Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Science	Course:	Chemistry I (H)	Unit 3 Title:	Bonding Nomenclature Table	Grade Level(s):	10th
Assessed Trimester:	Trimester A	Pacing:	1 Trimester (Tri A)	Date Created:		Last Revision Date:	6/2013

Course Understandings: *Students will understand that:*

- Problems can be solved and knowledge gained in a systematic way: solutions to one problem can create new questions and problems.
- Chemistry is recognized as significant in its application to other disciplines and the world.
- Ideas are expressed symbolically, numerically, and graphically.
- Behavior and properties of materials are organized, classified, and predicted utilizing periodic trends.
- Mathematical relationships are interpreted and manipulated to model the real world.
- The basic building blocks combine and recombine in a variety of ways to make all matter from the simple to the complex.
- The laws of chemistry predict outcomes that impact and apply to daily life.

DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

Esta	shed Goals				
 Standard: Matter Chemical and physical properties of matter result from the ability of atoms to form bonds. 9C.2.1.2.1: Explain how elements combine to form compounds through ionic and covalent b 9C.2.1.2.3: Use IUPAC (International Union of Pure and Applied Chemistry) nomenclature to 9C.2.1.2.2: Compare and contrast the structure, properties and uses of organic compounds 	onding. o write chemical formulas and name molecular and ionic compo s, such as hydrocarbons, alcohols, sugars, fats and proteins.				
Transfer					
 Students will be able to independently use their learning to: (product, high order reasoning) Predict the properties of a substance based on the type of chemical bonding that occurs. [9C.2.1.2. 	1]				
	Meaning				
Unit Understanding(s): Students will understand that: • Chemical bonds result from the transferring or sharing of electrons. [9C.2.1.2.1] • Naming chemical compounds and writing chemical formulas is based on nomenclature rules. [9C.2.1.2.3]	Essential Que Students will keep considering: What is a chemical bond? [9C.2.1.2.1] How are chemical compounds named? [9C.2.1.2.1] How are chemical compounds written? [9C.2.1.2.1] 				
Acquisition					
 Knowledge - Students will: Define ionic and covalent bonding. [9C.2.1.2.1] Identify organic compounds, such as hydrocarbons, alcohols, sugars, fats and proteins based on structure. [9C.2.1.2.2] Describe the properties and common uses of hydrocarbons, alcohols, sugars, fats, and proteins. [9C.2.1.2.2] Understand the rules for nomenclature and writing formulas of ionic compounds and covalent compounds. [9C.2.1.2.3] 	 Skills - Students will: Use Lewis structures to show ionic and covalent b Demonstrate correct formula writing and naming c 				

pounds, including those that contain polyatomic ions.

Question(s):

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bonding. [9C.2.1.2.1] of compounds. [9C.2.1.2.3]

Reasoning - Students will:
• Predict how atoms will combine to form compounds based on their positions on the periodic table.
 Predict how atoms will combine to form compounds based on the atoms' electronegativities.
[9C.2.1.2.1]
• Distinguish between ionic and covalent compounds based on their names and formulas. [9C.2.1.2.3]

Common Misunderstandings	Essential new vocabulary	
 Compounds and molecules are the same thing. Atoms and molecules are the same. Use of subscripts in polyatomic ions and compounds Diatomic elements are always paired up in compounds as well as when they are by themselves (H₂ + O₂à H₂O₂) Students believe there is something between atoms of compounds rather than a force of attraction Bonding must be either 100% ionic or covalent Covalent bonds must be weak since covalent molecules have relatively low melting points Students get confused when talking about the forces within molecules versus forces between molecules 	 Molecule Molecular Compound Ionic Compound Monatomic Ion Polyatomic Ion Formula Unit Hydrate Hydrocarbon Electronegativity Nonpolar Covalent Bond Polar Covalent Bond Isomer Functional Groups Alcohol Carboxylic Acid 	 Ionic Bond Ionic Crystal Covalent Bond Bonding Pair Lone Pair Single/Double Alkane Alkane Alkyne Aldehyde Ketone Carboxylic Act Lipids/Fats Carbohydrates Protein

/Triple Bonds

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s/Sugars