



**Gasconade R-2**

**Objective Course Curriculum Report for: Chemistry I -  
Eleventh Grade**

*Generated on 11/23/2015*

Name

Chemistry I Objective 1

Unit Objective

The student will take measurements using SI units accurately and perform mathematical operations using the measurements correctly.

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Sequence

1

Assessment Methods

Essential Questions

Course

Chemistry I

## Unit

01 Measurements and Calculations (Ch 2)

## Objective used to assess students

## Formative Assessment Activities

The student will demonstrate ability to measure accurately by calculating percentage error. The student will use scientific notation and significant digits correctly in calculations with data.

## Depth of Knowledge

80

## Learning Activity

The students will perform a lab measuring and comparing the density of pre-1982 pennies vs. post-1982 pennies. The students will use the scientific calculator to perform calculations using scientific notation. In a lab, the students will predict the mass of a plastic block of known density by measuring the volume and then calculating the percent error. The students will take notes on the rules for significant digits

## Research-based Instructional Strategies

The teacher will model the correct way to operate a scientific calculator. The teacher will lecture on the rules for significant digits in calculations. The teacher will compare accuracy and precision in measurement by relating it to shooting arrows at a bullseye. The teacher will perform a demonstration creating a density column.

## Supporting Resources

SMART Board Lessons: by AAModern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources  
Lab: Density of Pennies (in textbook)  
Demo: Flinn Rainbow Density Column

## Correction Exercise

Enrichment Exercise for Accelerated Learners

Remediation for Struggling Learners

English Language Learner

District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
7	Science	Grades: K-12	processes of scientific inquiry (such as formulating and testing hypotheses)	
3.2	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Develop and apply strategies based on ways others have prevented or solved problems
1.4	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Use technological tools and other resources to locate, select and organize information
1.8	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation

Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

Use of Technology

Guiding Questions

Guiding Questions Depth of Knowledge

Summative Assessment Activities

Summative Correction Exercise

Family and Community Involvement

Name

Chemistry I Objective 2

Unit Objective

The students will exhibit safe and proper laboratory techniques and demonstrate the use of the scientific method by gathering data and constructing a graph accordingly.

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Sequence

2

Assessment Methods

Essential Questions

Course

Chemistry I

Unit

02 Measurements and Calculations (Ch 2)

Objective used to assess students

Formative Assessment Activities

The student will perform experiments and produce graphs from data collected. The student will present safe lab techniques to the class.

## Depth of Knowledge

## Learning Activity

The student will perform a lab and construct a line graph from the data collected. The students will construct diagrams of safety rules and present them to class.

## Research-based Instructional Strategies

The teacher will demonstrate proper safety techniques & the use of safety equipment. The teacher will model the correct method of constructing graph. The teacher will demonstrate the need for safety glasses using nitric acid and egg white.

## Supporting Resources

Modern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources  
Flinn Scientific Chem Fax: Eye Safety  
SMARTBoard: N/A

## Correction Exercise

The student will draw a diagram of all safety equipment in the lab.

## Enrichment Exercise for Accelerated Learners

The student will make their own data table and then construct a graph.

## Remediation for Struggling Learners

Gather demo materials.

## English Language Learner

## District Defined



## Missouri School Improvement Program

## Show-Me Standards

Code	Subject	Grade	Standard	Goal
7	Science	Grades: K-12	processes of scientific inquiry (such as formulating and testing hypotheses)	
1.1	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Develop questions and ideas to initiate and refine research
1.3	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Design and conduct field and laboratory investigations to study nature and society
1.8	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation

## Grade and Course Level Standards

## Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

Use of Technology

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Summative Assessment Activities

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Name

Chemistry I Objective 3

Unit Objective

The student will classify types of matter and change (i.e. physical & chemical properties & changes, substances, mixtures).

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Assessment Methods

Essential Questions

Course

Chemistry I

Unit

03 Matter and Change (Ch 1)

Objective used to assess students

### Formative Assessment Activities

The student will classify matter by physical and chemical properties and classify types of pure substances and mixtures.

### Depth of Knowledge

80

### Learning Activity

The students will research physical & chemical properties of elements and use them to create an "element box" .While watching the video "Elements" the students will complete a worksheets over the topics presents.The students will complete worksheets over the topics presented.

### Research-based Instructional Strategies

The teacher will provide notes over chemical and physical properties of elements.The teacher will demonstrate several examples of physical and chemical changes. i.e. Electrolysis of water, Yellow brick road.The teacher will show videos "Mixtures" & "Bill Nye Greatest Discoveries: Elements"

### Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources  
Discovery School video "Elements"United Streaming Videos

### Correction Exercise

### Enrichment Exercise for Accelerated Learners

### Remediation for Struggling Learners

### English Language Learner

District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
3.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Reason inductively from a set of specific facts and deductively from general premises

Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

Use of Technology

Guiding Questions

Guiding Questions Depth of Knowledge

Summative Assessment Activities

Summative Correction Exercise

Family and Community Involvement

Name

Chemistry I Objective 4

Unit Objective

The student will analyze contributions from various scientists (i.e. Dalton, Thompson, Milikan, and Rutherford) to the modern understanding of atomic theory and the structure of the atom.

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Assessment Methods

Essential Questions

Course

Chemistry I

Unit

04 Atoms: The Building Blocks of Matter (Ch 3)

Objective used to assess students

## Formative Assessment Activities

The student will analyze contributions from various scientists (i.e. Dalton, Thompson, Milikan, and Rutherford) to the modern understanding of atomic theory. The student will present information gained from atomic number and atomic mass.

## Depth of Knowledge

## Learning Activity

The students will perform a lab to determine the diameter of a Zinc atom. The students will complete worksheets over the topics presented. While watching the video "Matter & Energy What is It?" the student will complete a worksheet over the information presented. The students will perform a lab to demonstrate conservation of mass.

## Research-based Instructional Strategies

The teacher will provide notes on the history of the discovery of atomic structure. The teacher will model how to obtain information (i.e. atomic number, mass number, isotopes, average atomic mass) from the periodic table.

## Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources  
Flinn Chemtopic Lab: Atomic Coatings the Size of an Atom  
United Streaming Videos

## Correction Exercise

## Enrichment Exercise for Accelerated Learners

## Remediation for Struggling Learners

## English Language Learner

## District Defined



Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard
1	Science	Grades: K-12	properties and principles of matter and energy

Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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Summative Assessment Activities

Summative Correction Exercise

Family and Community Involvement

Name

Chemistry I Objective 5

Unit Objective

The student will demonstrate how the mole is used as a quantity substance and solve problems based on Avogadro's number and the basic principles of molar mass.

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Sequence

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Assessment Methods

Essential Questions

Course

Chemistry I

Unit

05 Atoms: The Building Block of Matter (Ch 3)

Objective used to assess students

Formative Assessment Activities

The student will solve problems using mole, Avogadro's number, and molar mass.

Depth of Knowledge

70

Learning Activity

The students will discuss the definition of a mole (lead by the teacher).The students will practice calculations using the mole and Avogadro's number.The students will compare and contrast formula mass to molar mass

Research-based Instructional Strategies

The teacher will present notes on the definition of the mole. The teacher will model the correct way to perform calculations using the mole and Avogadro's number.

### Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinehart, & Winston  
Teacher made resources

### Correction Exercise

### Enrichment Exercise for Accelerated Learners

### Remediation for Struggling Learners

### English Language Learner

### District Defined

### Objective is A+

### Missouri School Improvement Program

### Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
3.2	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Develop and apply strategies based on ways others have prevented or solved problems
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
1.10	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Apply acquired information, ideas and skills to different contexts as students, workers, citizens and consumers

Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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Name

Chemistry I Objective 6

Unit Objective

The student will describe how the principles of electromagnetic radiation led to the development of the Bohr model and quantum model of the atom.

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Assessment Methods

Essential Questions

Course

Chemistry I

Unit

06 Arrangement of Electrons in Atoms (Ch 4)

Objective used to assess students

Formative Assessment Activities

The student will explain how the principles of electromagnetic radiation led to the development of the Bohr model of the atom. The student will explain how electrons occupy different orbitals in the quantum model of the atom.

Depth of Knowledge

### Learning Activity

While watching the video "Elements of Physics Waves, Sound, and Electromagnetism" students will complete a worksheet over the topics presented. Students will complete worksheets over the topics presented.

### Research-based Instructional Strategies

The teacher will lecture over the development of the Quantum model of the atom. The teacher will demonstrate chemical luminescence using tonic water and flame tests.

### Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources  
United Streaming Videos

### Correction Exercise

### Enrichment Exercise for Accelerated Learners

Students will research scientists' contributions to the quantum theory.

### Remediation for Struggling Learners

### English Language Learner

### District Defined

### Objective is A+

### Missouri School Improvement Program



## Show-Me Standards

Code	Subject	Grade	Standard
1	Science	Grades: K-12	properties and principles of matter and energy

## Grade and Course Level Standards

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## Other Standards

## Other Diverse Learners

## Students Self-Reflection About Personal Goals

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## Guiding Questions Depth of Knowledge

Summative Assessment Activities

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Name

Chemistry I Objective 7

Unit Objective

Students will apply rules (i.e. Aufbau, Pauli, Hund's) to determine the electron configuration of any element using various notations.

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Assessment Methods

## Essential Questions

## Course

Chemistry I

## Unit

07 Arrangement of Electrons in Atoms (Ch 4)

## Objective used to assess students

## Formative Assessment Activities

The student will diagram the electron configuration of an atom.

## Depth of Knowledge

70

## Learning Activity

The students will practice writing electron configurations on the smart board. The students will participate in an activity using meter sticks and index cards to model electrons filling orbitals on a large scale. The students will play "Electron Configuration Battle Ship" The students will play a review game on the smart board

## Research-based Instructional Strategies

The teacher will lecture on the Aufbau Principle, Hund's Rule, and the Pauli Exclusion Principle. The teacher will model the correct way to write electron configurations.

## Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinehart, & Winston  
Teacher made resources

Correction Exercise

Enrichment Exercise for Accelerated Learners

Remediation for Struggling Learners

English Language Learner

District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
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Grade and Course Level Standards

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Chemistry I Objective 8

Unit Objective

The student will apply the relationship between the periodic law and electron configuration to predict an element's general properties as well as periodic trends (i.e. electron affinity, electronegativity, ionization energy, atomic radii, and ionic radii).

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Sequence

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Assessment Methods

Essential Questions

Course

Chemistry I

Unit

08 The Periodic Law (Ch 5)

Objective used to assess students

### Formative Assessment Activities

The student will apply information from the Periodic Table to predict an element's general properties as well as periodic trends.

### Depth of Knowledge

80

### Learning Activity

The students will read and take their own notes over the chapter. The students will complete worksheets over the topics presented. Each student will research one element and make a sign with that element's properties.

### Research-based Instructional Strategies

The teacher will lead a discussion of periodic trends and the periodic table. The teacher will assemble all student's element signs to construct a jumbo periodic table on the wall. The teacher will show a video "Elements of Chemistry Periodic Table"

### Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources  
United Streaming Videos

### Correction Exercise

### Enrichment Exercise for Accelerated Learners

### Remediation for Struggling Learners

### English Language Learner



District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
1.10	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Apply acquired information, ideas and skills to different contexts as students, workers, citizens and consumers
3.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Reason inductively from a set of specific facts and deductively from general premises

Grade and Course Level Standards

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Family and Community Involvement

Name

Chemistry I Objective 9

Unit Objective

The student will compare and contrast different types of chemical bonding (i.e. polar-covalent, nonpolar-covalent, and ionic) and predict the bond type that will be formed.

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Assessment Methods

Essential Questions

Course

Chemistry I

Unit

09 Chemical Bonding (Ch 6)

Objective used to assess students

### Formative Assessment Activities

The student will compare and contrast different types of chemical bonding and predict the bond type that will be formed. The student will explain what determines a molecule's polarity.

### Depth of Knowledge

75

### Learning Activity

The student will read and take their own notes over parts of this chapter. The students will perform a lab comparing properties of ionic and covalent bonds.

### Research-based Instructional Strategies

The teacher will lecture over covalent and ionic bonding. The teacher will build models of molecules to demonstrate molecular shapes.

### Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinehart, & Winston  
Teacher made resources  
Lab: B6 Chemical Bonds United Streaming Videos

### Correction Exercise

### Enrichment Exercise for Accelerated Learners

### Remediation for Struggling Learners

### English Language Learner

### District Defined

## Missouri School Improvement Program

## Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
2	Science	Grades: K-12	properties and principles of force and motion	
3.1	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Identify problems and define their scope and elements
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures

## Grade and Course Level Standards

## Common Core Standards

Version

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Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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Summative Assessment Activities

Summative Correction Exercise

Family and Community Involvement

Name

Chemistry I Objective 10

### Unit Objective

The student will illustrate the bonding in a compound by drawing the Lewis structure for the compound.

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### Sequence

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### Assessment Methods

### Essential Questions

### Course

Chemistry I

### Unit

10 Chemical Bonding (Ch 6)



Objective used to assess students

Formative Assessment Activities

The student will draw Lewis structures for various compounds.

Depth of Knowledge

75

Learning Activity

The students will practice drawing Lewis structures on the Smart board. The students will build models of molecules to demonstrate molecular shapes.

Research-based Instructional Strategies

The teacher will model drawing Lewis structures. The teacher will build models of molecules to demonstrate molecular shapes.

Supporting Resources

SMART Board lessons by: ATeacher made resources Modern Chemistry 1999, Holt Rinehart Winston

Correction Exercise

Enrichment Exercise for Accelerated Learners

Remediation for Struggling Learners

English Language Learner

District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
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Grade and Course Level Standards

Common Core Standards

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Other Diverse Learners

Students Self-Reflection About Personal Goals

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Summative Assessment Activities

Summative Correction Exercise

Family and Community Involvement

Name

Chemistry I Objective 11

### Unit Objective

The student will construct the formula for binary ionic and molecular compounds when given the name and vice versa.

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### Sequence

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### Assessment Methods

### Essential Questions

### Course

Chemistry I

### Unit

11 Chemical Formulas and Compounds (Ch 7)

Objective used to assess students

Formative Assessment Activities

The student will create the formula and/or the name for binary ionic and molecular compounds.

Depth of Knowledge

80

Learning Activity

While watching the video "Elements of Chemistry Compounds and Reactions" students will complete a worksheet covering concepts presented. Students will practice writing names and formulas for compounds on the Smart board. The students will practice writing names and formulas using interactive web sites.

Research-based Instructional Strategies

The teacher will model how to write formulas and names for binary ionic and molecular compounds. The teacher will discuss polyatomic ions and their ability to combine.

Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinehart, & Winston  
Teacher made resources

Correction Exercise

Enrichment Exercise for Accelerated Learners

Remediation for Struggling Learners

English Language Learner

District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures

Grade and Course Level Standards

Common Core Standards

Version

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Files

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Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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Guiding Questions Depth of Knowledge

Summative Assessment Activities

Summative Correction Exercise

Family and Community Involvement

Name

Chemistry I Objective 12

Unit Objective

The student will apply rules of assigning oxidation numbers to atoms in the Stock system of naming compounds.

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Assessment Methods

Essential Questions

Course

Chemistry I

Unit

12 Chemical Formulas and Compounds (Ch 7)

Objective used to assess students

Formative Assessment Activities

the student will assign oxidation numbers to atoms by applying the correct rules and then name compounds using the Stock System.

Depth of Knowledge



### Learning Activity

The student will complete worksheets over oxidation numbers. The students will practice assigning oxidation numbers for compounds on the Smart board. The students will play a review game on the Smart board.

### Research-based Instructional Strategies

The teacher will lecture on rules for assigning oxidation numbers. The teacher will model how to assign oxidation numbers for compounds.

### Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources

### Correction Exercise

### Enrichment Exercise for Accelerated Learners

### Remediation for Struggling Learners

### English Language Learner

### District Defined

### Objective is A+

### Missouri School Improvement Program

### Show-Me Standards

Code	Subject	Grade	Goal	Standard
3.2	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Develop and apply strategies based on ways others have prevented or solved problems
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
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Grade and Course Level Standards

Common Core Standards

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Guiding Questions Depth of Knowledge

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Name

Chemistry I Objective 13

Unit Objective

The student will demonstrate the ability to determine formula mass, molecular mass, percent composition, molecular formula and empirical formula for a given compound.

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Sequence

13

Assessment Methods

Essential Questions

Course

Chemistry I

Unit

13 Chemical Formulas and Compounds (Ch 7)

Objective used to assess students

Formative Assessment Activities

The student will solve problems involving formula mass, molecular mass, percent composition, molecular formula and empirical formula for a given compound.

Depth of Knowledge

70

## Learning Activity

The students will practice calculations on the Smart board. The students will compete in "Mole Races" in teams as a review. The students will perform a lab to determine the empirical formula of magnesium oxide. The students will perform a lab measuring the amount of moles of various compounds and present their results to the teacher. The students will practice calculations using interactive web sites.

## Research-based Instructional Strategies

The teacher will lecture over empirical formula, percent composition, and molecular formula. The teacher will model the correct way to perform calculations. The teacher will monitor the student's performance when measuring the amount of moles.

## Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinehart, & Winston  
Teacher made resources

## Correction Exercise

## Enrichment Exercise for Accelerated Learners

## Remediation for Struggling Learners

## English Language Learner

## District Defined

## Objective is A+

## Missouri School Improvement Program

## Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
3.2	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Develop and apply strategies based on ways others have prevented or solved problems
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
3.4	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Evaluate the processes used in recognizing and solving problems

Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

Use of Technology

Guiding Questions

Guiding Questions Depth of Knowledge

Summative Assessment Activities

Summative Correction Exercise

Family and Community Involvement

Name

Chemistry I Objective 14

Unit Objective

The student will describe information that can be determined from a chemical equation and/or word equation and apply the Law of Conservation of Mass to balance chemical reactions.

Created By

System

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Sequence

14

Assessment Methods

Essential Questions

Course

Chemistry I

Unit

14 Chemical Equations and Reactions (Ch 8)

Objective used to assess students



## Formative Assessment Activities

The student will explain information that can be determined from a chemical equation and/or word equation. The student will apply the Law of Conservation of Mass to balance chemical reactions.

## Depth of Knowledge

80

## Learning Activity

The students will practice balancing equations on the Smart board. The students will complete worksheets over the concepts presented. The students will complete an online quiz at [unitedstreaming.com](http://unitedstreaming.com) on chemical equations and balancing. While watching the video "Physical Science Series Chemical Reactions" the students will complete a worksheet over the topics presented.

## Research-based Instructional Strategies

The teacher will lead a discussion of the information gained from a chemical equation. The teacher will model the correct way to balance equations.

## Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources  
United Streaming Video  
1. Physical Science Series: Chemical Reactions

## Correction Exercise

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## English Language Learner

## District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
3.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Reason inductively from a set of specific facts and deductively from general premises

Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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Name

Chemistry I Objective 15

## Unit Objective

The student will classify chemical reactions as to one of 5 types and use an activity series to predict the products that can be formed. The student will discuss reaction rates and evidence of energy changes in chemical reactions.

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## Sequence

15

## Assessment Methods

## Essential Questions

## Course

Chemistry I

## Unit

15 Chemical Equations and Reactions (Ch 8)

Objective used to assess students

### Formative Assessment Activities

The student will classify chemical reactions and predict the products that can be formed.

### Depth of Knowledge

70

### Learning Activity

The students will perform a lab demonstrating the 5 types of chemical reactions and then compose balanced equations for each reaction observed. The students will perform a lab determining an activity series for various metals. While watching the teacher demonstrations, the students will classify each reaction observed and write a balanced equation.

### Research-based Instructional Strategies

The teacher will lecture over the 5 types of chemical reactions. The teacher will demonstrate different types of chemical reactions using Na/H<sub>2</sub>O, the Woosh bottle, electrolysis of H<sub>2</sub>O, and KI/PbNO<sub>3</sub>. The teacher will model how to predict whether a given reaction will occur by using information gained from an activity series.

### Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinenhart, & Winston  
Teacher made resources  
UnitedStreaming Videos:  
1. Chemical Reactions

### Correction Exercise

### Enrichment Exercise for Accelerated Learners

### Remediation for Struggling Learners

### English Language Learner

District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
3.2	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Develop and apply strategies based on ways others have prevented or solved problems
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
1.10	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Apply acquired information, ideas and skills to different contexts as students, workers, citizens and consumers
3.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Reason inductively from a set of specific facts and deductively from general premises

Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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## Chemistry I Objective 16

### Unit Objective

The student will solve stoichiometric calculations involving mole ratio, mass of reactant to mass of product, limiting reactant, and percent yield.

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### Sequence

16

### Assessment Methods

### Essential Questions

### Course

Chemistry I

### Unit

Objective used to assess students

Formative Assessment Activities

The student will demonstrate ability to solve stoichiometric calculations involving mole ratio, mass of reactant to mass of product, limiting reactant, and percent yield.

Depth of Knowledge

70

Learning Activity

The student will practice calculations on the Smart board. The student will perform a lab to determine Mass-Mass calculations and percent yield. The student will perform a lab using stoichiometric calculations to determine the correct reaction for the decomposition of baking soda. Then the student will write a lab report. The student will review stoichiometry using a computer game and board races.

Research-based Instructional Strategies

The teacher will model the correct way to do stoichiometric calculations. The teacher will demonstrate the concept of limiting reactants using "Stoichiometric Balloon Races" The teacher will show a video "Stoichiometry"

Supporting Resources

Modern Chemistry, 1999 Holt, Rinenhart, & Winston Teacher made resources

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English Language Learner

District Defined

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Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
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1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
3.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Reason inductively from a set of specific facts and deductively from general premises

Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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Family and Community Involvement

Name

Chemistry I Objective 17

Unit Objective

The student will apply Arrhenius, Bronsted-Lowry, and Lewis theories to acid and base reactions and differentiate between strong and weak acids. The student will perform calculations involving molarity of solutions.

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Sequence

17

Assessment Methods

Essential Questions

Course

Chemistry I

Unit

17 Acids and Bases (Ch 15)

Objective used to assess students

## Formative Assessment Activities

The student will show the differences between the acid base theories as well as strong and weak acids. The student will demonstrate the ability to solve molarity calculations.

## Depth of Knowledge

75

## Learning Activity

The students will create a presentation in which they will describe properties and uses of industrially important acids and bases. The student will present their presentation to the class. The students will perform a lab in which they model the production of acid rain. The students will review by playing a Jeopardy type game on the computer. The students will complete worksheets over the topics presented. The students will practice molarity calculations.

## Research-based Instructional Strategies

The teacher will show a video "Acids, Bases, and Salts" The teacher will lecture on acid base theories. The teacher will lead a discussion of the harmful effects of acid rain and how it is formed. The teacher will model the correct way to perform molarity calculations. The teacher will demonstrate how to dilute a concentrated solution.

## Supporting Resources

Modern Chemistry, 1999 Holt, Rinehart, & Winston Teacher made resources United Streaming Videos

## Correction Exercise

## Enrichment Exercise for Accelerated Learners

## Remediation for Struggling Learners

## English Language Learner

District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards



Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
3.2	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Develop and apply strategies based on ways others have prevented or solved problems
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
1.10	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Apply acquired information, ideas and skills to different contexts as students, workers, citizens and consumers
3.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Reason inductively from a set of specific facts and deductively from general premises

4.1	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to make decisions and act as responsible members of society.	Explain reasoning and identify information used to support decisions
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Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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Guiding Questions

Guiding Questions Depth of Knowledge

Summative Assessment Activities

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Family and Community Involvement

Name

Chemistry I Objective 18

Unit Objective

The student will apply the mathematical definition of pH to determine the concentration of the solution and ions it contains.

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Sequence

18

## Assessment Methods

## Essential Questions

## Course

Chemistry I

## Unit

18 Acid Base Titration and pH (Ch 16)

## Objective used to assess students

## Formative Assessment Activities

The student will determine concentration of a solution using the mathematical definition of pH. In a lab practical setting, the students will be given a series of unknown solutions and will investigate determine the acidity or alkalinity of the solutions.

## Depth of Knowledge

75

## Learning Activity

The student practice calculating pH and pOH on the Smart board. The students will complete worksheets over the topics presented. The students will investigate the use of different indicators to determine the relative pH of a solution.

## Research-based Instructional Strategies

The teacher will model the correct way to use the scientific calculator to determine pH. The teacher will lecture on the relationship between pH, pOH,  $[H_3O^+]$ , and  $[OH^-]$ . The teacher will lead a discussion of ways to determining the pH of a solution in the lab, including indicators and pH meters.

## Supporting Resources

SMARTBoard lessons by: AAModern Chemistry, 1999 Holt, Rinenhart, & WinstonTeacher made resourcesUnited Streaming Videos

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Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
1.4	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Use technological tools and other resources to locate, select and organize information
1.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Comprehend and evaluate written, visual and oral presentations and works
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
3.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Reason inductively from a set of specific facts and deductively from general premises

Grade and Course Level Standards

Common Core Standards

Version

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Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

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Guiding Questions

Guiding Questions Depth of Knowledge

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Summative Correction Exercise

Family and Community Involvement

Name

Chemistry I Objective 19

Unit Objective

The student will perform an acid-base titration and analyze the data to determine the concentration of an unknown solution.

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Sequence

19

Assessment Methods

Essential Questions

Course

Chemistry I

Unit

19 Acid-Base Titration and pH (Ch 16)

Objective used to assess students



## Formative Assessment Activities

The student will perform a lab on acid-base titration and analyze the data to determine the concentration of an unknown solution.

## Depth of Knowledge

70

## Learning Activity

The students will complete worksheets over the topics presented. The students will practice titration calculations on the Smart board. The students will simulate an acid base titration using an interactive web site. Then the students will analyze the data collected to determine the concentration of an unknown solution.

## Research-based Instructional Strategies

The teacher will lecture over acid base titration curves with strong and weak acids and bases. The teacher will model an acid base titration using a pH meter connected to the computer to create an acid base titration curve. The teacher will model the calculations needed for an acid base titration.

## Supporting Resources

Modern Chemistry, 1999 Holt, Rinehart, & Winston  
Teacher made resources  
United Streaming Videos

## Correction Exercise

## Enrichment Exercise for Accelerated Learners

## Remediation for Struggling Learners

## English Language Learner

District Defined

Objective is A+

Missouri School Improvement Program

Show-Me Standards

Code	Subject	Grade	Standard	Goal
1	Science	Grades: K-12	properties and principles of matter and energy	
1.3	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Design and conduct field and laboratory investigations to study nature and society
3.2	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Develop and apply strategies based on ways others have prevented or solved problems
1.4	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Use technological tools and other resources to locate, select and organize information
1.6	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Discover and evaluate patterns and relationships in information, ideas and structures
1.8	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas.	Organize data, information and ideas into useful forms (including charts, graphs, outlines) for analysis or presentation

3.5	Knowledge Standards	Grades: K-12	Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems.	Reason inductively from a set of specific facts and deductively from general premises
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Grade and Course Level Standards

Common Core Standards

Version

1

Files

Date Range

Other Standards

Other Diverse Learners

Students Self-Reflection About Personal Goals

Use of Technology

Guiding Questions

Guiding Questions Depth of Knowledge

Summative Assessment Activities

Summative Correction Exercise

Family and Community Involvement