

# WESTVIEW HS PHYSICS COURSES



Your guide to the FIVE physics courses offered at the beautiful Westview High School

## Physics 1-2 (Algebra-based)

\*concurrent enrollment in Integrated 2 recommended

➤ 4 AP Physics Courses offered!

### AP Physics 1 (Algebra-based)

\*concurrent enrollment in Pre-Calc recommended

Topics: Kinematics; Newton's Laws of Motion; Torque; Rotation Motion and Angular Momentum; Gravitation and Circular Motion; Work; Energy & Power; Linear Momentum; Oscillations, Mechanical Waves and Sound; Introduction to Electric Statics and Circuits

### AP Physics 2 (Algebra-based)

\*AP Physics 1 completion

\*completion of Chemistry recommended

Topics: Fluid Statics and Dynamics; Thermodynamics with Kinetic Theory, PV Diagrams and Probability; Electrostatics; Electric Circuits with Capacitors; Magnetic Fields; Electromagnetism; Physical and Geometric Optics; Topics in Modern Physics

### AP Physics C (Calculus-based) – Mechanics

\*completion of Calculus AB

Topics: Kinematics (including vectors, vector algebra, components of vectors, coordinate systems, displacement, velocity, and acceleration); Newton's laws of motion; Work, energy, power; Systems of particles, linear momentum; Circular motion and rotation; Oscillations and gravitation

### AP Physics C (Calculus-based) - Electricity & Magnetism

\*AP Physics C Mechanics Completion

\*completion of Calculus AB

Topics: Electrostatics; Conductors, capacitors, dielectrics; Electric circuits; Magnetic Fields; Electromagnetism



# CURIOUS AND QUESTIONING STUDENTS

Do heavier objects fall more slowly than lighter objects?

Why do objects float or sink in liquids?

How come in free fall you feel weightless even though gravity is pulling down on you?

What is the difference between energy, force and power?

When should you add cream/milk to your coffee for optimal temperature when drinking?

What is light?

Can a car battery electrocute you?

# TOP 3 REASONS TO TAKE PHYSICS AT WESTVIEW

- 1. College success for virtually all science, computing, engineering, and premedical majors depends in part on passing physics.**
- 2. Physics classes help polish the skills needed to score well on the SAT.**
- 3. College recruiters recognize the value of physics classes.**

# WHICH WV COURSE(S) SHOULD I TAKE?

- Physics 1-2
- AP Physics 1
- AP Physics 2
- AP Physics C: Mechanics
- AP Physics C: Electricity and Magnetism

# PHYSICS 1-2 (REGULAR)

*1 Term Introductory HS-level algebra based course*

*Offered both Fall and Spring Terms*

## **\*concurrent enrollment in Integrated 2 recommended**

- Topics: Newton's Laws of Motion; Momentum; Collisions; Law of Gravitation and Coulomb's Law; Friction and motion; Energy Flow; Convection; Electrostatics (Charging by Friction, capacitors, electric fields); Electric Circuits (current with resistors); Magnetic Fields; Electromagnetism; Mechanical Waves, Digital Waves; Electromagnetic Radiation
- Lab-based with an emphasis to Earth & Space Dynamics
- AVERAGE NUMBER OF HOURS/WEEK OUTSIDE CLASSTIME: **5.22**

# FOUR AP PHYSICS COURSES

- AP Physics 1
  - AP Physics 2
  - AP Physics C: Mechanics
  - AP Physics C: Electricity & Magnetism
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- 4 very different courses!
  - Different content, styles, levels of math complexity
  - For course and test details, go to [Collegeboard.org](https://collegeboard.org)

# AP PHYSICS 1 AND 2

## AP Physics 1 \*completion of Int 3

*1 Term College-Level Course Offered Fall Term*

Topics: Mechanics, Mechanical Waves, Electricity

## AP Physics 2 \*completion of AP Phys 1

*1 Term College-Level Course Offered Spring Term*

Topics: Electricity and Magnetism, Thermodynamics, Fluid Dynamics, Optics, Modern Physics

**Both AP Phys 1 and AP Phys 2: No Calculus needed, but NOT “EASIER” than AP Physics C!!! Just Different. These courses have the most content, concepts, writing, and reading. Test questions demand handwritten essays explaining student’s conceptual understanding.**

**AVERAGE NUMBER OF HOURS/WEEK OUTSIDE CLASSTIME: 8**

# AP PHYSICS C : MECH & EM

**AP Physics C: Mechanics \*completion of Calc AB required**

*1 Term College-Level Course Offered Fall Term*

Topics: Mechanics

**AP Physics C: Electricity and Magnetism**

**\*completion of AP Phys C: Mechanics**

*1 Term College-Level Course Offered Spring Term*

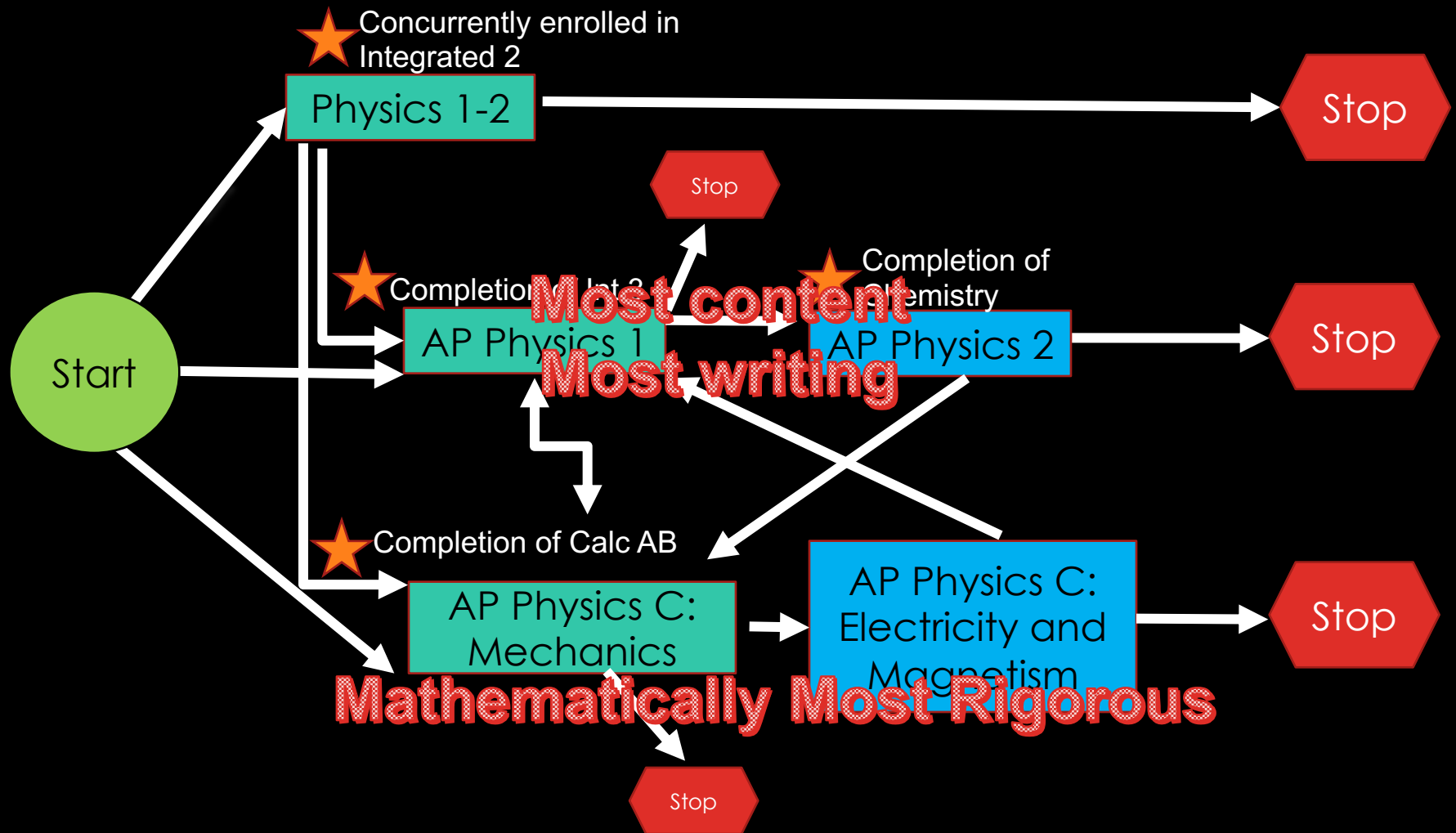
Topics: Electricity and Magnetism

**Both AP Phys C courses: Calculus needed for problem solving and for labs. These courses are the more mathematical / traditional approach to understanding physics. Test questions demand rigorous mathematical derivations.**

**AVERAGE NUMBER OF HOURS/WEEK OUTSIDE CLASSTIME: 6**



# POSSIBLE PHYSICS COURSE SEQUENCING



# WHICH CLASS SHOULD YOU TAKE?

## What are you interested in?

Math  
Engineering  
Computers  
PreMed/Health/Sports  
Entertainment  
Art/Music  
Shooting Rockets  
Making Circuits

Loved your  
Calculus class?



AP Physics C

Did fine in Integrated III,  
but prefers writing  
paragraph answers and  
interested in more content



AP Physics 1

No calc yet, but strong in  
Integrated II Math (Algebra –  
quadratic equation, trig, and  
geometry)



Physics 1-2