

SAT by MBA

Destined to Succeed.

141 New Road, Suite 268, Parsippany, NJ 07054 / satbymba@gmail.com / (973) 960-9093 / www.satbymba.com

High School Physics Prep Programs

For 2020 - 2021 School Year

This program is designed by **SAT by MBA Learning Center** to offer students the ultimate solution to advance their AP & SAT II Physics scores efficiently and effectively. This is a 10+ weeks program and you may start any Sunday for a continuous 10 weeks. After 10 weeks, you can decide if you would like to continue. If the following class time don't fit your schedule, you may contact us to arrange another group class (if you can find 4+ students) or sign on our 1-on-1 private tutoring which is a lot more flexible and can better fit your busy schedules. For further information, please e-mail satbymba@gmail.com or call/text the business cell phone (973) 960-9093.

Textbook: TBD

Tuition: \$800 for the first 10-week and \$80 for each additional lesson (1.5 hours per lesson).

Class Location: Online Zoom Classes

Saturday AP & Sunday SAT II Programs:

SESSION	SUBJECT/S	DAY/S	DATES	TIMES
1	AP Physics 1	Saturdays	Dec 12, 19, Jan 2, 9, 16, 23, 30, Feb 6, 13, 20, 27, Mar 6, 13, 20, 27, Apr 3, 10, 17, 24, May 1 (No classes on Dec. 26; 1.5 hours per lesson/week)	9 – 10:30 am
2	AP Physics 2	Saturdays	Upon request	TBD
3	AP Physics C "Mechanics"	Saturdays	Dec 12, 19, Jan 2, 9, 16, 23, 30, Feb 6, 13, 20, 27, Mar 6, 13, 20, 27, Apr 3, 10, 17, 24, May 1 (No classes on Dec. 26; 1.5 hours per lesson/week)	10:30 – 12 pm
4	AP Physics C "Electricity & Magnetism"	Saturdays	Upon request	TBD

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5	SAT II Physics	Sundays	Dec 13, 20, 27, Jan 3, 10, 17, 24, 31, Feb 7, 14, 21, 27, 28, Mar 7, 14, 21, 28, Apr 4, 11, 18, 25, May 2, 9, 16, 23, 30 (No classes on Dec. 27; 1.5 hours per lesson/week)	9 – 10:30 am
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(Session 1) AP Physics 1 consists of the following 10 units: need at least three 1.5-hour lessons to cover each unit, including free response and multiple choices problem solving.

- UNIT 1: Kinematics
- UNIT 2: Dynamics
- UNIT 3: Circular Motion and Gravitation
- UNIT 4: Energy
- UNIT 5: Momentum
- UNIT 6: Simple Harmonic Motion
- UNIT 7: Torque and Rotational Motion
- UNIT 8: Electric Charge and Electric Force
- UNIT 9: DC Circuits
- UNIT 10: Mechanical Waves and Sound

(Session 3) AP Physics C “Mechanics” consists of the following 7 units: need at least three 1.5-hour lessons to cover each unit, including free response and multiple choices problem solving. **It requires the knowledge of Calculus.**

- UNIT 1: Kinematics
- UNIT 2: Newton’s Laws of Motion
- UNIT 3: Work, Energy, and Power
- UNIT 4: Systems of Particles and Linear Momentum
- UNIT 5: Rotation
- UNIT 6: Oscillations
- UNIT 7: Gravitation

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(Session 5) SAT II Physics

Session 1: Kinematics including Vectors

Sessions. 2 -3. Dynamics including Newton Laws, Circular motion and Gravitation

Session 4. Work, Energy, and Power:

Session 5: Linear Momentum

Session 6: Rotational Motion

Session 7: Waves, Sound and oscillations

Session 8-9: Heat and Temperature, Kinetic Theory and Ideal Gas Laws, Laws of Thermodynamics and Heat Engines

Session 10: Electric Fields, Forces, Potential

Session 11: Circuits and Circuit Elements

Session 12-13: Magnetic Fields and Forces and Electromagnetic Induction

Session 13-14: Optics, Geometrical and Physical

Sessions 15-16 Atomic Models, Quantum Physics, Nuclear Physics and special Relativity

Below is the official SAT Physics list of topics, published by College Board

- **Mechanics 36%–42%**

Kinematics, such as velocity, acceleration, and motion in one and two dimensions Dynamics, such as force, Newton's laws, statics, and friction Energy and Momentum, such as potential and kinetic energy, work, power, impulse, and conservation laws Circular Motion, such as uniform circular motion and centripetal force Simple Harmonic Motion, such as mass on a spring and the pendulum Gravity, such as the law of gravitation, orbits, and Kepler's laws

- **Electricity and Magnetism 18%–24%**

Electric Fields, Forces and Potentials, such as Coulomb's law, induced charge, field and potential of groups of point charges, and charged particles in electric fields Capacitance, such as parallel-plate capacitors and time-varying behavior in charging/ discharging Circuit Elements and DC Circuits, such as resistors, light bulbs, series and parallel networks, Ohm's law, and Joule's law

Magnetism, such as permanent magnets, fields caused by currents, particles in magnetic fields, Faraday's law, and Lenz's law

- **Waves and Optics 15%–19%**

General Wave Properties, such as wave speed, frequency, wavelength, superposition, standing waves, and Doppler effect Reflection and Refraction, such as Snell's law and changes in wavelength and speed Ray Optics, such as image formation using pinholes, mirrors, and lenses

Physical Optics, such as single-slit diffraction, double-slit interference, polarization, and color

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- Heat and Thermodynamics 6%–11% Thermal Properties, such as temperature, heat transfer, specific and latent heats, and thermal expansion Laws of Thermodynamics, such as first and second laws, internal energy, entropy, and heat engine efficiency

- **Modern Physics 6%–11%**

Quantum Phenomena, such as photoelectric effect and electron diffraction

Atomic, such as the Rutherford and Bohr models, atomic energy levels, and atomic spectra

Nuclear Physics, such as radioactivity, fission, fusion, and other nuclear processes

Relativity, such as time dilation, length contraction, and mass-energy equivalence

- **Miscellaneous 4%–9%**

General, such as history of physics and general questions that overlap several major topics

Analytical Skills, such as graphical analysis, measurement, and math skills

New Topics in Physics, current developments in such areas as astrophysics, elementary particle physics, nanophysics, and new technological applications of physics