

**Jefferson County High School
Course Syllabus**

A. Course *Chemistry 1*

B. Department *Science*

C. Course Description *This course provides a general survey of chemistry, leading to a basic understanding of the nature of matter and changes in matter. The course is centered on the application of chemical principles and theories. Laboratory experiences and problem-solving techniques are emphasized. This is an EOC course. EOC exam scores are 25% of the second semester grade.*

D. Grade Term *Semester*

E. Grading Scale

<u>Range</u>	<u>Honors/ Regular</u>	<u>College-Level</u>	<u>A.P.</u>
93-100 A	4.0	4.5	5.0
85-92 B	3.0	3.5	4.0
75-84 C	2.0	2.5	3.0
70-74 D	1.0	1.5	2.0

F. Term Dates

- a. 1st 9 Weeks August 5, 2016 – October 7, 2016
- b. 2nd 9 Weeks October 8, 2016 – December 16, 2016
- c. 3rd 9 Weeks January 5, 2017 – March 15, 2017
- d. 4th 9 Weeks March 16, 2017 – May 25, 2017

G. Textbook: *Chemistry: Matter and Change – Glencoe Science*

H. Other Required Reading

- a. *None required*

I. Other Resources

- a. Odysseyware

J. Major Assignments

- a. *None required*

K. Procedures for Parental Access to Instructional Materials

- a. Aspen Parent Portal
- b. Instructor's Website

- c. Email Instructor
- d. Parent Teacher Conference
 - a. There are two designated conference dates during the school year. Parents who would like to request additional meetings may make appointments for conferences with the teachers (during their planning periods), counselors, or a principal by telephoning the school office.

L. Field Trips

- a. Any schedule fieldtrip will have a definite educational purpose and will reflect careful planning. Signed permission forms will be obtained when an off campus trip is planned.
- b. *None*

M. Standards & Objectives

First 9-weeks:

- a. SPI 3221 T/E.1 I can distinguish among tools and procedures best suited to conduct a specified scientific inquiry.
- b. SPI 3221.2.1 I can distinguish among elements, compounds, and mixtures.
- c. SPI 3221.2.4 I can classify a property of change in matter as physical or chemical.
- d. SPI 3221.2.5 I can compare and contrast heat and temperature changes in chemical. (endothermic and exothermic) and physical processes, e.g., phase transformations and specific heat.
- e. SPI 3221.2.6 I can investigate similarities and differences among solids, liquids and gases in terms of energy and particle spacing.
- f. SPI 3221 Inq.1 I can select a description or scenario that reevaluates and/or extends a scientific finding.
- g. SPI 3221 Inq.2 I can analyze the components of a properly designed scientific investigation.
- h. SPI 3221 Inq.3 I can determine appropriate tools to gather precise and accurate data.
- i. SPI 3221 Inq.4 I can evaluate the accuracy and precision of data.
- j. SPI 3221 Inq.5 I can defend a conclusion based on scientific evidence.
- k. SPI 3221 Inq.6 I can determine why a conclusion is free of bias.
- l. SPI 3221 Inq.7 I can compare conclusions that offer different but acceptable explanations for the same set of experimental data.
- m. SPI 3221.1.2 I can interpret the periodic table to describe an element's atomic makeup.
- n. SPI 3221.3.8 I can describe radioactivity through a balanced nuclear equation and through an analysis of the half-life concept
- o. SPI 3221.1.1 I can compare and contrast the major models of the atom (i.e., Bohr, and the quantum mechanical model).
- p. SPI 3221.1.4 I can determine the Lewis electron-dot structure or number of valence electrons for an atom of any main-group element from its atomic number or position in the periodic table.

- q. SPI 3221.1.5 I can represent an electron's location in the quantum mechanical model of an atom in terms of the shape of electron clouds (s and p orbitals in particular), relative energies of orbitals, and the number of electrons possible in the s, p, d and f orbitals.
- r. SPI 3221.1.3 I can describe the trends found in the periodic table with respect to atomic size, ionization energy, or electronegativity.
- s. SPI 3221.1.4 I can determine the Lewis electron-dot structure or number of valence electrons for an atom of any main-group element from its atomic number or position in the periodic table.
- t. SPI 3221.3.1 I can analyze ionic and covalent compounds in terms of their formation (electron transfer vs sharing), names, chemical formulas, percent composition, and molar masses.
- u. SPI 3221.3.7 I can classify substances as acids or bases based on their formulas and how they react with litmus and phenolphthalein.

Second 9-weeks:

- a. SPI 3221.3.2 I can identify the reactants, products, and types of different chemical reactions: composition, decomposition, double replacement, single replacement, combustion.
- b. SPI 3221.3.3 I can predict the products of a chemical reaction (i.e. composition and decomposition of binary compounds).
- c. SPI 3221.3.4 I can balance a chemical equation to determine molar ratios.
- d. SPI 3221.3.1 I can analyze ionic and covalent compounds in terms of their formation (electron transfer vs sharing), names, chemical formulas, percent composition, and molar masses.
- e. SPI 3221.3.5 I can convert among the following quantities of a substance: mass, number of moles, number of particles, molar volume at STP.
- f. SPI 3221.3.6 I can identify and solve stoichiometry problems which interconvert volume of gases at STP, moles, and mass.
- g. SPI 3221.2.6 I can investigate similarities and differences among solids, liquids and gases in terms of energy and particle spacing.
- h. SPI 3221.2.7 I can predict how changes in volume, temperature, and pressure affect the behavior of a gas.
- i. SPI 3221.3.5 I can convert among the following quantities of a substance: mass, number of moles, number of particles, molar volume at STP.
- j. SPI 3221.3.6 I can identify and solve stoichiometry problems which interconvert volume of gases at STP, moles, and mass.
- k. SPI 3221.2.1 I can distinguish among elements, compounds, and mixtures.
- l. SPI 3221.2.2 I can identify properties of an aqueous solution, including: colligative properties, procedure to make or determine the concentration of a solution in molarity, and molality.
- m. SPI 3221.2.3 I can classify a solution as saturated, unsaturated, or supersaturated based on its composition and temperature and a solubility graph.

- n. SPI 3221.2.5 I can compare and contrast heat and temperature changes in chemical (endothermic and exothermic) and physical processes, e.g., phase transformations and specific heat.
- o. SPI 3221.3.1 I can analyze ionic and covalent compounds in terms of their formation (electron transfer vs sharing), names, chemical formulas, percent composition, and molar masses.
- p. SPI 3221.3.6 I can identify and solve stoichiometry problems which interconvert volume of gases at STP, moles, and mass.

