Chemistry Syllabus

2016-2017

# Instructor Information

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| Instructor | Email | Office Location & Hours |
| **Toni Willis** | twillis@lopez.k12.wa.us | Room 7:45 a.m. til 8:30 science office next to science lab Or after school on Thursday |

# General Information

## Description

Students explore the fundamental principles of chemistry which characterize the properties of matter and how it reacts. Computer-based and traditional laboratory techniques are used to obtain, organize and analyze data. Conclusions are developed using both qualitative and quantitative procedures. Topics include, but are not limited to: matter and change, measurement, atomic structure, electron configuration, the periodic table, chemical bonding, gas laws, properties of liquids and solids, solutions, stoichiometry, reactions, kinetics, equilibrium, acids and bases, organic chemistry, biochemistry, and forensic chemistry.

Class Schedule

Tuesday- 10.30-11:50 Wednesday 1:55-2:55 Friday 1:55 2:55

## Expectations and Goals- all labs, class lectures, and will assist students in Mastering these next generation science standards.

## HS-PS1-4. Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy

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| **HS-PS1-2.** | **Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.**[Clarification Statement: Examples of chemical reactions could include the reaction of sodium and chlorine, of carbon and oxygen, or of carbon and hydrogen.] [*Assessment Boundary: Assessment is limited to chemical reactions involving main group elements and combustion reactions.*] |
| **HS-PS1-4.** | **Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.**[Clarification Statement: Emphasis is on the idea that a chemical reaction is a system that affects the energy change. Examples of models could include molecular-level drawings and diagrams of reactions, graphs showing the relative energies of reactants and products, and representations showing energy is conserved.] [*Assessment Boundary: Assessment does not include calculating the total bond energy changes during a chemical reaction from the bond energies of reactants and products.*] |
| **HS-PS1-5.** | **Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.**   |  |  | | --- | --- | |  | **Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.\***[Clarification Statement: Emphasis is on the application of Le Chatelier’s Principle and on refining designs of chemical reaction systems, including descriptions of the connection between changes made at the macroscopic level and what happens at the molecular level. Examples of designs could include different ways to increase product formation including adding reactants or removing products.] [*Assessment Boundary: Assessment is limited to specifying the change in only one variable at a time. Assessment does not include calculating equilibrium constants and concentrations.*] | |  | **Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.**[Clarification Statement: Emphasis is on using mathematical ideas to communicate the proportional relationships between masses of atoms in the reactants and the products, and the translation of these relationships to the macroscopic scale using the mole as the conversion from the atomic to the macroscopic scale. Emphasis is on assessing students’ use of mathematical thinking and not on memorization and rote application of problem-solving techniques.] [*Assessment Boundary: Assessment does not include complex chemical reactions.*] | |

# Course Materials

## Required Materials

* Modern Chemistry Holt Rinehart Hard cover- the book stays in class unless you do not have internet access at home
* Online edition  [Online Modern Chemistry text book](http://chemistry-i.colemanisd.chs.schoolfusion.us/modules/groups/homepagefiles/gwp/926537/1167213/File/Textbook%20website/Textbook/Holt.html)
* http://willischemistrylopezisland.weebly.com/

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# General Course outline and tenative scheudle

## First semester Second semester

* Chapter 1 Matter and Change Chapter 12 Solution
* Chapter 2 Measurements/ calculations Chapter 13 Ions in aqueous solutions
* Chapter 3 Atoms Chapter 14 Acids and Bases
* Chapter 4 Electron Configuration Chapter 15 Ph
* Chapter 5 Periodic law Chapter 16 Reaction Energy
* Chapter 6 Chemical Bonding Chapter 17 Reaction Kinetics
* Chapter 7 Chemical Formulas CHAPTER 18 Chemical Equilibrium
* Chapter 8 Chemical; Equations / Reactions Chapter 19 0xidation Redux Reactions
* Chapter 9 Stoichiometry Chapter 20 Electro Chemistry
* Chapter 10 States of Matter Chapter 21 Forensic chemistry
* Chapter 11 Gases Chapter 22 Organic Chemistry

**How we are going to run the class**- First of all, I want you to know I am always here to help you with any questions you have. Just email or call anytime and I can set up time to talk with you or email you back. Second, I am super excited to start some fun chemistry experiments and apply those experiences to real life situations.

At the beginning of each lecture we will start the day with the Element of the Day review.

Students will explore how the element was discovered and by who. Students will explore the element atomic number, electron configuration, compounds that are created with these elements and there properties. Over the weekend students can create a presentation on any element form the week and present their findings to the group. This is a fun exercise and student can use Prezi, PowerPoint, make a movie. Any medium they prefer to create a brief presentation they will give to the class. This is worth **25** percent of you grade The electron configuration portion of this assignment will start in in October….

Each week we will cover certain mandatory chemistry concepts in class. I will hand out vocabulary you must know for the week on Tuesday by Friday those words and concepts must be memorized, math problems solved and homework turned into my cubby by Friday. This is **25** percent of your grade

Lab will be conducted on a weekly basis and they will be hands on and fun. Experiments that are too dangerous will be conducted on video For example, the thermite lab, On Thursday you will be expected to do a lab write up in your notebook and turn it in by Friday in order to do the lab. All expectations will be posted on the website so there will be no confusion as to how the lab notebook should look.

Pre lab write, lab participation, and post lab conclusion are all worth **25** percent of your grade.

There will be a unit test for each of these 22 chapters. I will review the homework and chapter review question for each unit before the test. Unit grades are worth **25** percent of you your total grade.

Philosophy for success….

I spend a good deal of time building relationships with my students. First of all I have a charter we create together as a class. Think of it like the Constitution of the United States, it might later on need amendments.

For instance there is freedom of speech during times when lectures are not in progress.

I ask you practice listening to others including myself then pause 15 seconds before you answer in any situation… Be thoughtful and respectful as I plan to do onto you.

ALWAYS have a Pencil….

ALWAYS be on time…

If life is bringing you way down give me a signal take a moment a turn it around for a little while until we can speak about what is bothering you. Life is not always about Chemistry but we do have a good deal to cover. I promise you I will make this course relevant interesting, and worth your full attention.

Oh one more thing no cell phone use at all …. Store them away until break..