

Course / Strand	Topic	Core Standard	Description	Key Vocabulary	Instructional Strategies and Resources
Physics	Motion	HS.SC.P.M.3	Projectile Motion	Launch Angle, Launch Speed (exit or muzzle velocity, time of flight (hang time), Horizontal Motion, Vertical Motion, Range, Maximum Height (altitude)	
Physics	Momentum and Motion	HS.SC.P.F.1	Newton's laws applied to complex problems	Force (push/pull), Inertia, Mass, Net Force, At Equilibrium (balanced) , Not at Equilibrium (unbalanced), Reaction Force, Weight (Force of Gravity), Normal Force,, Tension, Compression, Spring Forces, Hooke's Law, Free Body Diagram, Inclined Plane	
Physics Physics	Momentum and Motion Momentum and Motion	HS.SC.P.F.2 HS.SC.P.F.3	Gravitational force and fields Elastic forces	Force of Gravity, Gravitation Constant (G), Scalar Field, Vector Field, Gravitational Field, Orbital Mechanics Hooke's law, Spring Constant, Tension, Compression	
Physics	Momentum and Motion	HS.SC.P.F.4	Friction force (static and kinetic)	Friction, Amonton's Law, Static Friction, Kinetic Friction, Coefficient of Friction, Normal Force	
Physics	Momentum and Motion	HS.SC.P.F.5	Air resistance and drag	Drag, Air Resistance,	
Physics	Momentum and Motion	HS.SC.P.F.6	Forces in two dimensions	Free Body Diagram	
Physics	Momentum and Motion	HS.SC.P.F.7	Momentum, impulse and conservation of momentum	Momentum, Impulse, Conservation of Momentum, Explosion, Elastic Collision, Totally Elastic Collision, Inelastic Collision	
Physics Physics	Energy Energy	HS.SC.P.E.1 HS.SC.P.E.2	Gravitational potential energy Energy in springs	Gravitational Potential Energy, Zero Height, Weight, Gravitational Forces, Gravitational Potential, Gravity Field (g) Hooke's law, Elastic Potential Energy, Elasticity Constant	
Physics	Energy	HS.SC.P.E.3	Work and power	Work, Joule, Power, Rate of Energy Change, Watt, Horsepower,	
Physics	Energy	HS.SC.P.E.4	Conservation of energy	Kinetic Energy, Mechanical Energy, Work- KE Theorem, Work- ME Theorem, Law of Conservation of Energy, % Efficiency	

Physics Physics	Energy Waves	HS.SC.P.E.5 HS.SC.P.W.1	Nuclear energy Wave properties	Structure of Nucleus, Binding Energy, Nuclear Force, Radioactivity, Alpha Decay, Beta Decay, Gamma Decay, Nuclear Conservation Laws, Half Life, Rate of Decay, Decay Series, Radioactive Dating, Nuclear *Stability, *Tunneling Wave Velocity, Wavelength, Frequency, Hertz, Amplitude, Longitudinal Wave, Transverse Waves, Mechanical Waves, Electromagnetic Waves, Reflection, Transmission (refraction), Diffraction, Interference, Interference Patterns, Law of Superposition, Doppler Effect, Red Shift, Big Bang, Standing Waves, Node, Antinode, Resonance, Sympathetic (forced) Vibration, Velocity of Sound, Sound Intensity, Decibels	
Physics	Waves	HS.SC.P.W.2	Light phenomena	Color, Color Addition, Color Subtraction, Reflection, Refraction, Diffraction, Emitted Light, Transmitted Light, Reflected Light, Law of Reflection, Snell's Law (refraction) Curved Mirror, Real Image, Virtual Image, Magnification, Focal Point, Focal Length, Lenses, Interference Patterns	
Physics Physics	Electricity and Magnetism Electricity and Magnetism	HS.SC.P.EM.1 HS.SC.P.EM.2	Charging objects (friction, contact and induction) Coulomb's law	Net Charge, Conduction, Induction, Attract, Repel, Electroscope, Capacitor Force, Attraction, Repulsion, Coulomb's Constant	
Physics	Electricity and Magnetism	HS.SC.P.EM.3	Electric fields and electric potential energy	Field Measure, Scalar Field, Vector Field, Force Field, Uniform Field, Lines of Force, Electric PE, Electric Potential, Volts, Equipotential Lines, Potential Difference (Voltage), Potential Gain, Potential Drop, Capacitors, Capacitance, *Capacitors in Combination	

Physics Physics	Electricity and Magnetism Electricity and Magnetism	HS.SC.P.EM.4 HS.SC.P.EM.5	DC circuits Magnetic fields	Circuit, Potential Gain, Potential Drop, Volts, Current, Amperes, Resistance, Ohm's Law, Ohms, Series Resistors, Parallel Resistors, Kirchhoff's Rules Magnetic Field, Earth's Magnetic Field, Teslas, Paramagnetic, Ferromagnetic, Force on a Moving Charge, Ampere's Law, Electromagnet, Solenoids	
Physics	Electricity and Magnetism	HS.SC.P.EM.6	Electromagnetic interactions	Attraction, Repulsion, Magnetic Flux, Induced EMF, Faraday's Law, Lenz's Law, Electric Motors, Electric Generators, Speakers, Microphones, Back EMF, Transformer, * Inductance, *PE of Magnetic Field, *LR Circuits, *AC Circuits	