



LAWRENCE COUNTY CAREER AND TECHNICAL CENTER

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Table of Contents - Chemistry

[Math & Measurement](#)

[Matter & Change](#)

[Atomic Theory](#)

[Periodic Table & Properties](#)

[Chemical Bonding](#)

[Covalent Compounds](#)

[Mole and Stoichiometry](#)

[Chemical Equations and Reactions](#)

UbD Curriculum Overview

Department	Science		
Course Name	Chemistry		
Course Summary	Topics of study include scientific processes, atoms and the periodic table, structure of matter and its properties, chemical reactions, quantitative relationships using the mole, rate of reactions, equilibrium, energy transformations, nuclear energy and electromagnetic radiation.		
Unit Name	Math & Measurement		
Grade Level(s)	10-12	Time / Duration	7 days
Created (Date)	January 2024	Revised (Date)	

Standards Addressed

3.2.C.B7 Explain the importance of accuracy and precision in making valid measurements



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Stage 1 - Desired Results: Enduring Understandings & Essential Questions

What are the overarching takeaways and big ideas for students?

Big Ideas	1. Accurate math is critical to our world
Transfer	<i>Students will be able to independently use their learning to...</i> Figure out how the math and chemical computations are interdependent.
Meaning	<i>Students will understand that...</i> Math and chemical computations must be accurately measured to ensure that all things work in chemical equations for everyday uses.
Essential Questions	1. How can one make accurate measurements and math computations to ensure that things will work in everyday uses, i.e. pharmaceuticals

Stage 1 - Essential Content, Concepts, & Skills

What do we want students to know and be able to do?

Acquisition

Knowledge	<i>Students will know...</i> - How to make accurate measurements - How to read the chemistry equipment - How to calibrate the chemical equipment - How to complete dimensional analysis
Skills	<i>Students will be skilled at (be able to do)...</i> - Basic math - Measuring on chemical equipment

Stage 2 - Assessments / Evidence of Learning

What are the formative (informal) and summative (formal) assessments used to measure learning and growth? How will you know that they did it?

Evaluation Criteria (F/S)	Assessment Evidence
Formative Evaluation - labs Summative Evaluation - test	Performance Task(s) / Think: Labs: metric measurements, volume, mass, density
	Other Evidence:



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Stage 3 - Learning Plan

What are the differentiated instructional strategies, activities, lesson plans that support the enduring understandings and essential questions for all students? This section provides a summary of the Key Learning Events and Instruction.

Summary of Key Learning Events and Instruction

- Guided Outline note takers used during direct instruction with student questioning checks for understanding
- Teacher modeling and student guided practice after a presented concept Homework on presented concept
- Dimensional Analysis Card Conversion Analogy activity

Resources

- Teacher made labs
- Teacher created worksheets
- Teacher created google slides
- Online videos and images (public domain)

UbD Curriculum Overview

Department	Science		
Course Name	Chemistry		
Course Summary	Topics of study include scientific processes, atoms and the periodic table, structure of matter and its properties, chemical reactions, quantitative relationships using the mole, rate of reactions, equilibrium, energy transformations..		
Unit Name	Matter & Change		
Grade Level(s)	10-12	Time / Duration	7 days
Created (Date)	1/12/2024	Revised (Date)	

Standards Addressed

- 3.1.C.B6 Formulate and revise explanations and models using logic and evidence
- 3.2.C.A1 Differentiate between physical properties and chemical properties
- 3.2.C.A3 Describe the three normal states of matter in terms of energy, particle motion, and phase transitions.
- 3.2.C.A4 Predict how combinations of substances can result in physical and/or chemical changes.
- 3.2.C.A1 Differentiate between pure substances and mixtures; differentiate between heterogeneous



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and homogeneous mixtures.

Stage 1 - Desired Results: Enduring Understandings & Essential Questions

What are the overarching takeaways and big ideas for students?

Big Ideas	1. Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.
Transfer	<i>Students will be able to independently use their learning to...</i> - Identify the equipment used and safety precautions necessary in the chemistry laboratory. - Define applications of Chemistry - Identify & Explain Chemical and Physical Changes and Properties of Matter - Classify Matter
Meaning	<i>Students will understand that...</i> The Chemical and physical world are interconnected.
Essential Questions	1. How can one explain the structure, properties, and interactions of matter?

Stage 1 - Essential Content, Concepts, & Skills

What do we want students to know and be able to do?

Acquisition

Knowledge	<i>Students will know...</i> atom • chemical change • compound • element • heterogeneous mixture • homogeneous mixture or solution • mixture • molecule • physical change • pure substance
Skills	<i>Students will be skilled at (be able to do)...</i> - Formulate and revise explanations and models using logic and evidence. (Connected to the standard 3.1.C.B6) - Students will be able to differentiate between physical properties and chemical properties. (Connected to the standard 3.2.C.A1) - Students will be able to identify and classify types of matter, analyze its properties and the changes it undergoes. (Connected to the standard 3.2.C.A3) - Students will be able to describe the three normal states of matter in terms of energy, particle motion, and phase transitions. (Connected to the standard 3.2.C.A4) - Students will be able to differentiate between pure substances and mixtures; differentiate between heterogeneous and homogeneous mixtures. (Connected to the standard 3.2.C.A1)



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Stage 2 - Assessments / Evidence of Learning

What are the formative (informal) and summative (formal) assessments used to measure learning and growth? How will you know that they did it?

Evaluation Criteria (F/S)	Assessment Evidence
Formative Evaluation - The chapter exam will measure all the student target objectives for this unit Summative Evaluation - Daily homework assignments and checks, bell ringer checks, & guided practice worksheets will measure all the student target objectives for this unit	Performance Task(s) / Think: - Exam - Labs - Worksheets
	Other Evidence: differentiated assessments

Stage 3 - Learning Plan

What are the differentiated instructional strategies, activities, lesson plans that support the enduring understandings and essential questions for all students? This section provides a summary of the Key Learning Events and Instruction.

Summary of Key Learning Events and Instruction

- Guided Outline: note takers used during direct instruction with student questioning checks for understanding
- Teacher modeling and student guided practice after a presented concept Homework on presented concept
- Dimensional Analysis Card Conversion Analogy activity

Resources

- Teacher created Google Slides
- Teacher created Worksheets
- Online e-books (vary by topic)
- Websites



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UbD Curriculum Overview

Department	Science		
Course Name	Chemistry		
Course Summary	Topics of study include scientific processes, atoms and the periodic table, structure of matter and its properties, chemical reactions, quantitative relationships using the mole, rate of reactions, equilibrium, energy transformations..		
Unit Name	Atomic Theory		
Grade Level(s)	10-12	Time / Duration	11 days
Created (Date)	1/12/2024	Revised (Date)	

Standards Addressed

3.1.C.C4 Know that both direct and indirect observations are used by scientists to study the natural world and universe

3.2.C.A4 Interpret and apply the laws of conservation of mass, constant composition (definite proportions), and multiple proportions.

3.2.C.A5 Recognize discoveries from Dalton (atomic theory), Thomson (the electron), Rutherford (the nucleus), and Bohr (planetary model of atom), and understand how each discovery leads to modern theory.

3.2.C.A5 Describe Rutherford's "gold foil" experiment that led to the discovery of the nuclear atom.

3.2.C.A5 Identify the major components (protons, neutrons, and electrons) of the nuclear atom and explain how they interact.

3.2.12.A2 Distinguish among the isotopic forms of elements.

3.2.12.A2 Explain how light is absorbed or emitted by electron orbital transitions. Eligible Content - CHEM.A.2.2.1 Predict the ground state electronic configuration and/or orbital diagram for a given atom or ion.

3.2.C.A2 Write and compare the electron configurations for the first twenty elements of the periodic table. List all standards that will be addressed during the unit.

Stage 1 - Desired Results: Enduring Understandings & Essential Questions

What are the overarching takeaways and big ideas for students?

Big Ideas	1. Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.
Transfer	<i>Students will be able to independently use their learning to...</i> Identify issues within their program of study that relates to chemistry.



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Meaning	<i>Students will understand that...</i> Understanding the chemical world will assist them in understanding their POS.
Essential Questions	How can one explain the structure, properties, and interactions of matter?

Stage 1 - Essential Content, Concepts, & Skills

What do we want students to know and be able to do?

Acquisition

Knowledge	<i>Students will know...</i> - Know that both direct and indirect observations are used by scientists to study the natural world and universe 3.1.C.C4 - Students will be able to interpret and apply the laws of conservation of mass, constant composition (definite proportions), and multiple proportion (Connected to the standard 3.2.C.A4) - Students will be able to recognize discoveries from Dalton (atomic theory), Thomson (the electron), Rutherford (the nucleus), and Bohr (planetary model of atom), and understand how each discovery leads to modern theory. (Connected to the standard 3.2.C.A5) - Students will be able to describe Rutherford's "gold foil" experiment that led to the discovery of the nuclear atom. (Connected to the standard 3.2.C.A5) - Students will be able to identify the major components (protons, neutrons, and electrons) of the nuclear atom and explain how they interact. (Connected to the standard 3.2.12.A2) Explain how light is absorbed or emitted by electron orbital transitions and Calculate energy emitted during electron transitions. (Connected to the standard 3.2.12.A2) - Students predict the ground state electronic configuration and/or orbital diagram for a given atom or ion. (Connected to eligible content standard CHEM.A.2.2.1) - Students will be able to write and compare the electron configurations for the first twenty elements of the periodic table. (Connected to Standard 3.2.C.A2)
Skills	<i>Students will be skilled at (be able to do)...</i> - Differentiate between the various models and how they are related to chemistry. - Students will be able to glean the information from the parts of the atom to make the connection to writing formulas.



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Stage 2 - Assessments / Evidence of Learning

What are the formative (informal) and summative (formal) assessments used to measure learning and growth? How will you know that they did it?

Evaluation Criteria (F/S)	Assessment Evidence
Formative Evaluation - Class questioning - Worksheets - Check for individual understanding Summative Evaluation - Chapter Exam	Performance Task(s) / Think: Daily homework assignments and checks, bell ringer checks, guided practice worksheets and the chapter exam will measure all the student target objectives for this unit
	Other Evidence:

Stage 3 - Learning Plan

What are the differentiated instructional strategies, activities, lesson plans that support the enduring understandings and essential questions for all students? This section provides a summary of the Key Learning Events and Instruction.

Summary of Key Learning Events and Instruction

- Check / review of answers to homework
- Guided Outline note takers used during direct instruction with student questioning checks for understanding
- Teacher modeling and student guided practice after a presented concept Homework on presented concept

Resources

- Teacher created Google Slides
- Teacher created Worksheets
- Online e-books (vary by topic)
- Websites

UbD Curriculum Overview

Department	Science
Course Name	Chemistry
Course Summary	Topics of study include scientific processes, atoms and the periodic table, structure of matter and its properties, chemical reactions, quantitative



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	relationships using the mole, rate of reactions, equilibrium, energy transformations..		
Unit Name	Periodic Table & Properties		
Grade Level(s)	10-12	Time / Duration	15 days
Created (Date)	1/12/2024	Revised (Date)	
Standards Addressed			
3.2.C.A1 Explain the relationship of an element's position on the periodic table to its atomic number, ionization energy, electronegativity, atomic size, and classification of elements.			

Stage 1 - Desired Results: Enduring Understandings & Essential Questions

What are the overarching takeaways and big ideas for students?

Big Ideas	1. Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.
Transfer	<i>Students will be able to independently use their learning to...</i> Identify issues within their program of study that relates to chemistry.
Meaning	<i>Students will understand that...</i> Understanding the chemical world will assist them in understanding their POS.
Essential Questions	1. How can one explain the structure, properties, and interactions of matter?

Stage 1 - Essential Content, Concepts, & Skills

What do we want students to know and be able to do?

Acquisition	
Knowledge	<i>Students will know...</i> Students will be able to explain the relationship of an element's position on the periodic table to its atomic number, ionization energy, electro-negativity, reactivity, atomic size, and classification of elements. (Connected to the standard 3.2.C.A1)
Skills	<i>Students will be skilled at (be able to do)...</i> Utilize the periodic trends to move forward in learning to write formulas and equations.



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Stage 2 - Assessments / Evidence of Learning

What are the formative (informal) and summative (formal) assessments used to measure learning and growth? How will you know that they did it?

Evaluation Criteria (F/S)	Assessment Evidence
Formative Evaluation - Homework - Student Questions/answers Summative Evaluation - Chapter Test	Performance Task(s) / Think: Daily homework assignments and checks, bell ringer checks, guided practice worksheets and the chapter exam will measure all the student target objectives for this unit
	Other Evidence:

Stage 3 - Learning Plan

What are the differentiated instructional strategies, activities, lesson plans that support the enduring understandings and essential questions for all students? This section provides a summary of the Key Learning Events and Instruction.

Summary of Key Learning Events and Instruction

- Bell ringer
- Review of answer to bell ringer
- Check / review of answers to homework
- Guided Outline note takers used during direct instruction with student questioning checks for understanding
- Teacher modeling and student guided practice after a presented concept Homework on presented concept
- Specific Instructional Activities Periodic Table Properties Inquiry Lab
- Lab Periodic Trends and Properties of Elements

Resources

- Teacher created Google Slides
- Teacher created Worksheets
- Online e-books (vary by topic)
- Websites



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UbD Curriculum Overview

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Course Name	Chemistry		
Course Summary	Topics of study include scientific processes, atoms and the periodic table, structure of matter and its properties, chemical reactions, quantitative relationships using the mole, rate of reactions, equilibrium, energy transformations..		
Unit Name	Chemical Bonding		
Grade Level(s)	10-12	Time / Duration	15 days
Created (Date)	1/12/2024	Revised (Date)	

Standards Addressed

3.2.C.A2 Explain how atoms combine to form compounds through ionic bonding.
 3.2.C.A2 Predict chemical formulas based on the number of valence electrons.
 3.2.C.A2 Predict the chemical formulas for simple ionic compounds

Stage 1 - Desired Results: Enduring Understandings & Essential Questions

What are the overarching takeaways and big ideas for students?

Big Ideas	1. Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.
Transfer	<i>Students will be able to independently use their learning to...</i> Identify issues within their program of study that relates to chemistry.
Meaning	<i>Students will understand that...</i> Understanding the chemical world will assist them in understanding their POS.
Essential Questions	1. How can one explain the structure, properties, and interactions of matter?



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Stage 1 - Essential Content, Concepts, & Skills

What do we want students to know and be able to do?

Acquisition

Knowledge	Students will know... How ionic bonds are created
Skills	Students will be skilled at (be able to do)... - Identifying various ionic bonds and what molecules they create - Students will be able to explain how atoms combine to form compounds through ionic bonding (Connected to standard 3.2.C.A2) - Students will be able to predict chemical formulas based on the number of valence electrons. (Connected to the standard 3.2.C.A2) - Students will be able to predict the chemical formulas for simple ionic compounds. (Connected to the standard 3.2.C.A2)

Stage 2 - Assessments / Evidence of Learning

What are the formative (informal) and summative (formal) assessments used to measure learning and growth? How will you know that they did it?

Evaluation Criteria (F/S)	Assessment Evidence
Formative Evaluation - Labs - Modeling activities Summative Evaluation - Chapter Test	Performance Task(s) / Think: - Evaluation of lab work and lab questions for Ionic Compound formula building activity will measure student understanding of standard 3.2.C.A2 - how atoms combine to form compounds through ionic bonding and students will be able to predict the chemical formulas for simple ionic compounds. - Daily homework assignments and checks, bell ringer checks, guided practice worksheets and the chapter exam will measure all the student target objectives for this unit
	Other Evidence:

Stage 3 - Learning Plan

What are the differentiated instructional strategies, activities, lesson plans that support the enduring understandings and essential questions for all students? This section provides a summary of the Key Learning Events and Instruction.



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Summary of Key Learning Events and Instruction

- Bell ringer
-] Review of answer to bell ringer
- Check / review of answers to homework
- Guided Outline note takers used during direct instruction with student questioning checks for understanding
- Teacher modeling and student guided practice after a presented concept
- Homework on presented concept
- Specific Instructional Activities
- Lab – Ionic compound formula building activity
- Lab – Ionic compound property analysis

Resources

- Teacher created Google Slides
- Teacher created Worksheets
- Online e-books (vary by topic)
- Websites

UbD Curriculum Overview

Department	Science		
Course Name	Chemistry		
Course Summary	Topics of study include scientific processes, atoms and the periodic table, structure of matter and its properties, chemical reactions, quantitative relationships using the mole, rate of reactions, equilibrium, energy transformations..		
Unit Name	Covalent Compounds		
Grade Level(s)	10-12	Time / Duration	15 days
Created (Date)	1/12/2024	Revised (Date)	

Standards Addressed

- 3.2.C.A2 Explain how atoms combine to form compounds through both ionic and covalent bonding.
3.2.C.A2 Predict chemical formulas based on the number of valence electrons.
3.2.C.A2 Draw Lewis dot structures for simple molecules and ionic compounds.
3.2.C.A2 Predict the chemical formulas for simple ionic and molecular compounds.
3.2.C.A1 Use electro-negativity to explain the difference between polar and nonpolar covalent bonds



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Stage 1 - Desired Results: Enduring Understandings & Essential Questions

What are the overarching takeaways and big ideas for students?

Big Ideas	1. Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.
Transfer	<i>Students will be able to independently use their learning to...</i> Identify issues within their program of study that relates to chemistry.
Meaning	<i>Students will understand that...</i> Understanding the chemical world will assist them in understanding their POS.
Essential Questions	1. How can one explain the structure, properties, and interactions of matter?

Stage 1 - Essential Content, Concepts, & Skills

What do we want students to know and be able to do?

Acquisition

Knowledge	<i>Students will know...</i> - Students will know polar vs nonpolar - Students will know the difference between ionic and covalent - Students will know how to find valence electrons
Skills	<i>Students will be skilled at (be able to do)...</i> - Students will use electro-negativity to explain the difference between polar and nonpolar covalent bonds (Connected to the standard 3.2.C.A1) Students will be able to explain how atoms combine to form compounds through - h both ionic and covalent bonding. (Connected to the standard 3.2.C.A2) - Students will be able to predict chemical formulas based on the number of valence electrons. (Connected to the standard 3.2.C.A2) - Students will be able to draw Lewis dot structures for simple molecules and ionic compounds. (Connected to the standard 3.2.C.A2) - Students will be able to predict the chemical formulas for simple ionic and molecular compounds. (Connected to the standard 3.2.C.A2)

Stage 2 - Assessments / Evidence of Learning

What are the formative (informal) and summative (formal) assessments used to measure learning and growth? How will you know that they did it?

Evaluation Criteria (F/S)	Assessment Evidence
Formative Evaluation	Performance Task(s) / Think:



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• Labs • Exit Tickets • On the spot questioning Summative Evaluation • Chapter Test	• Evaluation of lab work and lab questions for the Lab Paper Chromatography will measure student understanding of standard 3.2.C.A1 • students will explain the difference between polar and nonpolar compounds • Evaluation of lab work and lab questions for the Lab Lewis Dot Structures Models will measure student understanding of standard 3.2.C.A2 • Students will be able to draw Lewis dot structures for simple molecules and ionic compounds • Daily homework assignments and checks, bell ringer checks, guided practice worksheets and the chapter exam will measure all the student target objectives for this unit Other Evidence: •
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Stage 3 - Learning Plan

What are the differentiated instructional strategies, activities, lesson plans that support the enduring understandings and essential questions for all students? This section provides a summary of the Key Learning Events and Instruction.

Summary of Key Learning Events and Instruction

- Bell ringer
- Review of answer to bell ringer
- Check / review of answers to homework
- Guided Outline note takers used during direct instruction with student questioning checks for understanding
- Teacher modeling and student guided practice after a presented concept Homework on presented concept
- Specific Instructional Activities Lab –
- Paper chromatography Lab –
- Lewis Dot Structures Models

Resources

- Teacher created Google Slides
- Teacher created Worksheets
- Online e-books (vary by topic)
- Websites



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UbD Curriculum Overview

Department	Science		
Course Name	Chemistry		
Course Summary	Topics of study include scientific processes, atoms and the periodic table, structure of matter and its properties, chemical reactions, quantitative relationships using the mole, rate of reactions, equilibrium, energy transformations..		
Unit Name	Mole and Stoichiometry		
Grade Level(s)	10-12	Time / Duration	10 days
Created (Date)	1/12/2024	Revised (Date)	

Standards Addressed

3.2.C.A2 Use the mole concept to determine number of particles and molar mass for elements and compounds
 3.2.C.A2 Use the mole concept to determine number of particles and molar mass for elements and compounds
 3.2.C.A2 Determine percent compositions, empirical formulas, and molecular formulas.

Stage 1 - Desired Results: Enduring Understandings & Essential Questions

What are the overarching takeaways and big ideas for students?

Big Ideas	1. Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.
Transfer	<i>Students will be able to independently use their learning to...</i> Identify issues within their program of study that relates to chemistry.
Meaning	<i>Students will understand that...</i> Understanding the chemical world will assist them in understanding their POS.
Essential Questions	1. How can one explain the structure, properties, and interactions of matter?



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Stage 1 - Essential Content, Concepts, & Skills

What do we want students to know and be able to do?

Acquisition

Knowledge	<i>Students will know...</i> • How to find the mole number for each atom and molecule • Students will be able to define the mole. • Students will know how to find the empirical formula and molecular formula.
Skills	<i>Students will be skilled at (be able to do)...</i> • Students will apply the mole concept to determine how atoms and molecules are counted and measured. (Connected to the standard 3.2.C.A2) • Students will apply the mole concept to determine the number of particles and molar mass for elements and compounds (Connected to the standard 3.2.C.A2) • Students will be able to determine the empirical formula, molecular formula, and percent composition of compounds (Connected to standard 3.2.C.A2)

Stage 2 - Assessments / Evidence of Learning

What are the formative (informal) and summative (formal) assessments used to measure learning and growth? How will you know that they did it?

Evaluation Criteria (F/S)	Assessment Evidence
Formative Evaluation • Lab work • On the spot questioning Summative Evaluation • Chapter Test	Performance Task(s) / Think: • Evaluation of lab work and lab questions for Lab determination of the number of molecules converted to gas when a candle is burned will measure student understanding of standard 3.2.C.A2 • students will determine the number of particles and molar mass for a compound • Evaluation of lab work and lab questions for lab determination of a compound's empirical formula will measure student understanding of standard 3.2.C.A2 • Students will be able to determine the empirical formula, molecular formula, and percent composition of compounds • Daily homework assignments and checks, bell ringer checks, guided practice worksheets and the chapter exam will measure all the student target objectives for this unit
	Other Evidence: •



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Stage 3 - Learning Plan

What are the differentiated instructional strategies, activities, lesson plans that support the enduring understandings and essential questions for all students? This section provides a summary of the Key Learning Events and Instruction.

Summary of Key Learning Events and Instruction

- Bell ringer
- Review of answer to bell ringer
- Check / review of answers to homework
- Guided Outline note takers used during direct instruction with student questioning checks for understanding
- Teacher modeling and student guided practice after a presented concept Homework on presented concept
- Specific Instructional Activities
- Lab – Determination of the number of molecules converted to gas when a candle is burned
- Lab – Experimental determination of a compound's empirical formula

Resources

- Teacher created Google Slides
- Teacher created Worksheets
- Online e-books (vary by topic)
- Websites

UbD Curriculum Overview

Department	Science		
Course Name	Chemistry		
Course Summary	Topics of study include scientific processes, atoms and the periodic table, structure of matter and its properties, chemical reactions, quantitative relationships using the mole, rate of reactions, equilibrium, energy transformations..		
Unit Name	Chemical Equations and Reactions		
Grade Level(s)	10-12	Time / Duration	10 days
Created (Date)	1/12/2024	Revised (Date)	

Standards Addressed



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3.2.CA5 Use stoichiometry to predict quantitative relationships in a chemical reaction
3.2.CA4 Classify chemical reactions as synthesis, decomposition, single displacement, double displacement, and combustion
3.2.10.A4 Identify factors that affect the rates of reaction

Stage 1 - Desired Results: Enduring Understandings & Essential Questions

What are the overarching takeaways and big ideas for students?

Big Ideas	1. Matter can be understood in terms of the types of atoms present and the interactions both between and within atoms.
Transfer	<i>Students will be able to independently use their learning to...</i> Identify issues within their program of study that relates to chemistry.
Meaning	<i>Students will understand that...</i> Understanding the chemical world will assist them in understanding their POS.
Essential Questions	1. How can one explain the structure, properties, and interactions of matter?

Stage 1 - Essential Content, Concepts, & Skills

What do we want students to know and be able to do?

Acquisition

Knowledge	<i>Students will know...</i> - How to write formulas - How to correctly place molecules into an equation
Skills	<i>Students will be skilled at (be able to do)...</i> - Students will be able to balance chemical equations (Connected to standard 3.2.CA5) - Students will be able to classify chemical reactions as synthesis, decomposition, single displacement, double displacement, or combustion (Connected to standard 3.2.CA4) - Students will be able to identify factors that affect the rates of reaction (Connected to standard 3.2.10.A4)



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Stage 2 - Assessments / Evidence of Learning

What are the formative (informal) and summative (formal) assessments used to measure learning and growth? How will you know that they did it?

Evaluation Criteria (F/S)	Assessment Evidence
Formative Evaluation - Labs - On spot questioning - Exit tickets Summative Evaluation - Chapter Test	Performance Task(s) / Think: - Evaluation of lab work and lab questions for Lab pHet Simulation Balancing Chemical Equations will measure student understanding of standard 3.2.CA5 - students will be able to balance chemical equations POGIL activity analyzing and classifying chemical reactions will measure student understanding of standard 3.2.CA4 - students will be able to classify chemical reactions - Daily homework assignments and checks, bell ringer checks, guided practice worksheets and the chapter exam will measure all the student target objectives for this unit
	Other Evidence:

Stage 3 - Learning Plan

What are the differentiated instructional strategies, activities, lesson plans that support the enduring understandings and essential questions for all students? This section provides a summary of the Key Learning Events and Instruction.

Summary of Key Learning Events and Instruction

- Bell ringer
- Review of answer to bell ringer
- Check / review of answers to homework
- Guided Outline note takers used during direct instruction with student questioning checks for understanding
- Teacher modeling and student guided practice after a presented concept
- Homework on presented concept
- Specific Instructional Activities
- Lab pHet Simulation Balancing Chemical Equations
- POGIL activity analyzing and classifying chemical reactions

Resources



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- Teacher created Google Slides
- Teacher created Worksheets
- Online e-books (vary by topic)
- Websites