

Merrimack School District
Essential Learning Competencies

School	Merrimack High School
Discipline	Science
Course Title	Chemistry

Quarter 1

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1. Students should be able to design a controlled experiment & follow the scientific process.		Worksheets; virtual lab	Test/problem set
2. Students should understand the nature of subatomic particles and their affects on the structure of atoms & properties of matter.		Worksheets; virtual lab	Test/problem set
3. Students should understand isotopes and be able to determine average atomic mass.		Worksheets; virtual lab	Test/problem set
4. Students should know about light and how it interacts with matter.		Worksheets; virtual lab	Test/problem set

Quarter 2

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1. Students should be able to write electron configurations and relate them to atomic structure and properties.		Worksheets; virtual lab	Test/problem set
2. Students should understand the arrangement of the periodic table and trends in properties represented therein.		Worksheets; virtual lab	Test/problem set

3. Students should be able to comprehend and write chemical nomenclature, including names and formulas, for the three major classes of compounds.		Worksheets; virtual lab	Test/problem set
4. Students should be able to classify chemical compounds into one of the major classes based on physical and chemical properties.		Worksheets; virtual lab	Test/problem set
5.			
6.			

Quarter 3

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1. Students should be able to write and classify the chemical reactions.		Worksheets; virtual lab	Test/problem set
2. Students should be able to predict products for selected types of chemical reactions.		Worksheets; virtual lab	Test/problem set
3. Students should be able to understand the Law of Conservation of mass and be able to balance chemical equations.		Worksheets; virtual lab	Test/problem set
4. Students should have an understanding of how the mole concept relates to the amount of a substance.		Worksheets; virtual lab	Test/problem set
5. Students should be able to perform one and two step mole calculations.		Worksheets; virtual lab	Test/problem set
6. Students should be able to determine		Worksheets; virtual lab	Test/problem set

the empirical formula from data.			
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Quarter 4

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1. Students should be able to perform simple stoichiometric calculations to quantify amounts in a chemical reaction.		Worksheets; virtual lab	Test/problem set
2. Students should be able to determine limiting and excess reactants and their amounts in a chemical reaction.		Worksheets; virtual lab	Test/problem set
3. Students should have a qualitative grasp of thermodynamics and be able to explain heat flow using words.		Worksheets; virtual lab	Test/problem set
4. Students should have a quantitative grasp of thermodynamics and should be able to explain heat flow using calculations.		Worksheets; virtual lab	Test/problem set
5. Students should understand and explain the behavior of gases in a qualitative manner using kinetic molecular theory.		Worksheets; virtual lab	Test/problem set
6. Students should understand and explain the behavior of gases in a quantitative manner using the gas laws.		Worksheets; virtual lab	Test/problem set