

SAT Physics Syllabus

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The SAT Physics subject test is a 60 minute exam with 75 questions. It measures your understanding of the major concepts of Physics¹ and your ability to use these principles to solve specific problems.

Although taking the SAT Physics Subject Test is not a compulsory criteria in the admission requirements of some universities, taking it can help you demonstrate your interests and showcase your strengths in the subject.

Notes:

*The SAT Physics subject test is offered in Oct, Nov, Dec, Jan, May and June

*Calculator use is not permitted .

*Problem solving requires simple numerical calculations (you need to know Algebra, trigonometry, etc) .

*Measurements are expressed according to the metric system.

*Experience in the laboratory is recommended.

*When answering questions, assume that the direction of any current is the direction of flow of positive charge (conventional current).

*The SAT Physics subject test reflects what is normally taught in high school. However, due to differences in high school classes, some students will find questions on topics they're not familiar with. This is nothing to worry about. You do not have to get every question correct to receive a perfect score (800) for the test. Many students do well despite not having studied every topic covered.

Mechanics (36%-42% of the test)

- **Kinematics**, such as velocity, acceleration, motion in one dimension, and motion of projectiles
- **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% of the test)

- **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

Heat and thermodynamics (6%–11% of the test)

- **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% of the test)

- **Quantum Phenomena**, such as photons and photoelectric effect
- **Atomic**, such as the Rutherford and Bohr models, atomic energy levels, and atomic spectra
- **Nuclear and Particle Physics**, such as radioactivity, nuclear reactions, and fundamental particles
- **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
- **Contemporary Physics**, such as astrophysics, superconductivity, and chaos theory

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Good luck!