



Giles County School System
Chemistry 1
2026-2027 Pacing Guide

1

Textbook: McGraw Hill - Tennessee Chemistry

Module & Lesson	Time Frame	Standards	Major Topics/Concepts
	Q1	Lab Safety Lab Equipment Scientific Method REQUIRED	Identify safe and unsafe behaviors in a given scenario. Identify and describe the use of lab equipment given a picture or actual piece of equipment.. Given a sample experiment, be able to write a hypothesis and identify the independent variable, dependent variable, constants, control group, and experimental group(s).
M.1 - L.2	Q1	Scientific Measurement Review	-Write numbers in scientific notation -Convert numbers between basic metric units -Calculate density of an object or substance -Convert between Celcius and Kelvin Temperature scales -Solve conversion problems using Dimensional Analysis
M.1 - L.3	Q1	Scientific Data	-Write numbers in the correct Significant figures -Evaluate Accuracy and precision -Understand how to read and interpret graphs
M.2 - L.1	Q1	CHEM1.PS1.2 & CHEM1.PS1.15	-Use the Periodic Table as a model to predict chemical and physical properties of main group elements (e.g. reactivity, number of subatomic particles, valence electrons, electronegativity, ion charge, ionization energy, and atomic radius) based on locations on the periodic table. -Demonstrate separation methods such as evaporation distillation, electrophoresis, and/or chromatography. Construct an argument to justify the use of certain separation under different conditions.



Giles County School System
Chemistry 1
2026-2027 Pacing Guide

2

M.2 - L.2	Q1	CHEM1.PS1.2 & CHEM1.PS1.15	-Use the Periodic Table as a model to predict chemical and physical properties of main group elements (e.g. reactivity, number of subatomic particles, valence electrons, electronegativity, ion charge, ionization energy, and atomic radius) based on locations on the periodic table. -Demonstrate separation methods such as evaporation distillation, electrophoresis, and/or chromatography. Construct an argument to justify the use of certain separation under different conditions.
M.2 - L.3	Q1	CHEM1.PS1.2	Use the Periodic Table as a model to predict chemical and physical properties of main group elements (e.g. reactivity, number of subatomic particles, valence electrons, electronegativity, ion charge, ionization energy, and atomic radius) based on locations on the periodic table.
M.2 - L.4	Q1	CHEM1.PS1.15	Demonstrate separation methods such as evaporation distillation, electrophoresis, and/or chromatography. Construct an argument to justify the use of certain separation under different conditions.
M.3 - L.1	Q1	CHEM1.PS1.1	Obtain, evaluate, and communicate information to compare historical models of the atom (from Democritus to quantum model) and construct explanations to show how scientific knowledge evolves over time based on scientific evidence.
M.3 - L.2	Q1	CHEM1.PS1.1	Obtain, evaluate, and communicate information to compare historical models of the atom (from Democritus to quantum model) and construct explanations to show how scientific knowledge evolves over time based on scientific evidence.
M.3 - L.3	Q1	CHEM1.PS1.1	Obtain, evaluate, and communicate information to compare historical models of the atom (from Democritus to quantum model) and construct explanations to show how scientific knowledge evolves over time based on scientific evidence.
M.3 - L.4	Q1	CHEM1.PS1.17	Use models to describe radioactive stability, radioactive decay, fusion, and fission
M.4 - L.1	Q1	N/A	N/A



Giles County School System
Chemistry 1
2026-2027 Pacing Guide

M.4 - L.2	Q1	CHEM1.PS1.19	
M.4 - L.3	Q1	CHEM1.PS1.3	Model different representations of atoms (Lewis Dot Structures, Bohr Model, and electron configurations).
M.5 - L.1	Q1	CHEM1.PS1.2	Use the Periodic Table as a model to predict chemical and physical properties of main group elements (e.g. reactivity, number of subatomic particles, valence electrons, electronegativity, ion charge, ionization energy, and atomic radius) based on locations on the periodic table.
M.5 - L.2	Q1	CHEM1.PS1.2	Use the Periodic Table as a model to predict chemical and physical properties of main group elements (e.g. reactivity, number of subatomic particles, valence electrons, electronegativity, ion charge, ionization energy, and atomic radius) based on locations on the periodic table.
M.5 - L.3	Q1	CHEM1.PS1.2	Use the Periodic Table as a model to predict chemical and physical properties of main group elements (e.g. reactivity, number of subatomic particles, valence electrons, electronegativity, ion charge, ionization energy, and atomic radius) based on locations on the periodic table.
M.6 - L.1	Q1	CHEM1.PS1.4	Use the periodic table and properties of elements to develop an explanation to predict the types of bonds that are formed between atoms.
M.6 - L.2	Q1	CHEM1.PS1.4	Use the periodic table and properties of elements to develop an explanation to predict the types of bonds that are formed between atoms.
M.6 - L.3	Q1	CHEM1.PS1.5	Evaluate the components of a substance to write the chemical name and formula using IUPAC criteria, including covalent compounds, ionic compounds, polyatomic ions, and common acids.
M.6 - L.4	Q1	CHEM1.PS1.4	Use the periodic table and properties of elements to develop an explanation to predict the types of bonds that are formed between atoms.
M.7 - L.1	Q1	CHEM1.PS1.4	Use the periodic table and properties of elements to develop an explanation to predict the types of bonds that are formed between atoms.



Giles County School System
Chemistry 1
2026-2027 Pacing Guide

M.7 - L.2	Q1	CHEM1.PS1.5	Evaluate the components of a substance to write the chemical name and formula using IUPAC criteria, including covalent compounds, ionic compounds, polyatomic ions, and common acids.
M.7 - L.3	Q1	CHEM1.PS1.3 & CHEM1.PS1.4	Use the periodic table and properties of elements to develop an explanation to predict the types of bonds that are formed between atoms. Model different representations of atoms (Lewis Dot Structures, Bohr Model, and electron configurations).
M.7 - L.4	Q1	N/A	
M.7 - L.5	Q1	N/A	
M.8 - L.1	Q1	CHEM1.PS1.6	Construct and use a model to show that atoms, and therefore mass, are conserved during a chemical reaction. Symbolically represent this by balancing chemical equations.
M.8 - L.2	Q1	CHEM1.PS1.9	Develop an explanation using the reactants in a chemical reaction to identify reaction type (i.e., synthesis, decomposition, combustion, single replacement, double replacement) and predict products.
M.8 - L.3	Q1	CHEM1.PS1.13	Create models of solutions to describe solutes and solvents, concentration of solutions, and the process of solvation.
M. 9 - L.1	Q1	CHEM1.PS1.7	Perform stoichiometric calculations involving the following relationships: mole-mole, mass-mass, mole-mass, mole-particle; and mass-particle.
M. 9 - L.2	Q1	N/A	
M. 9 - L.3	Q1	CHEM1.PS1.6 & CHEM1.PS1.7	Construct and use a model to show that atoms, and therefore mass, are conserved during a chemical reaction. Symbolically represent this by balancing chemical equations. Perform stoichiometric calculations involving the following relationships: mole-mole, mass-mass, mole-mass, mole-particle; and mass-particle.



Giles County School System
Chemistry 1
2026-2027 Pacing Guide

M. 9 - L.4	Q2	N/A	
M. 9 - L.5	Q2	CHEM1.PS1.5	Evaluate the components of a substance to write the chemical name and formula using IUPAC criteria, including covalent compounds, ionic compounds, polyatomic ions, and common acids.
M.10 - L.1	Q2	CHEM1.PS1.7	Perform stoichiometric calculations involving the following relationships: mole-mole, mass-mass, mole-mass, mole-particle; and mass-particle.
M.10 - L.2	Q2	N/A	
M.10 - L.3	Q2	CHEM1.PS1.6 & CHEM1.PS1.8	Construct and use a model to show that atoms, and therefore mass, are conserved during a chemical reaction. Symbolically represent this by balancing chemical equations. Use models to show a qualitative understanding of the concept of percent yield, limiting reactants, and excess reactants in a chemical reaction
M.10 - L.4	Q2	N/A	
M.11 - L.1	Q2	CHEM1.PS1.11	Develop an explanation for the behavior of gases using Kinetic Molecular Theory and the Combined Gas Law.
M.11 - L.2	Q2	N/A	
M.11 - L.3	Q2	N/A	
M.11 - L.4	Q2	CHEM1.PS3.2 & CHEM1.PS3.3	Analyze and interpret data using heating/cooling curves and phase diagrams. Analyze the energy changes involved in calorimetry by using the law of conservation of energy quantitatively (use of $q=mc^{\wedge}t$) and qualitatively.



Giles County School System
Chemistry 1
2026-2027 Pacing Guide

M.12 - L.1	Q2	CHEM1.PS1.10 & CHEM1.PS1.11	Conduct investigations and develop models to characterize the behavior of gases (e.g. pressure, volume, temperature). Develop an explanation for the behavior of gases using Kinetic Molecular Theory and the Combined Gas Law.
M.12 - L.2	Q2	CHEM1.PS1.12	Use the Ideal Gas Law ($PV=nRT$) to quantitatively evaluate the relationship among the number of moles, volume, pressure, and temperature for ideal gases.
M.12 - L.3	Q2	N/A	
M.13 - L.1	Q2	CHEM1.PS1.13	Create models of solutions to describe solutes and solvents, concentration of solutions, and the process of solvation.
M.13 - L.2	Q2	CHEM1.PS1.14	Quantitatively analyze solution to describe concentration using molarity, percent composition, and ppm.
M.13 - L.3	Q2	N/A	
M.13 - L.4	Q2	N/A	
M.14 - L.1	Q2	CHEM1.PS3.2, CHEM1.PS2.3, CHEM1.PS3.4, CHEM1.PS3.5	Analyze and interpret data using heating/cooling curves and phase diagrams. Analyze the energy changes involved in calorimetry by using the law of conservation of energy quantitatively (use of $q=mc^{\wedge}t$) and qualitatively. Distinguish between endothermic and exothermic reactions by constructing potential energy diagrams and explaining the differences between the two using chemical terms (e.g. activation energy). Analyze data to explain how energy is absorbed or given off depending on the bonds formed and broken.



Giles County School System
Chemistry 1
2026-2027 Pacing Guide

M.14 - L.2	Q2	CHEM1.PS3.1 & CHEM1.PS3.4	Construct an explanation of thermal energy as a form of energy, and temperature as a measure of average kinetic energy of a group of particles. Distinguish between endothermic and exothermic reactions by constructing potential energy diagrams and explaining the differences between the two using chemical terms (e.g. activation energy).
M.14 - L.3	Q2	CHEM1.PS3.2, CHEM1.PS3.4, CHEM1.PS3.5	Analyze and interpret data using heating/cooling curves and phase diagrams. Distinguish between endothermic and exothermic reactions by constructing potential energy diagrams and explaining the differences between the two using chemical terms (e.g. activation energy). Analyze data to explain how energy is absorbed or given off depending on the bonds formed and broken.
M.14 - L.4	Q2	CHEM1.PS3.5	Analyze data to explain how energy is absorbed or given off depending on the bonds formed and broken.
M.15 - L.1	Q2	CHEM1.PS1.16	Obtain, evaluate, and communicate information to identify acids and bases as a special class of compounds due to their unique properties.
M.15 - L.2	Q2	N/A	
M.15 - L.3	Q2	N/A	
M.15 - L.4	Q2	CHEM1.PS1.9	Develop an explanation using the reactants in a chemical reaction to identify reaction type (i.e., synthesis, decomposition, combustion, single replacement, double replacement) and predict products.
M.16 - L.1	Q2	CHEM1.PS1.18	Develop and use models to compare alpha, beta, and gamma radiation in terms of mass, charge, and penetrating power. Identify examples of applications of different radiation types in everyday life.
M.16 - L.2	Q2	CHEM1.PS1.17	Use models to describe radioactive stability, radioactive decay, fusion, and fission.
M.16 - L.3	Q2	CHEM1.PS1.17	Use models to describe radioactive stability, radioactive decay, fusion, and fission.



Giles County School System
Chemistry 1
2026-2027 Pacing Guide

M.16 - L.4	Q2	CHEM1.PS1.18	Develop and use models to compare alpha, beta, and gamma radiation in terms of mass, charge, and penetrating power. Identify examples of applications of different radiation types in everyday life.
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