



Physics (Course #2003380 Honors #2003390)

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Quarter	Big Idea	Benchmark Description		Suggested Pacing Days*
First Quarter (39 days)	The Science of Physics	1	SC.912.N.1.2 , SC.912.N.2.2 , SC.912.N.1.1 , SC.912.N.4.1 Describe and explain what characterizes science and its methods including the determination of appropriate questions, conducting experimentation, and the use of scientific knowledge to inform society's decision making.	4
	Forms of Energy <i>Heat and Thermodynamics</i>	2	SC.912.P.10.2 , SC.912.P.10.1 , SC.912.N.3.5 Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity and differentiate between various forms of energy and their transformations.	5
		3	SC.912.P.10.4 , SC.912.P.10.5 , SC.912.N.3.5 , SC.912.P.8.1 Relate temperature to the average molecular kinetic energy and describe different means of thermal energy transfer.	5
	Properties of Matter <i>Fluid Mechanics</i>	4	SC.912.P.8.1 , SC.912.N.3.5 Differentiate among the four states of matter. Include (qualitative) Bernoulli's Principle, Archimedes Principle, and Pascal's Law.	8
	Forms of Energy <i>Vibration, Waves, and Sound</i>	5	SC.912.P.10.20 , SC.912.P.10.21 , SC.912.P.10.18 , SC.912.P.12.9 Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another or when the wave source moves. Compare different types of waves in terms of measurable properties.	9
	Forms of Energy <i>Light</i>	6	SC.912.P.10.22 , SC.912.P.12.9 , SC.912.P.10.18 , SC.912.P.10.20 , SC.912.P.12.7 Construct ray diagrams and use thin lens and mirror equations to locate the images formed by lenses and mirrors.	8
Second Quarter (38 days)	Properties of Matter <i>Atomic and Subatomic Physics</i>	7	SC.912.P.8.3 , SC.912.N.3.2 , SC.912.N.2.4 , SC.912.P.10.10 Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence. Include nuclear physics - fission and fusion, half life, types of decay	13
	Forms of Energy <i>Electrical Forces, Fields, and Current</i>	8	SC.912.P.10.13 , SC.912.P.10.10 , SC.912.E.5.2 Relate the configuration of static charges to the electric field, electric force, electric potential, and electric potential energy.	10
		9	SC.912.P.10.15 , SC.912.P.10.14 , SC.9.N.1.7 Investigate and explain the relationships among current, voltage, resistance, and power.	15
Third Quarter (34 days)	Motion of Objects <i>Newtonian Mechanics</i>	10	SC.912.P.12.2 , SC.912.P.12.1 , SC.912.P.12.9 , SC.912.N.1.5 Analyze the motion in one direction of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	15
		11	SC.912.P.12.2 , SC.912.P.12.1 , SC.912.N.1.6 Analyze the motion of an object in two directions in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.	16
		12	SC.912.P.12.3 , SC.912.N.2.5 , SC.912.N.3.4 , SC.912.N.3.3 Interpret and apply Newton's three laws of motion.	12
Fourth Quarter (27 days)**	Forms of Energy <i>Work and Energy</i>	13	SC.912.P.10.3 , SC.912.P.10.2 Compare and contrast work and power qualitatively and quantitatively. Explore the application of Law of Conservation of Energy with mechanical systems.	13
	Motion of Objects <i>Momentum & Collisions</i>	14	SC.912.P.12.5 , SC.912.P.10.2 Apply the law of conservation of linear momentum to interactions, such as collisions between objects.	14
	Motion of Objects <i>Circular Motion</i>	15	SC.912.P.12.4 , SC.912.E.5.6 , SC.912.P.12.3 Describe the motion of an object moving in a circle. Describe how the gravitational force between two objects depends on their masses and the distance between them. Include Kepler's and Newton's Laws and planetary objects	15

*The days provided for each unit/topic is an estimate that may be adjusted by subject-level PLCs based on student achievement data. The recommended days shown are less than the actual days for each quarter to allow for additional time for routines, testing, absences, remediation and outside considerations.

** This does not include the days in May or June due to testing schedules and end of year events.