



Quest Early College High School Chemistry

2020-2021

Valerie Booth

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Tutoring: Tuesday and Thursday Morning 8:10-8:40, Tuesday Flextime

Textbooks and Ancillaries

Chemistry Matter and Change

Available online through McGraw Hill Education Portal

Curriculum Framework:

Big Ideas	Essential Questions
<p>Scientific Investigation and Reasoning: Scientists use experimental and observational testing, empirical evidence, scientific reasoning, and critical thinking as they investigate the natural world safely.</p> <p>The Structure of Matter: The elements are arranged in the Periodic Table, which allows us to predict the structural, chemical and physical properties of matter.</p> <p>Bonding and Intermolecular Forces: Valence Bond Theory explains the structure and arrangement of elements bonded together and the characteristics of those bonds.</p> <p>Chemical Reactions: Chemical changes in matter involve breaking and forming chemical bonds between atoms and the transfer or sharing of electrons, a process which can be mathematically predicted and controlled.</p> <p>Solutions and Acid/Base Chemistry:</p> <ul style="list-style-type: none">• Many common reactions take place in aqueous solutions and can be predicted and controlled.• Acids and bases have specific roles during chemical reactions in aqueous solutions. <p>Gases, Thermodynamics: Energy determines the phases of matter and drives all chemical reactions, which can be predicted using the Law of Conservation of Energy and the Laws of Thermodynamics.</p> <p>Nuclear Reactions: Fusion and fission reactions, which take place in stars and supernovas to form all the elements, can be duplicated by humans for various industrial, military, and medical purposes.</p>	<p>Scientific Investigation and Reasoning: As a Scientist, how do I investigate the natural world, interpret data, and communicate findings to diverse audiences?</p> <p>The Structure of Matter: What is our basic understanding of matter, and how can we predict its properties?</p> <p>Bonding and Intermolecular Forces: How do elements combine in different ways to form all the substances observed on Earth?</p> <p>Chemical Reactions: How can I predict and control the chemical processes that take place to change one substance into another?</p> <p>Solutions and Acid/Base Chemistry:</p> <ul style="list-style-type: none">• How can the factors affecting solubility and chemical reactions taking place in aqueous solutions be predicted and controlled?• What are the specific roles of acids and bases during chemical reactions? <p>Gases, Thermodynamics: How do the Law of Conservation, the Laws of Thermodynamics, and the Ideal Gas Laws interact to explain physical and chemical changes that take place in matter?</p> <p>Nuclear Reactions: How do nuclear fusion and fission reactions create all the elements in the universe, and can we create and control these nuclear reactions to benefit mankind and the environment?</p>



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Semester 1 Scope and Sequence:

Unit	Topic	Unit Length
1	Classification of Matter	2 weeks
2	Atomic Theory and the Nucleus <ul style="list-style-type: none">● Historical Development of Atomic Theory● Atomic Structure (protons, neutrons, electrons)	2 weeks
3	Electron Structure <ul style="list-style-type: none">● Electron Orbitals● Electron Configuration● Valence Electrons● Lewis Dot Structures● Octet Rule● Quantum #s● Spectral Analysis	3 weeks
4	The Periodic Table <ul style="list-style-type: none">● Periodic Relationships, Groups/Families● Periodic Trends	2 weeks
5	Chemical Bonding <ul style="list-style-type: none">● Electronegativity● Ionic Bonds● Metallic Bonds and Metallic Character● Covalent Bonds● Hybridization (sp, sp², sp³)● Resonance and Formal Charge	2 weeks
6	Naming and Writing Formulas for Compounds <ul style="list-style-type: none">● Ionic Compounds and Polyatomic Ions● Binary Covalent Compounds● Acids	3 weeks
7	Molecular Geometry <ul style="list-style-type: none">● Drawing Molecules and Lewis structures● VSEPR● Geometry of Polyatomic Ions	2 weeks



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Academic Integrity

Cheating on an assignment or test will result in a zero being recorded for that assignment or test. In addition, cheating is considered a conduct violation and is subject to additional disciplinary measures as discussed in the Student Code of Conduct.

Grading Guidelines

QECHS adheres to the grading guidelines set forth in the Humble ISD Parent/Student Handbook and Quest Facilitator Responsibilities document. In accordance with the policy the PAP chemistry grade is determined by 30% formative assignments and 70% summative assignment.

A= 100-90; **B=** 89-80; **C=** 79-70; **F=** 69-0

Reassessment Policy

Because the goal of chemistry is to master important material that will be used in later units, students can reassess to any summative assignment in order to earn a maximum score of 80.

Late Work

Every effort should be made to turn in assignments on time.

Late work will be penalized. Ten points per calendar day will be deducted for late work. After 10 calendar days, no points will be given and a zero will be recorded.

Online Learning Environment:

Work for this course will be completed in Digital Interactive Notebooks as well as in the Google Classroom. Online participation in discussion boards and reflections will be necessary for success in the course.

You will find links to readings and review videos on Google Classroom, as well as quizzes, writing responses, forums, and course information.