MOHONASEN CENTRAL SCHOOL DISTRICT
Curriculum Map for CHEMISTRY

TEXTBOOK: Chemistry Matter and Change, Glencoe-McGraw Hill

MONTH	UNITS	STANDARDS	CHAPTERS	KEY IDEAS/CONCEPTS	PERFORMANCE INDICATORS/SKILLS
September	Chemistry Core Topics ▪ Mathematical Analysis ▪ Mathematical Expression and Calculation	Standard 1 Standard 6	2, 3	Key Idea 1 Key Idea 3	Performance Indicator 3.2 Performance Indicator M1.1
	MAJOR UNDERSTANDINGS	SUPPLEMENTAL CONTENT & LEARNING STRATEGIES		LAB THEMES	ASSESSMENTS
	▪ Measure and record data ▪ Estimation and reporting of measurements significant figures ▪ Operations and significant Figures ▪ element symbols/names ▪ Multiply/divide/add/ subtract-rounding answers ▪ Powers of ten expression ▪ Powers of ten ▪ Metric system conversion ▪ Factor-label method ▪ Calculate percentage error ▪ Problem solving procedure			Measurement Lab Density Labs Quantitative Measurement of a Chemical Reaction	Written Assessment Laboratory Reports

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OCTOBER	Physical Behavior of Matter	1, 2, 4	5, 11, 12	1,2, 3, 6, 7	3.2A 3.2a V.20
	MAJOR UNDERSTANDINGS	SUPPLEMENTAL CONTENT & LEARNING STRATEGIES		LAB THEMES	ASSESSMENTS
	Physical change Chemical change Exothermic / Endothermic Temperature Energy Forms Phases of Matter Physical State of substances Intermolecular Forces Kinetic / Potential Energy Physical Changes (solid, liquid, gases) Heat Kinetic Molecular Theory (KMT) for Gases Gas Laws Ideal Gases			Heat of Fusion of Ice Melting Point Determination Graphing of Gas Law Data	Homework Laboratory Write Ups Quizzes Tests

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OCTOBER-NOVEMBER	**UNIT #3-** **ATOMIC STRUCTURE**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	Matter - Classification Pure substances Elements and Compounds Mixtures Homogeneous Heterogeneous Separation techniques - based on Physical properties **Modern Model of Atom** Historical Overview Greece, 1600's, 1700's, 1800's, 1900's, and current model Modern model of Atom / Properties of Individual Particles Protons, Neutrons, Electrons **Nuclear Chemistry**			Calorimetry Separation of Mixture	

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NOVEMBER (PART 2)	**UNIT #4 : PERIODIC TABLE**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	Periodic Table - Overview Placement of Elements - Atomic Number Chemical Properties Physical Properties States of Element on Table Allotropes - Forms of Elements Trends - Group Period			Periodic Table Lab	

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<table>
<tr><th>MONTH</th><th>UNITS</th><th>STANDARDS</th><th>CHAPTERS</th><th>KEY IDEAS/CONCEPTS</th><th>PERFORMANCE INDICATORS/SKILLS</th></tr>
<tr><td rowspan="3">DECEMBER</td><td>UNIT #5 - BONDING</td><td></td><td></td><td></td><td></td></tr>
<tr><td>MAJOR UNDERSTANDINGS</td><td colspan="2">SUPPLEMENTAL CONTENT & LEARNING STRATEGIES</td><td>LAB THEMES</td><td>ASSESSMENTS</td></tr>
<tr><td>Ionic
Electron transfer
Metals/ nonmetals

Covalent
Electron sharing
Nonmetal/nonmetal

Metallic
Mobile electrons

Compounds
Types
Differentiate between types

Physical Properties- Explain</td><td colspan="2"></td><td>Constructing Molecular Models</td><td></td></tr>
</table>

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JANUARY Part 1	**UNIT #6** **EQUATIONS & REACTIONS**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	Equations / Conservation of Mass Processes Balancing Equations Interpret in terms of energy, Matter, charge conservation Reaction Types Predict products			Formulas and Oxidation Numbers	

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JANUARY PART 2	**UNIT #7 -** **CHEMISTRY CALCULATIONS** **STOICHIOMETRY / MOLES**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	Compound Calculations 1. Balance Formulas 2. Name Compounds 3. Formula Types a) molecular b) empirical c) structural 4. Formula Calculations a) molecular b) empirical c)percent composition 5. Mole Conversions 6. Equation Problems			Percentage of Water in a Hydrate Empirical Formula MgO Molar Volume Molar Relationship Cu / Zn	

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FEBRUARY	**Unit #8** **KINETICS & EQUILIBRIUM**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	Reaction Rates Collision Theory Factors Affecting Reaction Rates Equilibrium Describe / Define Physical Equilibrium Chemical Equilibrium LeChatlier's Principle Energy Relationships Heat of Reaction PE diagrams Entropy Changes			Heat of Reaction Equilibrium $2\ NO_2 \leftrightarrow N_2O_4$	

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FEBRUARY / MARCH	**UNIT # 9 SOLUTIONS**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	Electrolytes Solubility Factors Solubility Curves Concentration Calculations Molarity Percent by Volume Percent by Mass PPM Colligative Properties			Conduction Lab Heat of Solution	

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MARCH	**UNIT # 10** **ACIDS /** **BASES /** **SALTS**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	Properties Arrhenius Theory Neutralization Reactions Write / Balance Predict Titrations Describe Calculate Unknown M_B or M_B [H+] versus [OH-] pH Bronstead / Lowery theory			Titration Household Acids and Bases	

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APRIL	**UNIT # 11** **OXIDATION /** **REDUCTION**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	DEFINE ASSIGN OXIDATION NUMBERS I.D. - OXIDATION / REDUCTION Oxidizing agent / Reducing agent WRITE & BALANCE HALF REACTIONS REDOX REACTIONS Predict products ELECTROCHEMICAL CELLS Voltaic cells Electrolytic cells			ELECTROCHEMICAL CELLS - BATTERIES	

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MAY	**UNIT # 12** **ORGANIC CHEMISTRY** **REVIEW**				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	STRUCTURES BOND TYPES HYDROCARBONS IUPAC Names & Structures ISOMERS FUNCTIONAL GROUP COMPOUNDS Name , Identify, Classify ORGANIC REACTIONS Identify types Determine missing reactant or product			Alkenes - Ripening of Fruit	

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JUNE	REVIEW				
	MAJOR UNDERSTANDINGS	**SUPPLEMENTAL CONTENT & LEARNING STRATEGIES**		**LAB THEMES**	**ASSESSMENTS**
	REVIEW ALL UNITS AND EXAM QUESTIONS			REVIEW LAB SKILLS	