

Honors Freshman Physics/Chemistry

The goals of this unit will allow each student to:

- a. gain a better understanding of how atoms combine chemically and to predict results using the periodic table
- b. continue making proper scientific measurements and calculations
- c. define and properly use all vocabulary
- d. properly apply all terms in describing/explaining real world examples
- e. relate these concepts her/his daily activities and behaviors
- f. teach someone else the concepts discussed
- g. practice proper laboratory safety

Performance Objectives: After completing this unit, when asked in class or on a written test or quiz, each student will:

Know the element symbols names, and spelling of selected elements as well as their general location on the periodic table.

Why Atoms Combine

1. Understand the meaning of a chemical formula.
2. Define chemical bond and explain the two ways in which bonds are formed.
 - explain chemical bonding in terms of energy and stability
 - use the periodic table to identify # of valence electrons and oxidation numbers of elements
3. Explain the octet rule.
 - identify the maximum # of electrons that can exist in a given energy level
 - draw energy level diagrams for *s-block* and *p-block* elements
 - write electron dot diagrams for *s-block* and *p-block* elements

Kinds of Chemical Bonds

4. Characterize a compound as ionic or covalent based on:
 - its chemical formula (metals/nonmetals).
 - its properties such as role of electrons, melting point, solubility in water, etc.
 - describe the process of simple ionic bonding
 - describe covalent bonding
5. Compare and contrast nonpolar covalent, polar covalent, and ionic bonds in terms of electrons (equal sharing, unequal sharing, transfer) & charges
 - distinguish between polar and non-polar molecules
 - identify the diatomic elements and describe the bonding resulting in them
 - predict whether an the combination of two elements will result in an ionic or a covalent compound.

Naming Compounds

6. Write names and formulas for:
 - molecular compounds (prefixes)
 - ionic compounds (cancel charges, Roman numerals, polyatomic ions)
 - identify monatomic and polyatomic ions and use to properly form ionic compounds
 - write formulas and name for binary compounds

Quiz Dates: TBA

TEST- January 30

Name: _____ Period: _____

This sheet will be used to keep track of reading, homework assignments due dates and scoring. Each individual homework assignment is **worth 25pts** and must be turned in on the **DUE DATE**. This sheet must be kept and turned in on the TEST DATE for the unit. Late homework will not be accepted.

In order to receive FULL CREDIT for a homework assignment, your work must reflect **quality***. All assignments must be labeled and out on your desk at the start of the class period along with this sheet.

***Quality Work** is having the answer reflect the question. On **UV** assignments, the terms and definitions are written out. (Answering with the "term" only is not quality.) Each assignment turned in must be labeled with the following in the right-hand corner of the paper. Your Name, Date, Period, Homework # , Unit Name (Periodic Table)

Textbook Reference – Physics A First Course – CPO Science

Textbook Homework

UV-Understanding Vocabulary RC-Reviewing Concepts SP- Solving Problems AYK- Applying Your Knowledge

Due Date	Read	Homework Assignments 1 - 4	Teacher Signature
Jan. 22	p. 259-262 & Printed Notes & online powerpoints	p. 276 UV: 1-3 RC: 1-5 & Worksheet- Why Atoms Combine- pg. 1: Questions: 1 -8 see powerpoint on class website	J
Jan. 23	p.259-262 & Printed Notes & online ppts	p. 277 SP: 1(a-g) 2(a-e) 3 (a &b) & Worksheet- Kind of Chemical Bonds pg. 1: Questions 9-15 see powerpoint on class website	
Jan. 27	Printed Notes & online ppts	Worksheet pg. 2 Ionic Compound Formation – questions 1-15	
Jan. 28	Printed Notes & online ppts	Worksheet pg. 3 Problems (16- 40) Formula Writing & Naming (Ionic Compounds)	
Total Homework Score			
Points Added to Test			

Check the class Website to get updates or to print out a new assignment sheet or other docs.

www.waltonhigh.org → Departments→ Science →Honors Freshmen Physics → Fall Handouts → Current unit.

Lingo to be learned - definitions are provided on-line

ion, ionic bond, covalent bond, chemical formula, valence electron, cation, anion, monatomic ion, polyatomic ion, subscript, molecule, stability, polar, nonpolar, binary compound, oxidation number, octet rule