



Pacing <i>Year, Month or Week (length of time)</i>	Curriculum Focus				Instructional Strategies & Activities <i>Interventions, accommodations, technology integration (required & supplemental materials)</i>	Resources <i>Various resources used to support student learning (i.e.), technology, media, required & supplemental materials.</i>	Assessments <i>Types: classroom, rubrics, common grade level, formative, subjective, evidence used to measure performance & skills</i>
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	Standard C1: Scientific Inquiry Scientific research may begin by generating new scientific questions that can be answered through replicable scientific investigations that are logically developed and conducted systematically. Scientific conclusions and explanations result from careful analysis of empirical evidence and the use of logical reasoning.						
	C1.1:A Generate new questions that can be investigated in the laboratory or field.						
	C1.1:B Evaluate the uncertainties or validity of scientific conclusions .						
	C1.1C Conduct scientific investigations using appropriate tools and techniques (e.g., selecting an instrument that measures the desired quantity—length, volume)						
	C1.1D Identify patterns in data and relate them to theoretical Models						

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Weeks 1-3	C4.3A Recognize that substances that are solid at room temperature have stronger attractive forces than liquids at room temperature, which have stronger attractive forces than gases at room temperature.	Unit1: Matter	I will recognize that the strength of attractive forces at room temperature is strongest in solids, weaker in liquids and weakest in gases.	Solid Liquid Gas	PowerPoints Active Readings Foldables Labs Videos	Textbooks Internet Discovery Education News Articles	Labs Quizzes Tests	
	C4.3 B Recognize that solids have a more ordered, regular arrangement of their particles than liquids and that liquids are more ordered than gases.		I will recognize that solids have a more ordered, regular arrangement of their particles than liquids and that liquids are more ordered than gases.	Order Arrangement Particles				
	C5.4 Changes of state require a transfer of energy. Water has unusually high-energy changes associated with its changes of state.							
	C5.4 A Compare the energy required to raise the temperature of one gram of aluminum and one gram of water the same number of degrees		I will plot the measurements onto a graph of an ice-water mixture, that has gone through melting and boiling that has gone through slow heating. I will interpret the phase change graph of an ice-water mixture.	Energy Gram Degrees	Boiling Point Lab			

<p>C5.4B Measure, plot, and interpret the graph of the temperature versus time of an ice-water mixture, under slow heating, through melting and boiling.</p>		<p>I will measure the temperature versus time of an ice-water mixture, under slow heating from melting to boiling.</p>	<p>Temperature Melting Boiling</p>	<p>Boiling Point Lab</p>		
<p>C2.2A Describe conduction in terms of molecules bumping into each other to transfer energy. Explain why there is better conduction in solids and liquids than gases.</p>		<p>I will describe how energy goes from one molecule to another when they bump creating a process called conduction.</p> <p>I will explain why conduction occurs better in solids and liquids than gases.</p>	<p>Conduction Molecules Energy transfer</p>			
<p>C2.2B Describe the various states of matter in terms of the motion and arrangement of the molecules (atoms) making up the substance.</p>		<p>I will describe the three states of matter in terms of their movement and how the molecules are arranged.</p>	<p>States of Matter Motion Molecules Atoms</p>			
<p>C5.2B :Distinguish between chemical and physical changes in terms of the properties of the reactants and products.</p>		<p>I will distinguish between chemical and physical changes in reactions.</p>	<p>Chemical changes Physical changes</p>			
<p>C5.2C: Draw pictures to distinguish the relationships between atoms in physical and chemical changes.</p>		<p>I will draw pictures at a molecular level of chemical and physical changes.</p>	<p>Chemical changes Physical changes</p>	<p>GVSU Target Inquiry Lab, "The Only Thing Constant, Is Change Lab"</p>		
<p>C3.3A: Describe how heat is conducted in a solid.</p>		<p>I will describe how heat is conducted in a solid in terms of motion of particles</p>	<p>Conduction</p>			

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Weeks 3-6		Unit 3: Atomic Theory			PowerPoints Active Readings Foldables Labs Videos	Textbooks Internet Discovery Education News Articles	Labs Quizzes Tests
	C4.9A: Identify elements with similar chemical and physical properties using the periodic table.		I will identify elements with similar chemical and physical properties using the periodic table.	Element			
	C4.9b: Identify metals, non-metals, and metalloids using the periodic table.		I will use the periodic table to identify the location of metals, non-metals and metalloids.	Metals Nonmetal Metalloid			
	C4.8A: Identify the location, relative mass, and charge for electrons, protons, and neutrons. Clarification: The relative mass of the proton is 1, the neutron is 1 and the electron is approximately zero. The relative charge of the electron is -1, the proton is +1 and the neutron is zero.		C4.8A: I will identify the location for electrons, protons, and neutrons. C4.8A: I will identify the relative mass for electrons, protons, and neutrons. C4.8A: I will identify the charge for electrons, protons, and neutrons.	Atomic mass Atomic nucleus Atomic number Atomic theory Atomic weight Charged object Electrically neutral Electron Electron cloud			

	<p>C4.8B: Describe the atom as mostly empty space with an extremely small, dense nucleus consisting of the protons and neutrons and an electron cloud surrounding the nucleus.</p> <p>Clarification: It is not necessary to teach the electron orbital concept in detail a general discussion relating electron orbitals to a region of space (electron cloud) with higher probability regions that electrons are most likely to be found will suffice.</p>		<p>C4.8B: I will describe that an atom has a dense center called a nucleus containing the protons and the neutrons.</p> <p>C4.8B: I will describe that electrons surround the nucleus in an electron cloud, which is mostly empty space.</p>	<p>Ion Isotope Proton Neutron Electrons Relative mass Strong force</p>			
	<p>C4.8C: Recognize that protons repel each other and that a strong force needs to be present to keep the nucleus intact.</p> <p>Clarification: Reinforce that the strong force is one of the four fundamental forces.</p>		<p>C4.8C: I will recognize that protons repel each other and that a strong nuclear forces keep the nucleus together.</p>	<p>Force Nucleus Protons</p>			
	<p>C4.8D: Give the number of electrons and protons present if the fluoride ion has a -1 charge.</p>		<p>C4.8D: I will give the number of electrons and protons that give the fluoride ion a -1 charge.</p>	<p>Ion</p>			

	<p>C4.10A: List the number of protons, neutrons, and electrons for any given ion or isotope.</p> <p><i>Clarification:</i> Examples should be limited to the first 20 elements along with these other common elements: iron, gold, silver, mercury, iodine, chromium, and copper.</p>		<p>C4.10A: I will list the number of protons, neutrons, and electrons for any given ion or isotope. For the first 20 elements as well as Fe, Au, Ag, Hg, I, Cr, Cu</p>	Ion Isotope	Subatomic Table Activity		
	<p>C4.10B: Recognize that an element always contains the same number of protons.</p>		<p>C4.10B: I will recognize that an element always contains the same number of protons.</p>				
	<p>C5.2C: Draw pictures to distinguish the relationships between atoms in physical and chemical changes.</p> <p><i>Clarification:</i> Use shapes of circles, triangles, squares, etc. to represent atoms for reactants and products to illustrate physical change and chemical change. Hands-on objects can be used also, example: nuts and bolts.</p>		<p>C5.2C: I will draw pictures to distinguish the relationships between atoms in physical and chemical changes.</p>	Chemical change Physical change	Chemical vs. Physical change lab.		

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Weeks 6-9		Unit 4: Chemical bonding and Nomenclature			PowerPoints Active Readings Foldables Labs Videos	Textbooks Internet Discovery Education News Articles	Labs Quizzes Tests
	C5.5: Chemical Bonds — Trends An atom's electron configuration, particularly of the outermost electrons, determines how the atom can interact with other atoms. The interactions between atoms that hold them together in molecules or between oppositely charged ions are called chemical bonds.						
	C5.5A: Predict if the bonding between two atoms of different elements will be primarily ionic or covalent.		I will identify that a covalent bond occurs between two nonmetals or a nonmetal and a metalloid.	Ionic Bond Covalent Bond Chemical bond Metallic bond			
	C5.5B: Predict the formula for binary compounds of main group elements		I will predict the formula for binary compounds of main group elements. Main group elements include groups 1, 2, and 13-17.				

	<p>C5.7A: Recognize formulas for common inorganic acids, carboxylic acids, and bases formed from families I and II.</p>		<p>I will recognize formulas for common inorganic acids.</p> <p>I will recognize formulas for carboxylic acids.</p> <p>I will recognize the bases formed from families I and II.</p> <p>I will recognize formulas for common oxy-acids</p>	<p>Acidic Basic Carboxyl group</p>			
	<p>C5.8C: Recognize that proteins, starches, and other large biological molecules</p>		<p>I will recognize proteins, starches, nucleic acids and cellulose are polymers.</p>	<p>Protein</p>	<p>Polymer Lab</p>		
	<p>C4.2A: Nomenclature All compounds have unique names that are determined systematically. Name simple binary compounds using their formulae.</p>		<p>I will name simple binary compounds using their formulas.</p>				
	<p>C4.2B: Given the name, write the formula of simple binary compounds.</p>		<p>I will write the formula of simple binary compounds when given its name.</p>	<p>Binary formula</p>			

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Weeks 9-12		Unit 5: Acid/Base			PowerPoints Active Readings Foldables Labs Videos	Textbooks Internet Discovery Education News Articles	Labs Quizzes Tests
	C5.2A: Balance simple chemical equations applying the conservation of matter.		I will demonstrate how to balance a chemical equation applying the conservation of mass/matter.				
	C5.7B: Predict products of an acid-based neutralization.		I will predict the products of an acid-base neutralization.	Neutralization			
	C5.7C: Describe tests that can be used to distinguish an acid from a base.		I will describe how litmus, phenolphthalein and universal indicators tests distinguish an acid from a base.	Acid Base			
	C5.7D: Classify various solutions as acidic or basic, given their pH.		When given a pH I will classify a solution as acidic or basic or neutral.	pH acidic basic	pH Lab Identification		
	C5.7E: Explain why lakes with limestone or calcium carbonate experience less adverse effects from acid rain than lakes with granite beds.		I will explain why lakes with limestone or calcium carbonate experience less adverse effects form acid rain than lakes with granite beds using neutralization reaction.	Acid rain	Chalk and Acid Demo		

