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Week/Days	Unit Number and Name	Priority Standard	Supporting Standard
Week 1 Days 1–5	Course Launch / Lab Safety / Classroom Procedures	Scientific Practices	Safety routines, measurement expectations, and course procedures
Week 2 Days 6–10	Unit 1: Properties of Matter	Standard 1d, 2c	
Week 3 Days 11–15	Unit 2: Scientific Method	Scientific Practices	
Week 4 Days 16–20	Unit 2: Scientific Method (measurement, calculation, dimensional analysis, assessment)	Scientific Practices	
Week 5 Days 21–25	Unit 3: Atomic Structure	Standard 1 (a-c)	Standard 1 (d)
Week 6 Days 26–30	Unit 4: Electron Configuration	Standard 1c	Standard 1 (a-b)
Week 7 Days 31–35	Unit 4: Electron Configuration (quantum theory, emission spectra, assessment)	Standard 1c	Standard 1 (a-b)
Week 8 Days 36–40	Unit 5: Periodicity	Standard 1e, 2b	Standard 1a-d
Week 9 Days 41–45	Unit 6: Chemical Bonding	Standard 2 (a-g)	Standard 1d-e, 3d

Scope and Sequence: Second Term

Week/Days	Unit Number and Name	Priority Standard	Supporting Standard
Week 9 Days 41–45	Unit 6: Chemical Bonding	Standard 2 (a–g)	Standard 1d–e, 3d
Week 10 Days 46–50	Unit 6: Chemical Bonding (Lewis structures, VSEPR, hybridization, polarity, assessment)	Standard 2 (a–g)	Standard 1d–e, 3d
Week 11 Days 51–55	Unit 7: Chemical Nomenclature	Standard 2f	Standard 1e
Week 12 Days 56–60	Unit 8: Chemical Composition	Standard 4a	Standard 3a–b, 7b
Week 13 Days 61–65	Unit 9: Chemical Reactions and Equations	Standard 3 (a–d), 6 (a–e)	Standard 4, 6e
Week 14 Days 66–70	Unit 9: Chemical Reactions and Equations (balancing, net ionic equations, reaction types, assessment)	Standard 3 (a–d), 6 (a–e)	Standard 4, 6e
Week 15 Days 71–75	Unit 10: Stoichiometry	Standard 4 (a–e), 5 (a–e)	Standard 3a–b, 6a, 6d, 7b
Week 16 Days 76–80	Unit 10: Stoichiometry (limiting reactant, percent yield, titration, assessment)	Standard 4 (a–e), 5 (a–e)	Standard 3a–b, 6a, 6d, 7b
Week 17 Days 81–85	Unit 11: Gas Laws	Standard 7 (a–b)	Standard 4e, 5d
Week 18 Days 86–90	Unit 11: Gas Laws (ideal gas law, partial pressure, gas stoichiometry, lab, semester review/assessment)	Standard 7 (a–b)	Standard 4e, 5d

Reference basis: The week-by-week sequence above follows the order and approximate day ranges shown in the Chemistry Pacing Guides and uses the priority/supporting standards listed in the Chemistry Proficiency Scales. The Alabama Chemistry Course of Study Standards was used as a primary reference for atomic structure, bonding, properties of substances, chemical reactions, stoichiometry-related work, and gas behavior.

[Back](#)**Getting Started - Pacing Guide****FIRST DAY AGENDA**

Date	Teacher	Student
	<u>CONNECTING</u> - Explain Student Information Card - Take roll - Tell me about you. - <u>About your teacher</u> - About the classroom <u>EXPECTATIONS, RULES AND PROCEDURES</u> Expectations; Rules and Procedures - <u>Ask Stupid Questions</u>	<u>Complete Student Information Card</u> - <u>Classroom Scavenger Hunt</u> - Getting Started Checklist Homework: - <u>Science Portal Scavenger Hunt</u> - Tab Workbook - <u>Science Portal Tutorial Video</u> - Success in Science - Welcome to Science - Course Syllabus - Lab Safety Contract - Lab Fee (\$20.00) Cash or check
	<u>SCIENCE PORTAL OVERVIEW</u> - Our class learning management system - Course Structure - Chapter Structure	- Turn in Signed Forms - Discuss reading articles

To Do List - reminders, tasks, deadlines

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Pacing Guide (8 days) Started _____, Test date: _____

PROPERTIES OF MATTER

Essential Question: How does the composition, structure, and interactions of matter explain the properties of matter and how can these properties be used to classify substances and predict their behavior?

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	INTRO TO CHEMISTRY Introduction Define Chemistry Matter & Energy Properties of the Elements Periodic Table	- HW: Vocabulary - Matter & Energy - Periodic Table Coloring - Properties of the Elements - The Elements		- Quiz 1
	STATES OF MATTER Solids, liquids, gases	- States of Matter	DEMO: Gas Demo	- Quiz 2
	CLASSIFICATION OF MATTER Properties of Matter Pure vs Mixtures	- Intensive vs. Extensive - Chemical vs. Physical Properties - Chemical vs. Physical Change - Pure vs Mixtures	Act: Properties of Play Doh:	- Quiz 3
	LABORATORY Tools for Understanding Matter	- <u>Pre-lab Activity 1</u> - <u>Pre-lab Activity 2</u> - Lesson 4 Quiz - Study Guide - Practice Test	LAB: Safety Review LAB: Tools Make-up <u>Virtual Lab</u>	- Quiz 4 - Study Guide - Practice Test

Vocabulary

Mass -	Intensive Property -
Volume -	Extensive Property -
Matter -	Temperature/heat -
Density -	Plasma -
Atom -	Homogeneous vs. Heterogeneous -
Element -	Solution -
Molecule -	Pure Substance -
Physical Property/change -	Chemical Compound -
Chemical Property/change -	

[Back](#)**Pacing Guide (8 days + test)****SCIENTIFIC METHOD**

Date	 Lesson Topic	 Assignments	 Lab	 Quiz/Test
	SCIENTIFIC METHOD Introduction What is Science Can you solve this puzzle?	- Experimental Design - Science IRL		- Quiz 1
	MEASUREMENT & CALCULATION Introduction Units of Measurement	- Metric Units - Metric Conversions	LAB: (Virtual) Metric Measurements	
	MEASUREMENT & CALCULATION Scientific Notation Accuracy & Precision	- Scientific Notation - Sig Figs - FRQ	LAB: Measurement Challenge	
	MEASUREMENT & CALCULATION Dimensional Analysis Problem Solving	- Turtle Island Activity - Dimensional Analysis - Literal Equations - Density Problems		- Quiz 2 - Test

Vocabulary - Page 6

Scientific Method -

Hypothesis -

Experiment -

Variable -

Dependent Variable -

Independent Variable -

Constant -

Control -

Bias -

Model -

Theory -

Scientific Law -

Back**Pacing Guide (5 days + test)****ATOMIC STRUCTURE**

Essential Question: How do we know atoms exist? What are they composed of? Can we count them?

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	ATOMIC THEORY Chapter Intro Reading Discuss Build a Universe The Might Atom Atomic Structure Atomic Theory	- Atomic Structure - Atomic Theory		Self-assess - Pretest - Quiz 1
	ISOTOPES <u>Video:</u> Heavy Water Ice Isotopes Comp/Notation Avg. Atomic Mass Mass Spectrometry	- Isotope Comp. - Avg. Atomic Mass - Mass Spec Data	LAB: Skittle Isotopes	Self-assess - Quiz 2
	COUNTING ATOMS Gumball Jar Guess? Avagadro's Number <u>Video:</u> The mole is a number.	Avagadro's #: - The Mole - Mole Conversions	- Molar Mass - Mole Conversions - FRQ	Self-assess - Quiz 3 - Practice Test **Ch. Exam

Vocabulary

Anion -
 Atom -
 Average Atomic Mass -
 Cation -
 Electron -
 Element -
 Isotope -
 Isotope Notation -
 Mass Number -
 Molecule -
 Neutron -
 Nucleus -
 Proton -
 The Mole/Avogadro's Number -

Back**Pacing Guide (7.5 days + test)****ELECTRON CONFIGURATIONS**

Essential Question: If we could dissect an atom what would we learn about the electron structure?

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	<u>NATURE OF LIGHT</u> Chapter Intro Face ID Ex. Light: Wave vs. Particle Photoelec. Effect Quantum Theory	- EM Waves - Photoelec. Effect - Bohr Model FRQ	Demos: Double Split Light Microwave Exper.	Self-assess - Quiz 1
	<u>EMISSION SPEC.</u> Reading Discuss Strange Nature of the Atom Line-Emission Spectrum: Bohr Model Coulomb's Law	- Electron Trans - Trans Calc	DEMO: Flame Test Video (virtual) LAB: Line-Emission Spectrum: Video (virtual)	Self-assess - Quiz 2
	<u>QUANTUM THEORY</u> Reading Act. Quantum Physics for Babies Video: Wave Model Quantum Mechanical Atom: Quantum State of the Atom Quantum State Notations	- Orbital Notation - Electron Configuration - Lewis Dot - Quantum Numbers - Study Guide w/(video)	Videos: Orbitals Visualized Wave interference Schrödinger's cat Uncertainty Principle	Self-assess - Quiz 3 - Practice Test **Ch. Exam

Vocabulary

Speed of light (Equation _____)-
Wave Frequency (symbol _____)-
Wavelength (symbol _____)-
Photoelectric Effect (Equation _____)-
Electromagnetic Spectrum -
Wave-particle Duality -
Line-Emission Spectrum -
Bohr Model -
Electron Transition -
Electron Cloud Model -
Electron Orbital -
Electron Sub-orbital -
Uncertainty Principle -
Quantum Numbers -
Electron Configuration -

Back**PERIODICITY - Pacing Guide (5 days + test)****PERIODICITY**

Essential Question: What properties emerge from atomic composition and structure?

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	PERIODIC TABLE 5.1A Chapter Intro Reading Discuss Mendeleev's Table Development of the Periodic Table: Periodic Table Symbolism Elemental Properties	- Elemental Tale - Chemicool People	Chemicool People DEMO: $Na + H_2O$ <u>Video</u>	Self-assess - Quiz 1 - Pretest
	PERIODICITY 5.2A REVIEW: Chemicool People (trends) Periodic Law: Coulomb's Law Periodic Properties & Trends	- Coulomb's Law - Periodicity Inquiry - Periodic Trends	PhET: Coulomb's Law Coulomb's Law GO LAB: Periodic Trends	Self-assess - Quiz 2
	VALENCE e⁻ 5.3A REVIEW: Electron config Photoelectron Spectroscopy (PES): Valence Electrons	- PES graph - Valence Electrons - FRQ		Self-assess - Quiz 3 - Practice Test **Ch. Exam - Post Test

Vocabulary

Atomic radii -

Ionic radii -

Cation -

Anion -

Ionization energy -

Electronegativity -

Electron affinity -

Effective Nuclear Charge -

Periodic Law -

Coulomb's Law -

Electron Shell Model -

Electron Shielding (electron-electron repulsion) -

Photoelectron Spectroscopy -

[Back](#)**Pacing Guide (6 days + test)****CHEMICAL BONDING**

Essential Question: How does atomic structure influence chemical bonding and the properties of ionic and molecular compounds, and how can models predict these properties?

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	<u>INTRAMOLECULAR FORCES</u> Discussion Article: Chemical Bonding Types of Chemical Bonds Intro to Polarity Intramolecular Force and Potential Energy	- Types of Chemical Bonds - Intramolecular Force and Potential Energy	PhET: Polarity	- Quiz 1
	<u>IONIC/METALLIC STRUCTURE</u> Structure of Ionic Solids Structure of Metals and Alloys	- Structure of Ionic Solids - Structure of Metals and Alloys		- Quiz 2
	<u>MOLECULAR STRUCTURE</u> Lewis Diagrams Resonance and Formal Charge	- Lewis Diagrams - Resonance and Formal Charge		
	<u>MOLECULAR STRUCTURE</u> VSEPR and Bond Hybridization	- VSEPR and Bond Hybridization		
	<u>MOLECULAR STRUCTURE</u> Hybridization Polarity	- Polarity	LAB: Molecular Structure	- Quiz 3 - Test

Vocabulary

Intermolecular vs Intramolecular Forces -

Ionic bonding/Covalent bonding/Metallic bonding -

Chemical Potential Energy -

Bond orders -

Bond energy/Lattice energy -

Resonance -

Formal charge -

VSEPR theory -

Orbital hybridization -

Polarizability -

Dipole or Dipole Moment -

[Back](#)**Pacing Guide (5 days + test)****CHEMICAL NOMENCLATURE**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	IONIC COMPOUNDS Ionic Compounds Polyvalent Ionic Compounds Polyatomic Ions	- Simple Ionic Compounds - Polyvalent Ionic Compounds - Polyatomic Ions		- Quizzes
	ACID COMPOUNDS Binary Acids Ternary Acids	- Acids		- Quiz - Acids
	COVALENT COMPOUNDS Covalent Compounds Polyatomic Ions	READING: Dihydrogen Monoxide - Covalent Compounds - Polyatomic Ions		- Quiz - Covalent
	REVIEW Guided Student Practice	- Mixed Review - Plus 30/20	LAB: Naming Competition	- Quiz - Review - Test

Vocabulary

Nomenclature -

Chemical Formula vs. Molecular Formula -Polyatomic Ion -

Binary Covalent Compound -

Binary Ionic Compound -

Tertiary Compound -

Formula Unit -

Molecular Unit -

Acid -

Oxidation State -

Polyvalent -

Law of Multiple Proportions -

[Back](#)[Vocabulary](#)**Pacing Guide (5 days + test)****CHEMICAL COMPOSITION**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	THE MOLE Avogadro's Number Molar Mass Molar Conversions Molarity	READING - How Was Avogadro's Number Determined - Molar Mass - Molarity		
	CHEMICAL COMPOSITION Percent Composition Empirical Formula Molecular Formula	- Percent Composition - Empirical Formula - Molecular Formula - Mixed Review - FRQ	LAB: Empirical Formula	- Quiz

Vocabulary

Molar mass -

Avogadro's number -

The mole -

Molarity -

Pure substance -

Solution -

Solute -

Percent Composition -

Empirical Formula -

Molecular Formula -

Back**Pacing Guide (5 days + test)****CHEMICAL EQUATION AND REACTIONS**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	CHEMICAL AND PHYSICAL CHANGE Physical and Chemical Changes Endothermic vs Exothermic	Reading Article: What is a Chemical Equation? - Chemical vs Physical Change - Endothermic vs Exothermic		Quiz 1
	CHEMICAL EQUATIONS Chemical Equations Intro Balancing Equations Predicting the Products Chemical Equation Types	- Balancing Equations I-III - Particulate Diagrams - Predicting Products - Net Ionic Equations	Molarity DEMO: Net Ionic Equations Pre-Lab: Complete prelab questions Reaction Rules Table (appendix)	Quiz 2
	CHEMICAL REACTIONS Intro to Reaction Rates Intro to Chemical Reactions	- Reaction Types Intro - FRQ - Study Guide - Video (link)	LAB 60 mins Chemical Equations & Reactions	Test

Vocabulary

Chemical reactions -

Chemical equations -

Reactants -

Products -

Atomic/ molecular/ particulate level -

Types of reactions:

synthesis -

decomposition -

single replacement/displacement -

double replacement/displacement -

combustion -

Coefficients vs subscripts -

Mole ratio -

Conservation of matter -

Quantitative vs. Qualitative -

Back**Pacing Guide (8-10 days + test)****STOICHIOMETRY**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	<u>STOICHIOMETRY</u> Introduction Stoichiometry Limiting Reactant Percent Yield Introduction to Titration	- Counting Atoms - Stoichiometry - Percent Yield - Limiting Reactant - Titration - FRQ	Demo: Limiting Reactant LAB: (60 mins min.) Aluminum Left Overs LAB: Mass-to-mole Relationship	Quiz

Vocabulary

Stoichiometry -

Molar Mass -

Molar Volume -

STP (standard temperature and pressure) -

Concentration (Molarity) -

Limiting Reactant -

Excess Reactant -

Titration -

Titrant -

Analyte -

Equivalence point -

End Point -

Percent Yield -

Theoretical Yield -

Actual Yield -

Back**Pacing Guide (9-10 days + test)****GAS LAWS**

Date	Lesson Topic	Assignments	Lab	Quiz/Test
	<u>PROPERTIES OF GASES</u> Introduction Properties of Gases Pressure, Temperature, and Volume Kinetic Molecular Theory Maxwell-Boltzmann Distribution	- Kinetic Molecular Theory - Maxwell-Boltzmann Distribution		- Quiz 1
	<u>GAS LAWS</u> Combined Gas Law Ideal Gas Law Density of Gases Partial Pressure Graham's Law Mole Fraction Deviation from Ideal Gas Law	- Combined Gas Law - Ideal Gas Law - Density of Gases - Partial Pressure - Deviation from Ideal Gas Law		- Quiz 2
	<u>GAS LAW</u> <u>STOICHIOMETRY</u> Ideal Gas Law Stioch	- Ideal Gas Law Stioch - FRQ	LAB: Collecting Gas Over Water LAB: Air Bag Engineers	- Quiz 3

Vocabulary

Kinetic molecular theory -

Kinetic energy -

Particle collisions -

Avogadro's Principle -

Pressure -

Gas Volume -

Boyle's Law -

Charles' Law -

Gay-Lussac's Law -

Ideal gas law -

Ideal gas law constant -