



Chemistry (Course #2003340 Hons #2003350)

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Quarter	Big Idea	Benchmark Description HONORS	Suggested Pacing Days*
First Quarter (39 days)	Introduction	1 SC.912.N.1.1 , SC.912.N.1.2 , SC.912.N.1.4 , SC.912.N.1.6 Define a problem and conduct an investigation using appropriate questioning techniques and analyses, with a focus on laboratory safety.	3
		2 SC.912.N.1.2 , SC.912.N.1.7 , SC.912.N.2.2 , SC.912.N.2.4 , SC.912.N.3.3 Explain the characteristics of scientific knowledge, specifically the role of creativity, its ability to change, and the relationship between theory and laws.	4
	Scientific Measurement	3 SC.912.N.1.5 , SC.912.N.3.5 Describe scientific investigations and the functions of models, focusing on measurements and data	5
		4 MA.K12.MTR.3.1 , MA.K12.MTR.5.1 , MA.K12.MTR.7.1 Apply mathematics to chemistry, <i>special focus</i> on derived units	6
		5 MA.K12.MTR.2.1 Demonstrate understanding by representing problems in multiple ways, including accuracy of measurements	6
	Matter and Energy	6 SC.912.P.8.1 , SC.912.P.8.2 , SC.912.P.10.1 , SC.912.P.10.5 , SC.912.P.12.11 , SC.912.P.10.6 Classify changes of matter as chemical or physical, focusing on changes in states of matter	6
		7 SC.912.P.8.2 , SC.912.P.10.2 Differentiate between chemical and physical properties of matter, <i>special focus</i> on differentiating between mixtures and substances	5
		8 SC.912.P.10.2 Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems	4
Second Quarter (36 days)	Atoms	9 SC.912.P.8.3 Explore the development of the scientific theory of atoms (atomic theory)	5
		10 SC.912.P.8.4 , SC.912.P.8.5 Explore the atomic theory by relating properties of atoms and their position in the periodic table to the arrangement of their electrons	5
		11 SC.912.P.10.18 Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum	5-6
		12 SC.912.P.8.4 , SC.912.P.8.5 , SC.912.P.10.9 Use the periodic table and electron configuration to determine an element's chemical and physical properties, and describe the quantization of energy at the atomic level	4-5
	Periodic Table	13 SC.912.P.8.4 , SC.912.P.8.5 Using the atomic theory and trends on the periodic table, identify trends in electronegativity and ionization energy of atoms	10
	Chemical Bonding	14 SC.912.P.8.6 , SC.912.L.18.12 Distinguish between forces holding compounds together, including how the forces between water molecules contribute to supporting life on Earth	9
Third Quarter (34 days)	Chemical Reactions	15 SC.912.P.8.9 , SC.912.P.10.12 Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals in reactions. Differentiate between chemical and nuclear reactions.	7
		16 SC.912.P.8.8 , SC.912.P.12.12 , SC.912.P.12.13 Characterize types of reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions; including factors that affect the rate of reaction and the concept of dynamic equilibrium	7
	The Mole and Empirical and Molecular Formulas	17 SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure including the Mole, empirical and molecular formulas, and particle to mass conversion	14
	Stoichiometry	18 SC.912.P.8.9 Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions including the mole ratio, mole/mass, mass/mass, and volume	14
Fourth Quarter (27 days)**	States of Matter & Gas Laws	19 SC.912.P.8.1 , SC.912.P.12.11 , SC.912.P.10.5 , SC.912.P.12.10 Interpret the behavior of ideal gasses in terms of kinetic molecular theory	6
	Acids/Bases and Equilibria	20 SC.912.P.8.11 Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH, including neutralization reactions and titrations	6
	Chemical Energetics	21 SC.912.P.10.7 Distinguish between endothermic and exothermic chemical processes, including Hess' Law	12
	Organic Chemistry	22 SC.912.P.8.13 Identify selected functional groups and relate how they contribute to properties of carbon compounds, including substitution and replacement reactions.	12



**The days provided for each unit/topic is an estimate that may be adjusted by subject-level PLCs based on student achievement data and should be adjusted, if necessary. 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.*

