

Merrimack School District
Essential Learning Competencies

School	Merrimack High School
Discipline	Science
Course Title	Honors Chemistry

Quarter 1

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1. 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
2. Students should understand isotopes and be able to determine average atomic mass.		Worksheets; virtual lab	Test/problem set
3. Students should know about light and how it interacts with matter.		Worksheets; virtual lab	Test/problem set
4. Students should be able to write electron configurations and relate them to atomic structure and properties.		Worksheets; virtual lab	Test/problem set
5. Students should understand the arrangement of the periodic table and trends in properties represented therein.		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 comprehend and write chemical nomenclature, including names and formulas, for the three major classes of compounds.		Worksheets; virtual lab	Test/problem set

2. 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
3. Students should be able to perform mole calculations to interconvert chemical quantities.		Worksheets; virtual lab	Test/problem set
4. Students should be able to work with data to determine empirical and molecular formulas.		Worksheets; virtual lab	Test/problem set
5. Students should be able to classify a reaction as one of the five major types of chemical reaction.		Worksheets; virtual lab	Test/problem set
6. Students should be able to predict the products of a chemical reaction, given the reactants.		Worksheets; virtual lab	Test/problem set

Quarter 3

Essential Learning Competencies	Links to the Rubrics/Standards/Competency	Formative Assessments	Summative Assessments
1. Students should be able to understand and mathematically manipulate information and data regarding solutions.		Worksheets; virtual lab	Test/problem set
2. Students should be able to predict the occurrence and products of an aqueous reaction.		Worksheets; virtual lab	Test/problem set
3. Students should be able to draw the correct Lewis structure for a given compound.		Worksheets; virtual lab	Test/problem set

4. Students should be able to assign a compound to a VSEPR class based on the Lewis structure.		Worksheets; virtual lab	Test/problem set
5. Students should be able to perform simple stoichiometric calculations to quantify amounts in a chemical reaction.		Worksheets; virtual lab	Test/problem set
6. Students should be able to determine limiting and excess reactants and their amounts in a chemical reaction.		Worksheets; virtual lab	Test/problem set

Quarter 4

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

factors that affect reaction rate and be able to explain why they do so using collision theory.			
6. Students should understand chemical equilibrium and be able to predict which way equilibrium will shift upon a stress to the system.		Worksheets; virtual lab	Test/problem set