SI System

Converting Units

Dimensions and Dimensional Analysis

Chapter 2 – Describing Motion: Kinematics in One Dimension

Reference Frames and Displacement

Average Velocity

Instantaneous Velocity

Acceleration

Motion at Constant Acceleration

Solving Problems

Falling Objects

Graphical Analysis of Linear Motion

Chapter 3 – Kinematics in Two Dimensions; Vectors

Vectors and Scalars

Addition of Vectors-Graphical Methods

Subtraction of Vectors, and Multiplication of a Vector by a Scalar

Adding Vectors by Components

Projectile Motion

Solving Problems Involving Projectile Motion

Projectile Motion Is Parabolic

Relative Motion

Chapter 4 – Dynamics: Newton's Laws of Motion

Force

Newton's First Law of Motion

Mass

Newton's Second Law of Motion

Newton's Third Law of Motion

Weight – the Force of Gravity; and the Normal Force

Solving Problems with Newton's Laws; Free Body Diagrams

Problems Involving Friction, Inclines

Problem Solving – A general approach

Chapter 6 – Work and Energy

Work Done by a Constant Force

Work Done by a Varying Force

Kinetic Energy, and the Work-Kinetic Energy Principle

Potential Energy

Conservative and Nonconservative Forces

Mechanical Energy and its Conservation

Problems Solving Using Conservation of Mechanical Energy

Other forms of Energy

Energy Conservation with Dissipative Force

Power

Chapter 7 – Linear Momentum

Momentum and its Relation to Force

Conservation of momentum

Collisions and Impulse

Conservation of Energy and Momentum in Collisions

Elastic Collisions in One-Dimension

Inelastic Collisions

Collisions in Two or Three Dimensions

Center of Mass

CM for the Human Body

CM and Translational Motion