

SAT Physics Syllabus 2016-2017

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Topics for the test

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

Waves and optics (15%-19%)

General Wave Properties, such as wave speed, frequency, wavelength, superposition, standing wave diffraction, 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.

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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