Cornwall-Lebanon School District Curriculum Overview
Physics College Prep – 12th Grade

length of time in weeks	Concepts & Competencies	Common Assessments	Academic Standards (PA Core if applicable)
Unit 1 4	<u>1 D Linear Motion</u> Analyze the motion of an object using graphs. Distinguish between vector and scalar quantities. Solve problems involving position, velocity, and acceleration.	➢ Demo Derby Lab ➢ Marble Acceleration Lab ➢ Chapter 2 Test	3.2.P.B1. 3.2.P.B6.
Unit 2 4	<u>2 D Linear Motion</u> Add and resolve vectors Solve projectile motion problems. Recognize that motion in the x and motion in the y are independent	➢ Catapult Lab ➢ Chapter 2-3 Quiz ➢ Chapter 3 Test ➢ Marking Period 1 Test	3.2.P.B1. 3.2.P.B6.
Unit 3 4	<u>Forces</u> Use Newton's 1st Law to analyze balanced force situations. Use Newton's 2nd Law to analyze unbalanced force situations. Use Newton's 3rd Law to analyze action/reaction force pairs. Properly identify and label all forces acting on a system	➢ Coefficient Lab ➢ Chapter 4 test	3.2.P.B1. 3.2.P.B6. 3.2.12.B6.
Unit 4 4	<u>Energy</u> Identify and calculate the energies present in a given system. Apply the law of Conservation of Energy to solve problems. Recognize that Work is the change of energy in a system. Calculate the amount of Work done on a system. Recognize that Power is the rate of doing Work.	➢ Horsepower Lab ➢ Chapter 5 Test	3.2.P.B2. 3.2.12.B2. 3.2.P.B6. 3.2.12.B6.
Unit 5 3	<u>Momentum</u> Calculate the momentum of an object. Use the Law of Conservation of Momentum to solve problems. Recognize that the change in momentum is due to an impulse. Distinguish between Elastic and Inelastic collisions.	➢ Ballistics Pendulum Lab ➢ Chapter 6 Assessment included in Mid-term exam	3.2.P.B2. 3.2.12.B2. 3.2.P.B6. 3.2.12.B6.

Unit 6	3	Rotational Motion Part 1	➢ Clock Lab	3.2.P.B1.
		Distinguish between linear and rotational quantities.	➢ Rotational Motion Quiz	3.2.12.B1.
		Solve problems involving angular position, velocity, and acceleration.		3.2.P.B2.
				3.2.12.B2.
		Identify and use the centripetal force.		3.2.P.B6.
		Solve problems using Universal Gravitation.		3.2.12.B6.
Unit 7	4	Rotational Motion Part 2	➢ Lever Lab	3.2.P.B1.
		Calculate the Torque acting on an object.	➢ Pulley Lab	3.2.12.B1.
		Recognize and apply the conditions for Static Equilibrium.	➢ PhET Balance Lab	3.2.P.B2.
		Identify the factors affecting the Moment of Inertia.	➢ Simple Machine Quiz	3.2.12.B2.
		Calculate and apply the Angular Momentum of an object.	➢ Chapter 7 Test	3.2.P.B6.
		Classify Simple Machines and evaluate Mechanical Advantage.		3.2.12.B6.
Unit 8	3	Fluids	➢ Buoyancy Lab	3.2.P.B1.
		Recognize the properties of a fluid.	➢ Chapter 9 Assessment included in 3rd Term exam	3.2.12.B6.
		Use Archimedes' Principle to solve problems involving Buoyant Force.		
		Use Pascal's Principle to solve problems involving Pressure.		
		Use Bernoulli's Principle to solve problems involving fluid flow.		
		Use the Ideal Gas Law to solve problems.		
Unit 9	3	Thermal	➢ Chapter 10 Test	3.2.P.B3.
		Describe how heat affects a system.		3.2.12.B3.
		Convert temperatures between scales.		3.2.12.B6.
		Calculate the amount of heat used in a process.		
		Recognize that the total amount of heat in a system is conserved.		
Unit 10	4	Electricity	➢ Static Electricity Quiz	3.2.P.B4.
		Recognize and calculate the amount of interaction between positive and negative electric charges.	➢ Circuit lab	3.2.12.B4.
			➢ Resistor Lab	32.12.B6.
		Differentiate between and calculate the Electrical Potential Energy, Electric Potential, and Potential Difference.	➢ Chapter 17 & 20 Assessment included in Final exam	
		Recognize and apply the properties of Voltage, Current, and Resistance.		
		Solve problems using Ohm's Law and Watt's Law.		