

**Argenta-Oreana High School
Chemistry I**

Date Semester	IL Learning Standards	Unit and/or Essential Question Content and/or Skills	Assessments and/or Products
2 weeks	11.A.4c 11.A.5c 13.A.4c	Chapter 1: Sections 1-1, 1-2, 1-4 1. What is chemistry? 2. What is the SI system and is it used? Chapter 2 3. What is energy? 4. What is matter? 5. Lab: "Making Qualitative Observations"	1. Daily assignments 2. Practice problems 3. Lab report 4. Quiz: Elemental Symbols 5. Written test
2 weeks	11.A.4c 11.A.5c 13.A.4c	Chapter 1: Sections 1-5, 1-6 1. Making measurements a. uncertainty b. accuracy/precision c. significant digits 2. Scientific notation 3. Density	1. Daily assignments 2. Practice problems 3. Written test
2 weeks	12.C.4b	Chapter 3: Sections 3-2, 3-3 1. Major experiments that determined the nature of an atom a. Thomson: cathode ray b. Rutherford: three types of radiations c. Rutherford: gold foil experiment 2. Modern atomic theory a. Subatomic particles and their arrangement b. Atomic number and mass number c. Ions and isotopes	1. Daily assignments 2. Practice problems 3. Written test
2 weeks	11.A.4c 11.A.5c	Chapter 1: Section 1-7 1. Using dimensional analysis to solve problems 2. How to make and interpret graphs	1. Practice problems 2. Make graphs from data

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	13.A.4c		3. Interpret graphs 4. Written test
2 weeks	12.C.4a 12.C.4b	Chapter 4: Sections 4-1, 4-3,4-4, 4-5 1. Electromagnetic spectrum 2. Line spectra 3. Electron density and orbitals 4. Principal energy levels/sublevels 5. Electron configurations 6. Orbital diagrams	1. Daily assignments 2. Practice problems 3. Written test
1 week		Chapter 5: Sections 5-2, 5-3 1. Organization of the periodic table 2. Electron configuration and the periodic table 3. Periodic trends a. atomic radius b. ionization energy c. electronegativity	1. Daily assignments 2. Practice problems 3. Written test
2.5 weeks	12.C.4a 12.C.4b	Chapter 7 1. Ionic bonding 2. covalent bonding 3. Naming compounds 4. Writing formulas of compounds 5. Lewis dot diagrams	1. Daily assignments 2. Practice problems 3. Written test
2 weeks	12.C.4a 12.C.4b	Chapter 9 1. Nature of chemical reactions 2. Chemical equations a. word and formula equations b. balancing equations 3. Types of chemical reactions	1. Daily assignments 2. Practice problems 3. Written test

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1 week		Chapter 10: Section 10-1 1. Atomic and formula masses 2. Mole 3. Molar masses	1. Daily assignments 2. Practice problems 3. Written test
All First Semester	11.A.4b 11.A.4c .5c 11.A.4d .5d 11.A.4e 11.A.4f 13.A.4b	The following are examples of laboratory activities or experiments that were done during the first semester. Additionally, others may have been done. When possible, the activity corresponded to the discussion in the textbook. 1. Physical and chemical changes 2. Measuring mass 3. Using graduated cylinders 4. Eight solution problem 5. Isotopic pennies 6. Rutherford's lab 7. Flame tests 8. Determining the charge on an electron 9. Periodic trends 10. Chemical activity of metals 11. Ion chips 12. Equation Writing and predicting products 13. MicroHindenbergs 14. Pencil marks and moles 15. Polymeric Slime 16. Polymeric Balls	1. Successful completion of lab 2. Lab report 3. Periodic lab tests/quizzes

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2 weeks		Chapter 10 Sections 10-2 and 10-3 1. mass to mole conversions 2. particles to mole conversions 3. volume to mole conversions 4. percentage composition	1. Daily assignments 2. Practice problems 3. Test
2 weeks	12.C.5a	Chapter 11 Sections 11-1 and 11-2 1. coefficients as ratios 2. mole-mole problems 3. mass-mass problems 4. mass-volume problems 5. volume-volume problems	1. Daily assignments 2. Practice problems 3. Test
2 weeks	12.C.4a 12.C.5a	Chapter 12 Sections 12-1, 12-2, 12-4, and 12-5 1. Describe what thermochemistry is. 2. Describe and distinguish endothermic reactions from exothermic reactions. 3. Develop the concept of enthalpy and changes in enthalpy. 4. Describe calorimetry. 5. Describe and distinguish heat capacity and specific heat capacity. 6. Specific heat capacity problems. 7. Define heat.	1. Daily assignments 2. Practice problems 3. Test
2 weeks		Chapter 13 Sections 13-1, 13-2, and 13-3	3.
2 weeks	12.C.4a 12.C.5a	Chapter 14 Condensed States of Matter Physical properties of states of matter	1. Daily assignments 2. Practice problems

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	12.C.5b 12.D.4b	Kinetic-Molecular theory Intermolecular forces Dispersion forces Dipole-dipole forces Hydrogen bonding Properties of Liquids Viscosity Surface tension Properties of water Nature of solids Crystalline solids vs. amorphous solids Changes of state Potential energy changes Vaporization and condensation Liquid-vapor equilibrium Boiling Heats of vaporization and fusion Freezing and melting Sublimation and deposition Heating curves	3. Test
2 weeks	12.C.5b	Chapter 15 Sections 15-1, 15-2, 15-3, and 15-4 Nature of solutions Properties Types Concentration of solutions Molarity Saturation	1. Daily assignments 3. Practice problems 3. Test

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		Formation of solutions Formation Solubility Rate of dissolving	
2 weeks	12.C.4b 12.C.5b	Chapter 16 All Sections Reversible Reactions Chemical Equilibrium Law of Chemical Equilibrium Equilibrium constant LeChatelier's Principle Changes in concentration Changes in pressure Changes in temperature	1. Daily assignments 2. Practice problems 3. Test
2 weeks	12.C.4b 12.C.5b	Chapter 18 Sections One and Two Defining Acids and Bases Properties Arrhenius definition Bronsted-Lowry definition Conjugate acid-base pairs Acid-Base Strengths	1. Daily assignments 2. Practice problems 3. Test
2 weeks	12.C.4b 12.C.5b	Chapter 19 Sections One and Three Ionization Constant of Water pH Acid-Base Titration	1. Daily assignments 2. Practice problems 3. Test
2 weeks	12.C.4b 12.C.5b	Chapter 20 Oxidation-Reduction Oxidation Number	1. Daily assignments 2. Practice problems

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		Types of Redox Reactions Applications of Redox Reactions	3. Test
All Semester	11.A.4b 11.A.4c .5c 11.A.4d .5d 11.A.4e 11.A.4f 13.A.4b	The following are laboratory activities or experiments that were done during the second st semester. When possible, the activity corresponded to the discussion in the textbook. 1. Copper/Silver Nitrate reaction 2. Water in a Hydrate 3. Mass-mass relationship in a chemical reaction 4. Stoichiometry 5. Heat of solution 6. Determining heat capacity 7. Boyle's law 8. Grahm's law 9. Determining absolute zero 10. How many drops can you pile on a penny? 11. Changes of State 12. T-Shirt chromatography 13. Observing chemical equilibrium 14. LeChatelier's principle 15. Solubility curve of potassium nitrate 16. Porperties of acids and bases 17. Making table salt 18. Determining the pH of an unknown 19. Activity series 20. Rust marches on	1. Successful completion of lab 2. Lab report 3. Periodic lab tests/quizzes