

Academic Physics 1

Physics provides an introduction to the basic underlying principals 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.
 - 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 placed flat on the table at all times.
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 of 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 offences

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

Student: Name _____

Signature _____

Email Address: _____

Parent / Guardian: Name _____

Signature _____

Email Address: _____

Syllabus for Academic Physics 1

Introduction to classroom rules and class website

Chapter 1 – The Science of Physics

Notes – Scientific method and Unit conversions
Problem Session – Unit conversions
Quiz – Unit Conversions
Inquiry Lab – Mass of Pennies
Notes – Precision and accuracy and Scientific notation
Problem Session – Metric Prefixes
Quiz – Metric Prefixes
LabQuest – GPS
Problem Session – Mathematical Operations with Scientific Notation
Quiz – Mathematical Operations with Scientific Notation
Lab – Origami Frogs
Notes – Graphing
Problem Session – Graphing
Problem Session – Graphing using Logger Pro
WS – Graphing techniques
Quiz – Graphing
Comp Lab – Graph matching

Chapter 2 – Motion in One-Dimension

Notes – Displacement and Velocity
Problem Session – Displacement and Velocity
Quiz – Average Velocity
Notes – Acceleration
Problem Session – Acceleration
Quiz – Average Acceleration
Simulation Lab – Maze Game
LQ Lab – Bungee Jump Acceleration
Notes – Interpreting Graphs
WS – Interpreting Graphs
Notes – Displacement with uniform acceleration
Problem Session – Displacement with uniform acceleration
Quiz – Displacement with uniform acceleration
Notes – Velocity and displacement with uniform acceleration
Problem Session – Velocity and displacement with uniform acceleration
Quiz – Velocity and displacement with uniform acceleration
LQ Lab – Back and Forth Motion
Notes – Final velocity after displacement
Problem Session – Final velocity after displacement
Quiz – Final velocity after displacement
Simulation Lab – Moving Man
Inquiry Lab – Track and Field
Notes – Free Fall
Problem Session – Free Fall
Quiz – Falling object
LQ Lab – Picket Fence Free Fall

Chapter 3 – Two-Dimensional Motion and Vectors

Notes – Scalar and vector quantities
Problem Session – Finding resultant magnitude and direction
Quiz – Finding resultant magnitude and direction
Notes – Resolving Vectors
Problem Session – Resolving vectors
Quiz – Resolving vectors
Simulation Lab – Motion in 2D
WS – Distance and Displacement
Notes – Adding vectors algebraically
Problem Session – Adding vectors algebraically
Quiz – Adding vectors algebraically
Lab – Vector Treasure Hunt
WS – Vector driving directions
Lab – 3D Vector Map
Notes – Projectiles launched horizontally
Problem Session – Projectiles launched horizontally
Quiz – Projectiles launched horizontally
LQ Lab – Projectile Motion

Simulation Lab – Testing Predictions in Projectile Motion

Notes – Projectiles launched at angles
Problem Session – Projectiles launched at angles
Quiz – projectiles launched at angles
Inquiry Lab – Battleship

Chapter 4 – Forces and the Laws of Motion

Notes – Force, Force diagrams
Problem Session – Drawing Force Diagrams
Notes - Newton's first law
Problem Session – Net External Force
Quiz – Net external force
Lab – Hovercraft, Newton's Laws
Notes – Mass and equilibrium and Newton's Second Law
Problem Session – Newton's second law
Quiz – Newton's second law
LQ Lab – Newton's Second Law
Notes – Newton's third law, Force of friction and air resistance
LQ Lab – Newton's third law
Problem Session – Coefficients of friction
Quiz – Coefficients of friction
Problem Session – Overcoming friction
Quiz – Overcoming friction
Inquiry Lab – Friction
LQ Lab – Air Resistance

Chapter 5 – Work and Energy

Notes – Work
Problem Session – Work and Energy
Quiz – Work and energy
Notes – Kinetic Energy
Problem Session – Kinetic energy
Quiz – Kinetic energy
Simulation Lab – Energy Sk8r
Notes – Work-Kinetic Energy Theorem
Problem Session – Work-Kinetic energy theorem
Quiz – work-Kinetic energy theorem
Notes – Potential energy
Problem Session – Potential energy
Quiz – Potential energy
Lab – Elastic Potential Energy
Notes – Mechanical energy and the conservation of energy
Problem Session – Conservation of mechanical energy
Quiz – Conservation of mechanical energy
LQ Lab – Energy of a Tossed Ball
Inquiry Lab – Roller Coaster Lab
Notes – Power
Problem Session – Power
Quiz – Power
Lab – Work and Power

Chapter 6 – Momentum and Collisions

Notes – Momentum
Problem Session – Momentum
Quiz – Momentum
Notes – Impulse and Stopping Distance
Problem Session – Force and Momentum
Problem Session – Stopping Distance
Quiz – Force and Momentum
Quiz – Stopping Distance
LQ Lab – Momentum and Impulse
Notes – Conservation of Momentum
Problem Session – Conservation of Momentum
Quiz – Conservation of Momentum
Simulation Lab - Intro to Collisions
Notes – Collisions
LQ Lab – Momentum, Energy and Collisions
Problem Session – Collisions
Quiz – Collisions