

# COURSE DETAILS



## SCIENCE

The HS Science curriculum focuses on the three dimensions of science as stated in the NGSS:

Science and Engineering Practices (SEP)  
Crosscutting Concepts (CCC)  
Disciplinary Core Ideas (DCI). Concepts learned in the classroom are extended to the laboratory that develops students' engagement and involvement through inquiry-based experiments. Integration of current events and real-world problems in the classes help students enhance their problem-solving skills.

Due to the increase in demand of the STEM based career options, we at RAIS provide opportunities for students to take AP courses in science. This helps them earn credits and accelerate placement in colleges. The course structure is rigorous and requires dedication. However, an AP in the high school transcript leaves a good impression on admission counselors and helps students qualify for scholarships.

The AP Science courses provides students with a college-level foundation to support future advanced coursework in chemistry. AP Physics 1 is an algebra-based, introductory college-level physics course. Students cultivate their understanding of chemistry, physics, and biology through inquiry-based investigations as they explore topics in these subjects.

### Physical Science

- Motion and Forces
- Energy
- Waves
- Matter
- Reactions
- Applications of Chemistry

### Health Science

- Understanding health and Wellness
- Nutrition for Health
- The Beginning of Life Cycle
- The Life Cycle Continues
- Medicines and Drugs
- Communicable Diseases
- Sexually Transmitted Diseases
- Noncommunicable Diseases and Disabilities
- Safety and Injury Prevention
- Community and Environmental Health

### Biology

- Ecology
- The Cell
- Genetics
- History of Biological Diversity
- Plants
- Invertebrates
- Vertebrates
- The Human Body

### AP Environmental Science

- The Living World: Ecosystems
- The Living World: Biodiversity
- Populations
- Earth Systems and Resources
- Land and Water Use
- Energy Resources and Consumption
- Atmospheric Pollution
- Aquatic and Terrestrial Pollution
- Global Change

### AP Biology

- Chemistry of life
- Cell structure and Function
- Cellular Energetics
- Cell Communication and Cell cycle
- Heredity
- Gene Expression and Regulation
- Natural Selection
- Ecology

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### Chemistry

- Atomic Structure
- Electrons in Atoms
- The Periodic Table
- Ionic, Metallic and Covalent Bonding
- Chemical Reactions
- Stoichiometry
- States of Matter & Behavior of Gases
- Solutions
- Thermochemistry
- Reaction Rates and Equilibrium
- Acids, Bases, and Salts
- Oxidation-Reduction
- Reactions
- Electrochemistry
- Hydrocarbon Compounds and Functional Groups
- The Chemistry of Life

### AP Chemistry

- Atomic Structure and Properties
- Compound Structure and Properties
- Properties of Substances and Mixtures
- Chemical Reactions
- Kinetics
- Thermochemistry
- Equilibrium
- Acids and Bases
- Thermodynamics and Electrochemistry

### Physics

- Mechanics in One Dimension
- Mechanics in Two Dimensions
- Momentum and Energy
- Waves and Light
- Electricity and Magnetism

### AP Physics

- Kinematics
- Forces and Translational Dynamics
- Work, Energy, and Power
- Linear Momentum
- Torque and Rotational Dynamics
- Energy and Momentum of Rotating Systems
- Oscillations
- Fluids

