



Chemistry Part 1

Course number: SC081_21_1

Credits: .5 credit

Prerequisites: Biology

INSTRUCTIONAL TEAM

Our Academic Advisors are also available to help you when you need it. They are trained to provide answers to your questions about the course or program.

Phone: 1-800-224-7234

Hours: 8:30AM – 8:30PM (Eastern Standard Time), Monday-Friday

MAIL

James Madison High School
5051 Peachtree Corners Circle, Suite 200
Norcross, GA 30092

TEXTBOOK

Chemistry: Matter and Change. United States of America: McGraw Hill, 2017.

COURSE DESCRIPTION

Chemistry is the study of matter around us in the world. This course will expand students understanding of scientific processes and to scientific measurement techniques, including metric measurement conversions. Throughout the Chemistry course, students will explore quantitative measurements and calculations when making observations or creating chemical reactions during experiments. Most measurements are made using the international system of units (SI Units) along with prefixes that relate to the size of the measurement. This course covers dimensional analysis, development of the modern atomic model, and the Periodic Table of Elements. Students will investigate the way chemicals react and how these reactions can be represented and calculated. Assessments for each individual lesson consist of multiple-choice exams. The mid-term exam consists of short-answer and problem-solving questions.



LEARNING OBJECTIVES

After completing Chemistry Part 1, students will be able to:

- Communicate information about the modern atomic theory and periodic law
- Explain characteristics of atoms and elements
- Understand chemical and physical properties of matter
- Apply the Law of Conservations of matter to chemical compounds and reactions
- Develop a sense of how chemistry explains the world using theoretical and mathematical models
- Apply the language of chemistry
- Explain relationships on the Periodic Table of Elements

LESSONS	TOPICS
Lesson 1: Introduction to Chemistry	Branches of Chemistry, Mass, Weight, Scientific Method, Research, Data, Dimensional Analysis
Lesson 2: Matter	Properties of Matter, Changes in Mater, Mixtures, Elements and Compounds
Lesson 3: Atoms and Electrons	Atom, Unstable Nuclei, Radioactive Decay, Light & Quantized Energy, Electron Configuration
Lesson 4: The Periodic Table	Modern Periodic Table, Classification of Elements, Periodic Trends
Lesson 5: Ionic and Covalent Compounds	Ion Formation, Ionic bonds and compounds, ionic names and formulas, types of bonds, properties of metals, naming molecules, periodic trends
Lesson 6: Chemical Reactions	Reactions, equations, reactions in aqueous solutions
Lesson 7: The Mole	Measuring matter, Mass, Mole, Empirical Molecular Formulas



GRADING

The following point totals correspond to the following grades:

POINTS	GRADE
100-90	A
89-80	B
79-70	C
65-69	D
Below 65	F

James Madison High School allows 2 attempts on exams. If a student is not satisfied with his/her score on the 1st attempt, an exam may be resubmitted. The 2nd attempt is not required as long as the final course average is above 65%. The higher of the 2 attempts will be the score that counts towards the final average.

Exams are timed and once you begin an exam, the timer runs continuously, even if you leave the course. Refer to the exam instructions for the time limit (in most cases 3 hours), but the time limit cannot be spread over multiple days.

GRADE WEIGHT

TOPIC	ACTIVITY	PERCENTAGE
Lesson 1: Introduction to Chemistry	MC Quiz	16%
Lesson 2: Matter	MC Quiz	16%
Lesson 3: Atoms and Electrons	MC Quiz	16%
Lesson 4: The Periodic Table	MC Quiz	16%
Lesson 5: Ionic and Covalent Compounds	MC Quiz	16%
Lesson 6: Chemical Reactions Lesson 7: The Mole	MC Quiz	16%
Mid-Term (Lessons 1-7)	Assignment	20%

ACADEMIC AND COURSE POLICIES

Please see the Academic Policies section in the [James Madison High School Catalog](#) for information on Course policies, including the Exam/Assignment Retake Policy, Grading Policy, Academic Honesty Policy, and Student Conduct Policy.



Chemistry Part 2

Course number: SC082_21_1

Credits: .5 credit

Prerequisites: SC081

INSTRUCTIONAL TEAM

Our Academic Advisors are also available to help you when you need it. They are trained to provide answers to your questions about the course or program.

Phone: 1-800-224-7234

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5051 Peachtree Corners Circle, Suite 200
Norcross, GA 30092

TEXTBOOK

Chemistry: Matter and Change. United States of America: McGraw Hill, 2017.

COURSE DESCRIPTION

In Chemistry Part 2, students will study chemicals and chemical reactions. Topics include: how chemical reactions are represented and calculated, how energy is important in chemical reactions and relationships, and the dynamics of the phases of matter. Solution chemistry allows students to develop expertise in calculating various measures of concentration and in understanding chemical equilibrium. Factors affecting how chemical reactions take place in solution then leads to an investigation of acids and bases. Oxidation-Reduction reactions, also known as redox reactions, are reactions that involve a transfer of electrons between elements during chemical reaction. Redox reactions wrap up the course. Assessments for each individual lesson consist of multiple-choice exams. The final exam consists of a brief research project on a common chemical product used in everyday life.



LEARNING OBJECTIVES

After completing Chemistry Part 2, students will be able to:

- Manipulate the factors that affect a chemical reaction
- Explain the Kinetic Molecular Theory
- Explore different states of matter and its impact on matter
- Evaluate the properties and types of solutions
- Assess solutions based on acid and base characteristics
- Apply the language of chemistry
- Connect chemistry to every day life

LESSONS	TOPICS
Lesson 1: Stoichiometry	Stoichiometry and Stoichiometric Calculations, Limiting Reactants, Percent Yield.
Lesson 2: States of Matter	Gases, Liquids, Solids, Phase Changes, Gases Laws
Lesson 3: Mixtures, Solutions, Reaction Rates	Mixtures, solutions, solvation, reaction rates, reaction rate laws
Lesson 4: Energy and Chemical Change	Energy, heat, thermochemical equations, calculating changes in energy, balance and equilibrium.
Lesson 5: Acids and Bases	Acids, bases, pH, neutralization
Lesson 6: Redox Reactions	Oxidation, reduction, redox reactions



GRADING

The following point totals correspond to the following grades:

POINTS	GRADE
100-90	A
89-80	B
79-70	C
65-69	D
Below 65	F

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Exams are timed and once you begin an exam, the timer runs continuously, even if you leave the course. Refer to the exam instructions for the time limit (in most cases 3 hours), but the time limit cannot be spread over multiple days.

GRADE WEIGHT

TOPIC	ACTIVITY	PERCENTAGE
Lesson 1: Stoichiometry	MC Quiz	13.3%
Lesson 2: States of Matter	MC Quiz	13.3%
Lesson 3: Mixtures, Solutions, Reaction Rates	MC Quiz	13.3%
Lesson 4: Energy and Chemical Change	MC Quiz	13.3%
Lesson 5: Acids and Bases	MC Quiz	13.3%
Lesson 6: Redox Reactions	MC Quiz	13.3%
Final Project (Lessons 1-6)	Assignment	20.02%

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