



## Girard USD 248 Curriculum Alignment



### Unit Title *(Include month or date indicators are covered.)*

Q1: Stoichiometry (Chem II)

### Unit Description

A further investigation and study into Stoichiometry topics. Problems and laboratory experiences will include: balancing equations and predicting products; limiting factor problems; percent yield problems.

### Unit Indicators

Order	Indicator	Priority
1	2a.3K2 understands how to perform mathematical calculations regarding the Law of Conservation of Matter, i.e. through stoichiometric relationships.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
1	2a.3K1 understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products). There are different types of chemical reactions all of which demonstrate the Law of Conservation of Matter and Energy.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
2	7.2K3 understands scientific knowledge consists of hypotheses, inferences, laws, and theories.	(Building Blocks)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
2	7.2K4 understands a testable hypothesis or inference must be subject to confirmation by empirical evidence.	(Building Blocks)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
3	5.1K1 understands technology is the application of scientific knowledge for functional purposes.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
3	1.1K2 designs investigations, including developing questions, gathering and analyzing data, and designing and conducting research.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
3	1.1K3 actively engages in using technological tools and mathematics in their own scientific investigations.	(Mastery)
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## Girard USD 248 Curriculum Alignment



### Unit Title *(Include month or date indicators are covered.)*

Q1: Gas Laws (Chem II)

### Unit Description

Topics covered: Boyle's Law, Charles' Law, Gay-Lusac's Law, Combined Gas Law, Ideal Gas Law.

### Unit Indicators

Order	Indicator	Priority
1	2a.2K1 understands chemists use kinetic and potential energy to explain the physical and chemical properties of matter on earth that may exist in any of these three states: solids, liquids, and gases.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
2	1.1K2 designs investigations, including developing questions, gathering and analyzing data, and designing and conducting research.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
2	1.1K3 actively engages in using technological tools and mathematics in their own scientific investigations.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
3	7.2K3 understands scientific knowledge consists of hypotheses, inferences, laws, and theories.	(Building Blocks)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
3	7.2K4 understands a testable hypothesis or inference must be subject to confirmation by empirical evidence.	(Building Blocks)
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## ***Girard USD 248 Curriculum Alignment***



### ***Unit Title*** (Include month or date indicators are covered.)

Q2: Solutions (Chem II: Ch 12-13)

### ***Unit Description***

Topics covered: types of solutions, solubility, factors of solubility, Molarity, molality, percent by mass, colligative properties.

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## Girard USD 248 Curriculum Alignment



### Unit Title *(Include month or date indicators are covered.)*

Q2: Thermochemistry (Chem II)

### Unit Description

Topics Covered: Temperature/Heat, Specific heat capacity, Enthalpy, Entropy, Hess's Law, Gibbs Free Energy

### Unit Indicators

Order	Indicator	Priority
1	1.1K2 designs investigations, including developing questions, gathering and analyzing data, and designing and conducting research. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
2	1.1K3 actively engages in using technological tools and mathematics in their own scientific investigations. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
3	2a.3K1 understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products). There are different types of chemical reactions all of which demonstrate the Law of Conservation of Matter and Energy. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
4	2a.2K1 understands chemists use kinetic and potential energy to explain the physical and chemical properties of matter on earth that may exist in any of these three states: solids, liquids, and gases. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
5	5.1K1 understands technology is the application of scientific knowledge for functional purposes. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
6	7.2K3 understands scientific knowledge consists of hypotheses, inferences, laws, and theories. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Building Blocks)
7	7.2K4 understands a testable hypothesis or inference must be subject to confirmation by empirical evidence. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Building Blocks)

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## Girard USD 248 Curriculum Alignment



### Unit Title *(Include month or date indicators are covered.)*

Q2: Oxidation-Reduction Reactions (Chem II CH 19)

### Unit Description

Topics Include: Oxidation, Oxidation numbers & rules, Reduction, half-reactions, balancing redox reactions (half-reaction method), oxidizing and reducing agents.

### Unit Indicators

Order	Indicator	Priority
1	1.1K2 designs investigations, including developing questions, gathering and analyzing data, and designing and conducting research.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
2	1.1K3 actively engages in using technological tools and mathematics in their own scientific investigations.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
3	2a.3K1 understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products). There are different types of chemical reactions all of which demonstrate the Law of Conservation of Matter and Energy.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
4	2a.3K2 understands how to perform mathematical calculations regarding the Law of Conservation of Matter, i.e. through stoichiometric relationships.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
5	5.1K1 understands technology is the application of scientific knowledge for functional purposes.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
6	7.2K3 understands scientific knowledge consists of hypotheses, inferences, laws, and theories.	(Building Blocks)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
7	7.2K4 understands a testable hypothesis or inference must be subject to confirmation by empirical evidence.	(Building Blocks)
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## **Girard USD 248 Curriculum Alignment**



### **Unit Title** *(Include month or date indicators are covered.)*

Q3: Electrochemistry (Chem II: CH20)

### **Unit Description**

Topics covered: Intro to Electrochemistry, electrochemical cells, half-cells, Daniel Cells, Voltaic Cells, Fuel Cells, Electrode potentials, Electrolytic cells, Electroplating, Electrolysis. Students will also conduct a research project on alternative energy/fuel sources.

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## Girard USD 248 Curriculum Alignment



### Unit Title *(Include month or date indicators are covered.)*

Q3: Acid/Bases (Chem II)

### Unit Description

A further investigation and study from Chemistry 1 into Acid/Base reactions and titrations.

### Unit Indicators

Order	Indicator	Priority
1	1.1K2 designs investigations, including developing questions, gathering and analyzing data, and designing and conducting research.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
2	1.1K3 actively engages in using technological tools and mathematics in their own scientific investigations.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
3	2a.3K2 understands how to perform mathematical calculations regarding the Law of Conservation of Matter, i.e. through stoichiometric relationships.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
4	2a.33 understands the differences and reactions between acids, bases and salts. Perform calculations to determine the concentration of ions in solutions.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
5	2a.3K1 understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products). There are different types of chemical reactions all of which demonstrate the Law of Conservation of Matter and Energy.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
6	5.1K1 understands technology is the application of scientific knowledge for functional purposes.	(Mastery)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
7	7.2K3 understands scientific knowledge consists of hypotheses, inferences, laws, and theories.	(Building Blocks)
	<a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	
8	7.2K4 understands a testable hypothesis or inference must be subject to confirmation by empirical evidence.	(Building Blocks)
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## Girard USD 248 Curriculum Alignment



### Unit Title *(Include month or date indicators are covered.)*

Q4: Organic Chemistry (Chem II: CH 22)

### Unit Description

Topics Include: Basic organic compounds: structural formulas & isomers. Hydrocarbons: hydrocarbon nomenclature, alkyl groups, alkane, alkene & alkynes, saturated/unsaturated hydrocarbons, functional groups, and general organic reactions.

### Unit Indicators

Order	Indicator	Priority
1	1.1K2 designs investigations, including developing questions, gathering and analyzing data, and designing and conducting research. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
2	1.1K3 actively engages in using technological tools and mathematics in their own scientific investigations. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
3	2a.3K1 understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products). There are different types of chemical reactions all of which demonstrate the Law of Conservation of Matter and Energy. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
4	5.1K1 understands technology is the application of scientific knowledge for functional purposes. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
5	7.2K3 understands scientific knowledge consists of hypotheses, inferences, laws, and theories. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Building Blocks)
6	7.2K4 understands a testable hypothesis or inference must be subject to confirmation by empirical evidence. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Building Blocks)
7	3.5K3 understands food molecules contain biochemical energy, which is then available for cellular respiration. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)

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## Girard USD 248 Curriculum Alignment



### Unit Title *(Include month or date indicators are covered.)*

Q4: Biochemistry (Chem II: CH23)

### Unit Description

Topics include: The five types of biological compounds: carbohydrates, lipids, amino acids, proteins, and nucleic acids. Structures, functions and properties of each type of compounds. Metabolic pathways: ATP, photosynthesis, catabolism, anabolism, cellular respiration.

### Unit Indicators

Order	Indicator	Priority
1	1.1K2 designs investigations, including developing questions, gathering and analyzing data, and designing and conducting research. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
2	1.1K3 actively engages in using technological tools and mathematics in their own scientific investigations. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
3	2a.3K1 understands a chemical reaction occurs when one or more substances (reactants) react to form a different chemical substance(s) (products). There are different types of chemical reactions all of which demonstrate the Law of Conservation of Matter and Energy. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
4	2a.3K2 understands how to perform mathematical calculations regarding the Law of Conservation of Matter, i.e. through stoichiometric relationships. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
5	3.5K3 understands food molecules contain biochemical energy, which is then available for cellular respiration. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
6	5.1K1 understands technology is the application of scientific knowledge for functional purposes. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)
7	7.2K3 understands scientific knowledge consists of hypotheses, inferences, laws, and theories. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Building Blocks)
8	7.2K4 understands a testable hypothesis or inference must be subject to confirmation by empirical evidence. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Building Blocks)
9	3.2K1 understands living organisms contain DNA or RNA as their genetic material which provides the instructions that specify the characteristics of organisms. <a href="#">Add Lesson Plan...</a> <a href="#">Upload Indicator Support Documents...</a>	(Mastery)

10	3.1K1	understands cells are composed of a variety of specialized structures that carry out specific functions.	(Building Blocks)
		<a href="#">Add Lesson Plan...</a>	<a href="#">Upload Indicator Support Documents...</a>
11	3.1K3	understands cells function and replicate as a result of information stored in (DNA) and (RNA) molecules.	(Building Blocks)
		<a href="#">Add Lesson Plan...</a>	<a href="#">Upload Indicator Support Documents...</a>
12	3.5K2	understands the sun is the primary source of energy for life through the process of photosynthesis.	(Mastery)
		<a href="#">Add Lesson Plan...</a>	<a href="#">Upload Indicator Support Documents...</a>
13	3.1K2	understands cell functions involve specific chemical reactions.	(Mastery)
		<a href="#">Add Lesson Plan...</a>	<a href="#">Upload Indicator Support Documents...</a>
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