

Marietta City Schools Pacing Guide

Subject: Chemistry

Grade Level: 11

Time Frame: Semester Long / Year Long

Month / Week	ProCore Benchmarks	Skills/Activities	Resources	Assessment
August		<ul style="list-style-type: none"> -<u>Lab safety</u> +Discussion +Show safety video "Starting With Safety." +Relate all incidents displayed in video to our classroom. +Discuss our versions of all safety equipment and display how and when to use each and where each are located. +Stress the importance of avoiding accidents in the first place. -<u>Lab equipment familiarization</u> +Introduce all lab equipment located in the student's lab drawers and cabinets. +Students are responsible for all equipment names and uses. +Discuss common misconceptions about when to use and not to use various lab equipment to aid in avoiding accidents. 	<ul style="list-style-type: none"> -Flinn Scientific lab safety video: "Starting With Safety." -Safety equipment located around the room including: safety shower, eye wash, fire blanket, broken glass disposal container, absorbent spill bucket, mercury clean up kit, acid/base spill clean up kits, fire extinguishers. -Go over fire drill/evacuation procedures. 	<ul style="list-style-type: none"> -Flinn Scientific Lab Safety Test -Lab Equipment Test (Students give names and uses for selected lab safety equipment).
August/September		<ul style="list-style-type: none"> -<u>Metric system review</u> +Discuss the metric system +Compare and contrast to the Imperial system (system we use in U.S.). +Students are responsible for knowing the following metric prefixes (and how to convert between): kilo, hecto, Deka, base unit, deci, centi, milli. +The unit factor method will be used to 	<ul style="list-style-type: none"> -Calculators -Metric prefix table chart 	<ul style="list-style-type: none"> -Worksheets/exercises on metric conversions/significant figures. -Significant figures/metric conversion test.

		<p>teach conversions (this method will also be used later to teach stoichiometry conversions/calculations).</p> <p>-<u>Significant Figures</u></p> <p>+Convey why significant figures are used when completing calculations involving measurements.</p> <p>+Students are to understand/be able to use significant figures in chemistry calculations.</p>		
September	STR1: [1] Atomic Structure -Evolution of atomic models/theory -Electrons -Electron configurations	-Complete the "Flame Tests" lab. +Relate results of the flame test lab to Einstein's Photoelectric Effect. -Discuss ground/excited state for electrons. -s,p,d,f orbitals, their shapes and their corresponding blocks on the periodic table. -JJ Thomson's CRT experiment and the discovery of the electron. -Ernest Rutherford's Gold foil experiment and the discovery of the nucleus. -Coulomb's Law and its impact on the stability of the nucleus.	-Ch 4 The Structure of the Atom -Ch 5 Electrons in Atoms -Project diagram of, Dalton's solid sphere model, plum pudding model, cathode ray tube (include one that shows a magnet and a pinwheel), and gold foil experiment.	-Classwork. -Homework. -Flame test post lab calculations/questions. -Ch 4 & 5 Exams.
October	STR 2: [2] Periodic table -Properties -Trends	-Notes/discussion -Lab entitled "Periodic Trends." -Relate how the periodic table is arranged with the trends its arrangement gives rise to. -Students will be able to predict what happens to each trend as you go down the periodic table and as you go across the periodic table from left to right. -Explain how electron shielding can be used to predict the trends.	-Chapter 6 The periodic Table and the Periodic Law	-Classwork -Homework -Periodic Trends post lab -Ch 6 Exam
November	STR 3: [3] Intramolecular chemical bonding -Ionic	-Notes/discussion -Complete lab entitled "Conductivity as an Indicator of Bond Type." -How to use electronegativities to predict	-Ch 7 Ionic Compounds and Metals -Ch 8 Covalent Bonding -Periodic table -Common ions table	-Classwork -Homework -Post lab calculations/questions

	-Polar/Covalent	bond type. -Naming of covalent compounds using prefixes. -When to use prefixes and when not to.	-Polyatomic ions table -Transition metals table -Conductivity testers -Well plates -Various covalent and molecular substances for testing	ons. -Ch 7 & 8 Exam -Names and formulas for ionic compounds worksheets -Names and formulas for covalent compounds worksheets
December	STR 4: [4] Representing Compounds -Formula writing ionic -Nomenclature ionic -Models and shapes (Lewis structures, ball and stick, molecular geometries).	-Notes/discussion -Complete lab entitled "Molecular Geometry." -Names of ionic substances, simple ions, transition metals, and polyatomic ions. -Compare and contrast naming and formulas for ionic vs. covalent substances.	-Ch 7 Ionic Compounds and Metals -Ch 8 Covalent Bonding -Periodic table -Common ions table -Polyatomic ions table -Transition metals table -Ball and stick molecular model kits.	-Classwork -Homework -Post lab calculations/questions. -Ch 7 & 8 Exam
January	INT 8: [1] Chemical Reactions -Types of reactions -Kinetics -Energy -Equilibrium -Acids and Bases	-Notes/discussion -Complete lab entitled "Classifying Chemical Reactions." -Demonstrations/videos on indicators of a chemical reaction. -Demonstrations/videos on types of reactions. -Complete lab entitled "Acid Base Neutralization."	-Ch 9 Chemical Reactions -Ch 16 Reaction Rates -Ch 15 Energy and Chemical Change -Ch 17 Chemical Equilibrium -Ch 18 Acids and Bases	-Classwork -Homework -Post lab calculations/questions. -Ch 9 Exam. -Ch 15,16,17,18 combined exam.
February	STR 5: [5] Quantifying Matter. INT 10: [3a] Stoichiometry, Part A -Standard Stoichiometry	-Notes/discussion -Complete lab entitled "Who's Counting?" -Complete lab entitled "Magnesium Oxide" -Convert between, moles, number of particles, mass and volume of substances. -Show how a balanced equation is essential	-Ch 11 Stoichiometry -Ch 9 Section 3 Limiting Reactants -Ch 9 Section 4 Percent Yield	-Classwork -Homework -Post lab calculations/questions. -Ch 11 exam.

	INT 11: [3b] -Percent Yield/Molarity	to converting from one substance to another by using mole ratios. -Limiting reactant, theoretical yield, actual yield, percent yield. -Discuss ways to increase your actual yield so that it is closer to your theoretical yield. -Solution molarity calculations.		
March	INT 9: [2] Gas laws -Pressure, volume and temperature. -Ideal gas law	-Notes/discussion -Complete lab entitled "Boyle's Law in a Bottle." -Relationships between pressure, volume and temperature (combined gas law). -STP (standard temperature and pressure). -Atmospheres and kilopascals. -Calculate the number of moles of gas particles in a closed container. -Calculate molecular speeds of two different gasses given their molar masses.	-Ch 13 Gases -Ch 13 Section 1 The Gas Laws -Ch 13 Section 2 The Ideal Gas Law -Ch 12 States of Matter Secion 1 Gasses (for Graham's Law of Dffusion.	-Classwork -Homework -Post lab calculations/questi ons. -Ch 13 Exam.
April	INT 12: [4] Nuclear Reactions -Radioisotopes -Nuclear energy	-Notes/discussion -Complete lab entitled "Half Life." -Alpha, beta and gamma decay.	-Ch 24 Nuclear Chemistry	-Classwork -Homework -Post lab calculations/questi ons -Ch 24 Quiz