

MA Curriculum Frameworks for Physics

Standard	Topics	Chapters
HS-PS1-8	fission, fusion & radioactive decay: α , β & γ ; energy released/absorbed	9
HS-PS2-1	Newton's 2nd ($F_{\text{net}} = ma$), motion graphs; ramps, friction, normal force, gravity, magnetic force	—
HS-PS2-2	conservation of momentum	—
HS-PS2-3	lab: reduce impulse in a collision	—
HS-PS2-4	gravitation & coulomb's law including relative changes	6
HS-PS2-5	electromagnetism: current produces magnetic field & vice-versa, including examples	8
HS-PS2-9(MA)	Ohm's Law, circuit diagrams, evaluate series & parallel circuits for ΔV , I or R.	7
HS-PS2-10(MA)	free-body diagrams, algebraic expressions & Newton's laws to predict acceleration for 1-D motion, including motion graphs	—
HS-PS3-1	conservation of energy including thermal, kinetic, gravitational, magnetic or electrical including gravitational & electric fields	5
HS-PS3-2	energy can be motion of particles or stored in fields. kinetic \rightarrow thermal, evaporation/condensation, gravitational potential energy, electric fields	4, 6
HS-PS3-3	lab: build a device that converts energy from one form to another.	—
HS-PS3-4a	zero law of thermodynamics (heat flow & thermal equilibrium)	5
HS-PS3-5	behavior of charges or magnets attracting & repelling	6, 8
HS-PS4-1	waves: $v = f\lambda$ & $T = 1/f$, EM waves traveling through space or a medium vs. mechanical waves in a medium	9, 10
HS-PS4-3	EM radiation is both wave & particle. Qualitative behavior of resonance, interference, diffraction, refraction, photoelectric effect and wave vs. particle model for both	10, 11
HS-PS4-5	Devices use waves and wave interactions with matter, such as solar cells, medical imaging, cell phones, wi-fi	10

MA Science Practices

Practice	Description
SP1	Asking questions.
SP2	Developing & using models.
SP3	Planning & carrying out investigations.
SP4	Analyzing & interpreting data.
SP5	Using mathematics & computational thinking.
SP6	Constructing explanations.
SP7	Engaging in argument from evidence.
SP8	Obtaining, evaluating and communicating information.