

Course Physics

Unit #	Unit Title	Essential Standard	Days	RBT Tag	Clarifying Objectives	Major Concepts	Notes	Honors Concepts	Honors Assessment
1	Introduction to Physics	1.2	10		1.2.1	Significant figures, metric conversions, dimensional analysis, scientific notation, graphing, Basic math review, trig functions		Students will define a system. AP Physics 1 – Big Idea 1	
2	Waves	2.2	7	Analyze	2.2.1	Wave characteristics, Doppler Effect, wave speed, frequency, period	All	Fiber Optics Current topic in application of wave phenomena	Lab Report
					2.2.2	Wave behaviors including refraction, reflection, interference	All		
					2.2.3	Mechanical waves vs. electromagnetic waves	All		
3	1-Dimensional Linear Motion	1.1	10	Analyze	1.1.1/1.1.2	Frame of reference, scalar vs. vector, vector addition, velocity, graphs: p vs. t, v vs. t, a vs. t, acceleration, calculations	All	Students will investigate the relationship between distance and time of a constant speed buggy to develop the mathematical model and conceptual model. AP Physics 1 – Big Idea 3	Lab Report Double Buggy Crash Lab
4	2-Dimensional Linear Motion	1.1	10	Analyze	1.1.3	Independence of horizontal and vertical motion in 2-D motion, projectile motion, revisit trig functions	Part	Work Projectile motion problems backwards as well as forward AP Physics 1 – Big Idea 4&5	Catapult Project AP Physics 1 – Big Idea 4 and 5. Lab Reports
5	Forces	1.2	10	Analyze	1.2.1	Free body diagrams, Newton's 2 nd law	All	Elevator lab AP Physics 1 – Big	Lab Report

					1.2.2/1.2.4 1.2.3	Types of forces (Normal, weight, friction, tension, applied force), systems of forces, Newton's 1 st law, universal gravitation, Newton's 3 rd Law	All All	Idea 3 & 4 The Spring Scale Lab AP Physics 1 – Big Idea 3 & 4 Atwood Interaction of Multiple systems AP Physics 1 – Big Idea 3 & 4	
	Midterm Exam		1						
6	Circular Motion	1.1	8	Analyze	1.1.3	Centripetal acceleration, perpendicular velocity and acceleration,	Part		Lab Report
		1.2		Analyze	1.2.5	Centripetal force	All	Include motion in a vertical as well as horizontal circle as an extension. AP Physics 1 –Big Idea 3	Lab Report
7	Energy	2.1	10	Understand	2.1.1 2.1.2 2.1.3	Energy, PE, KE, Work, graphs Transfer of energy, conservation of energy Power	All All All	Understand that a force can cause a change in KE.	Lab Report
		1.3		Analyze	1.3.1 1.3.2	Conservation of Momentum, elastic and inelastic collisions, Impulse	All All	Develop the concept of conservation of momentum through investigation using dynamics carts.	Lab Report
8	Electricity & Magnetism	3.1	15	Understand (Explain)	3.1.1 3.1.2 3.1.3	Electrically charged objects, Conservation of charge, Electric fields Coulomb's Law	All All All		Lab Report

					3.1.4	Charging	All		
					3.1.5	Electrical Work, Electric PE	All		
		2.3		Analyze	2.3.1	Ohm's law, circuit diagrams	All	Determine equivalent resistance in series and parallel circuits through investigation AP Physics – Big Idea 5	Lab Report
					2.3.2	Conductors and insulators	All		
					2.3.3	AC /DC	All		
					2.3.4	Electric power, electric energy	All		
					2.3.5	Circuits – series vs. parallel, combination circuits	All		
		3.2		Understand (Explain)	3.2.1	Magnetic domains	All		Lab Report
					3.2.2	Magnetic fields and electromagnets	All		
					3.2.3	Electromagnetic induction, Faraday's law (no calculations), transformations – mechanical to electrical, generators, transformers, efficiency	All		
	Review and Exam		9						

