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## Chemistry worksheet conversion units and volume

Chemistry is often referred to as central science for good reason. Ideas of this class will reappear in many other classes of science, especially biology. Many high schools and colleges either require or encourage students to have some chemistry before they start taking biology for this reason. The materials in this section are developed for a regular high school chemistry course level. I have a test bank and a response key specifically assigned to the resources of this site. [Click here to view the subscription page.](#) This is the sequence of themes I use to maximize scaffolding of increasingly complex concepts during the course: 1. Natural particle attraction – this unit covers simple, observable chemical and physical properties of matter, such as mass, volume, density, etc. Students are familiar with the importance of accuracy and accuracy in measuring these different properties, including the use of significant figures. These are all basic concepts used during the course. 2. Gas laws and phases - This is an ideal second appliance because it puts all the measurement and calculation skills from the previous unit into practice. This unit also fits well into the history of chemistry, since much of the initial work and understanding of atoms was done through experiments on gas behavior. 3. The elements and periodic table, the elements and the periodic table are definitively entered in this unit. Students will learn about the properties of atoms, ions, isotopes and the main models of the periodic table. 4. Nuclear Chemistry - This unit is a great application of the elements and periodic function because it involves tracking the forces in the nucleus and how the nucleus changes when the atoms undergo division, fusion or decay. 5. Ion Binding - In this chapter, students begin to learn about ionic compounds, how they form, and how they are baptized. This includes binary ionic compounds, polyatomic compounds and acids. 6. Covalent bonding - This chapter covers the formation and naming of covalent compounds. This includes VSEPR, electronegativity, Lewis Dot structures and molecular geometry. 7. Moles - Students get acquainted with the molar mass and how to use it to convert between other units, including volume (liters), mass and representative particles. 8. Chemical reactions - Writing and balancing chemical equations for each type of reaction: synthesis, decomposition, combustion, single replacement and double displacement. 9. Stoichiometry - Students will use their skills from previous units to predict the mass, volume, number of particles or moles of reagents or products in a chemical reaction. 10. Thermochemistry - an extension of stoichiometry, which includes absorbed or released energy in exothermic and endothermic reactions. Click the links on the left to see the materials for each unit. Page 2 This unit covers all aspects of ionic compounds. First, students learn about ion binding and what makes a compound different in electronegativity. Students then learn how to name binary ionic compounds, ionic compounds with transition metals, polyatomic ion compounds and acids. Ion String and Octagon Powerpoint Lecture View Powerpoint Purpose: This Powerpoint goes through some practical problems that deal with calculating the electronegativity difference, dissociation of ionic compounds in water, naming all kinds of ionic compounds: binary, polyatomic, those with transient metal cations, and acids. Basic concepts: Ions, ionic compounds, ion binding, electron solubility, dissociation, cations, anions, binary ion nomenclature, transitional metals, binary acids, trinary acids, polyatomic compounds. Ion Link and Nomenclature Notes Outline View Worksheet Goal: This is a fillable note that accompanies the ion binding and powerpoint nomenclature. They are useful to use if you have students who are struggling with effective taking notes and either not recording anything or trying to write everything (and fail to listen to the actual lecture). Basic concepts: Periodic table, metals, non-metals, metalloids, periods, families, groups, alkaline metals, alkaline metals, transitional metals, halogen, precious gases, lanthanides, actinides. Electron physics and Dissociation Equations Worksheet Review Purpose: This is a worksheet that first shows students how to calculate the difference electron-shaped and use this as a way to identify ionic compounds. Second, students will write and balance ionic dissociation equations. Main concepts: Ion binding, ion compounds, cations, anions, difference in electronegativity, dissociation. Valant electrons and ionic compounds See worksheet This worksheet uses Bohr models to demonstrate how cations and anions are formed, opinions ion notation, then students begin to write formulas for ionic compounds based on their oxidation numbers. Basic concepts: Ions, ion notation, anions, cations, boron pattern, oxidation number, ionic compounds. Chemthink - Ion Bonds and Ion Notes View Purpose: These worksheets accompany Chemthink modules for ion binding and ion notation. The ion binding module is introduced to how cations and anions are formed and why they attract you. The ion notation module covers how oxidation numbers determine the index of the ion compound formula Basic concepts: Ions, ion notation, anions, cations, Bohr pattern, oxidation number, ionic compounds. Mythbusters - Vani Electric Carvings Worksheet Review Purpose: this episode of Mitsubage tests a myth that dropping an electrified appliance into the bath can kill you. This is unlikely with today's appliances due to grounding circuit break (GCFI) placed on hairdryers and other toilet appliances, but it is certainly possible without them on site. Students will learn that clean water itself is not necessarily a large conductor of electricity, but when compounds (such as salts, salts, dissociate in water becomes highly conductive. Main concepts: Ions, dissociation, conductivity, ionic compounds. Mythbusters - Urination in worksheet third railway view Purpose: This episode of Mythbusters tests a myth that urinating on an electrified railway will current a person. This episode covers much of the same ground as an electric shock in the bath, since urine contains many ionic compounds that make it highly conductive. However, urine streams break down before hitting the electrified rail, making an electric shock unlikely. Main concepts: Ions, ion compounds, dissociation, conductivity. Nomenclature of Simple (Binary) Ionic Compounds Worksheet Review Goal: This is the first step for chemistry students who learn how to name chemical compounds. This worksheet first covers the importance of electrons wavy and oxidation number of making ionic compounds, then how they are called. Main concepts: Ions, ion binding, ionic compounds, ion nomenclature, oxidation number, valent electrons. Nomenclature of a transitional metal ionic compounds See worksheet Purpose: This is an extension of ionic nomenclature worksheet that introduces transition metals. Students will learn how to assign Roman numerals to transitional metals to indicate their charge, and how to use anion charges to understand the oxidative number of a transitional metal. Main concepts: Ions, ion binding, ionic compounds, ionic nomenclature, oxidation number, transition metals. Nomenclature of polyatomic ions Review worksheet After students are familiar with the steps in naming simple (or monoatomic) compounds, they are introduced into polyatomic ions. Students will need to copy a list of references to polyatomic ions with their periodic table in order to be able to fill in this worksheet. Main concepts: Ions, ion binding, ion compounds, polyatomic ions, ionic nomenclature. Acid nomenclature Review worksheet The last, and the most difficult step in training to name ionic compounds is acids. Students often have a lot of difficulty remembering the rules of binary and three-component acids. This worksheet refers to -ous and -ic rules for tricomponent acids, as well as hydro- the rule for binary acids. Students will need to copy a list of references to polyatomic ions with their periodic table in order to be able to fill in this worksheet. Basic concepts: Acid nomenclature, binary acids, tricomponent acids. PH Calculations of strong Acids Review worksheet Although chemistry students often use pH as a measurement of acidity or alkalinity, they do not have a firm idea of what the numbers actually mean. In this worksheet, students will make some simple calculations of the concentration of hydrogen ions using the pH of strong acids. Basic concepts: Acids, Alkalis, PH, Ions Mythbusters - Breaking Bad Bath Worksheet View This episode of Mythbusters tests a famous scene from the TV show Breaking Bad, where Walter and Jesse try to dispose of a body by dissolving it in containing hydrofluoric acid. Water initially instructs Jesse to get a plastic bucket (which won't react with the acid), but Jesse can't find one and go with the ceramic bath, which is dissolved by the acid. Basic Concepts: Acid ionic Binding and Ion Composite Nomenclature Study Guide View: Once the unit instruction has been completed, students can complete this study guide to help prepare them for a

written test. The study guide is divided into two parts: vocabulary and short answer questions. Vocabulary words can be found scattered across the different instruction worksheets of this unit. The short questions are conceptual and aim to see if students can apply what they have learned in the department. Page 3

Having completed the previous units of the atomic structure, naming elements and compounds, binding and moles, students are now ready to start watching how atoms and molecules can rearrange during chemical reactions. The focus of this chapter is mainly on the basic mechanics of writing and predicting the results of chemical reactions. Starting with the relatively simple reactions of synthesis and decomposition, we work our way up through a single substitution, double displacement and combustion. Students will need to copy a periodic table and a list of references for polyatomic ions in order to be able to fill out these worksheets. Chemical Reactions Powerpoint Lecture View Worksheet Purpose: This Powerpoint lecture takes students through each of the different types of reactions: synthesis, decomposition, combustion, single replacement and double displacement reactions. Each of them is given problems with the equation. Main concepts: Chemical reaction, product, reactant, index, coefficient, synthesis, decomposition, combustion, single replacement and double displacement reactions. Chemical reaction notes outline an overview of the Goal worksheet: this is filled in in an empty style so that students can complete until you complete the accompanying Powerpoint lecture. Each slide has a set of questions, fill in blanks or tables that students fill in based on the information provided. This is a good help for students who struggle with taking the notes on a free hand. Main concepts: Chemical reaction, product, reactant, index, coefficient, synthesis, decomposition, combustion, single replacement and double displacement reactions. Writing and Balancing Fusion Reactions Worksheet Review Goal: Product Forecasting and Balancing Chemical Reactions is the main skills that students need to leave this chapter. I start teaching this with fusion reactions, because they are one of the simplest and simplest forms of chemical reactions. This worksheet provides several examples of how to predict the products of fusion reactions using oxidative states, as well as shows students how to balance. Main concepts: Chemical reactions, equations, product forecasting, oxidation state. Write and balance decomposition reactions See worksheet Goal: This worksheet is a good follow-up worksheet to the synthesis response worksheet because all the same rules and ideas apply, just in the opposite direction. I keep the problems in this task simply by either focusing on simple binary ion compounds or giving students the names of the products in advance. Main concepts: Chemical reactions, decomposition reactions, balancing equations, product forecasting, oxidation state. Writing and balancing single replacement reactions Worksheet Overview Purpose: Single replacement reactions include a lone element reaction (usually metal) with a compound that leads to cation switching locations. Students will learn to use the activity series for the first time as part of this worksheet as they determine when reactions will occur and will not appear. Students will need to copy the activity series chart in order to be able to complete this task Basic concepts: chemical reactions, single reactions of substitution, balancing equations, product forecasting, oxidation state. Writing and balancing double offset reactions Overview worksheet Goal: Double displacement reactions include switching cations between two compounds. Predicting and balancing these reactions is not too challenging for students at this stage, but now they need to consider whether or not each product will remain as part of the aqueous solution or form sediment. As part of this assignment, a simplified solubility table is included. Main concepts: Chemical reactions, double displacement reactions, balancing equations, product forecasting, oxidation, sludge, solubility, aqueous solution. Writing and balancing fuel reactions Worksheet review: Combustion reactions are the last type of chemical reaction covered, and for many students, one of the most difficult to balance. The products are always the same - carbon dioxide and water vapor, but the balancing factors of these equations often become double. Main concepts: Chemical reactions, combustion reactions, balancing equations, product forecasting. Mitburi - Alkaline metal chaos worksheet View Worksheet Purpose: In this episode of Mythbusters, they debunk a braniac clip (visible on Youtube) that shows an explosion produced by dropping cesa in a tub of water that is powerful enough to handle the bath. While carrying out the experiment, the mythbusters illustrated two types of chemical reactions. First, the dropping of alkaline metal in water leads to a single replacement reaction releasing hydrogen gas. Hydrogen gas reacts with oxygen in response to synthesis, forms water and releases a lot of energy in the form of heat and light. This is also a good video to present the idea of periodic practice - metals will react more violently with water, while while further down the group. Main concepts: Chemical reactions, single-mic reactions, synthesis reactions, alkaline metals, periodic law. Mythbustury - Cell Phone Destruction Worksheet Purpose: This segment of The Mythbustings focuses on combustion. Specifically, the use of a mobile phone enough to start burning gasoline, which leads to a fire or explosion at a gas station? The answer is no, as there is a level of activation energy needed to initialize combustion that is simply not present in the electromagnetic emissions of a mobile phone. The mythbuss learn that the most common cause of fires at gas stations is static electricity from people leaving their car. Main concepts: Chemical reactions, combustion, energy activation. Writing and Balancing Chemical Reactions Guide To view worksheet Purpose: Once the unit instruction has been completed, students can complete this study guide to help prepare them for a written test. The study guide is divided into two parts: vocabulary and short answer questions. Vocabulary words can be found scattered across the different instruction worksheets of this unit. The short questions are conceptual and aim to see if students can apply what they have learned in the department. Page 4 Heat is a good unit to cover towards the end of the course, because it touches on many different ideas from the rest of the year. In this unit, students will get a better understanding of what heat is, how we measure it, and some specific properties of water that includes heat. PBS Interactive - Heat Transfer Worksheet This interactive website from PBS compares three different ways heat is carried - radiation, conductivity and convection. General examples of heat transfer are then displayed, and students try to classify everyone. Basic concepts: Energy, heat, kinetic energy, conductivity, convection, radiation. Enthalpy Worksheet Review Indications: Enthalpy ( $\Delta H$ ) is a measurement of the total amount of energy in the system. For chemical reactions, the enthalpinity can change. During an endothermic reaction, energy is absorbed into the system, and the enthalpinity increases. During an exothermic reaction, energy is released from the system and the enthalpinity decreases. In this worksheet, students will calculate the total enthalpinity of some sample chemical reactions. Basic concepts: heat, energy, enthalpies, stoichiometry, chemical equations, exothermic, endothermic. Enable Energy Review Worksheet Goal: One important aspect of all chemical reactions is their activation energy - the amount of energy needed to actually initiate the reaction. In this worksheet, students will look at enthalpi graphics and measure the activation of reaction energy. They will also see the effect the catalyst has on activation energy. Main concepts: Energy, entalpies, energy activation, potential energy, exothermic, endothermic. Mythbusters - Cooling of View Goal worksheet: This is an ideal segment of Mitbusters to display for this unit. They are experimenting with several different methods of cooling six packets of beer from room temperature to just over freezing to see which is the fastest and most economical. Students will apply concepts of heat, heat transfer and even work a little with exothermic and endothermic reactions. Basic concepts: Heat, energy, enthalpies, chemical reactions, combustion, exothermic, endothermic, conductivity, convection, radiation. Mythbusters - an exploding table of views for port-a-cup Purpose: This segment of mythbusters takes on a rather silly myth - the idea that decomposing human waste in a port-a-tate can generate enough flammable gas (e.g. methane) to trigger a potential explosion. While the myth is shattered, there are many opportunities to talk about enthalpy and activation of energy within a combustion reaction. Basic concepts: Heat, energy, enthalpi, exothermic reaction, combustion, activation energy, potential energy. NOVA: Absolute Zero - Conquest of Cold Table View Goal: This is the first of a two-stage EE documentary that covers people's ability to generate cold. I show this episode because it does an excellent job of outlining some of the basic experiments and inventions that allowed us to control the heat and cold, including the thermometer and refrigerator. Basic concepts: Heat, energy, conductivity, calorimetry, thermometers, temperature, Laws of thermodynamics. Specific worksheet for heat view Goal: Specific heat is a physical property. It measures how much energy (in Jouley) is required to raise one gram of the substance by one degree Celsius. In this worksheet, students will use the specific heat equation ( $Q = mc = mc\Delta T$ ) for various problems. Basic concepts: Specific heat, energy, Joules. Specific heat and phase changes View worksheet Goal: This is an extension of the specific heat worksheet. With these problems, students will only work with water. They will calculate the total heat needed to raise the temperature and change the water from one phase to another. Basic concepts: Specific heat, fusion heat, evaporation heat, phase change. Heat Study and Enthalpy Worksheet Review Guide Purpose: Once the unit instruction has been completed, students can complete this learning guide to help prepare them for a written test. The study guide is divided into two parts: vocabulary and short answer questions. Vocabulary words can be found scattered across the different instruction worksheets of this unit. The short questions are conceptual and aim to see if students can apply what they have learned in the department. Page 5 Once introduced into the basic structure of the atoms and the use of the periodic table, this is an appropriate time for nuclear chemistry. nuclear fission, fusion and decay, all mainly related to the of the nucleus of the atom, so that students will be able to apply what they know about protons, neutrons, and atomic mass. Nuclear Chemistry Powerpoint Lecture Powerpoint Review Purpose: This Powerpoint lecture gives a brief history of detecting and applying radioactivity, including the discovery of Beckerel and rutherford's gold foil experiment. Students will learn about nuclear fusion and fission in the context of the sun, fission nuclear reactors and nuclear weapons. Basic concepts: Nucleus, protos, neutrons, radioactive decay, radioactive pouring, division, fusion, nuclear energy, nuclear decomposition, half-life. Nuclear Chemistry Student notes outline of the worksheet Purpose: It is filled notes to accompany nuclear energy Powerpoint. They are useful to use if you have students who are struggling with effective taking notes and either not recording anything or trying to write everything (and fail to listen to the actual lecture). Basic concepts: Nucleus, protos, neutrons, radioactive decay, radioactive pouring, division, fusion, nuclear energy, nuclear decomposition, half-life. The Universe - Secrets of the Sunview Worksheet: This is a worksheet that accompanies the secrets of the Sun episode from the documentary series of the Universe. This episode covers the conditions that led to the birth of the sun, the nuclear fusion in it nourishes it, the sunspots, solar flares and the predicted possible death of the sun. Main concepts: nuclear fusion, radiation, convection, sunspots, solar flares. Mythbusters - Radiation and Bakers Worksheet Review Purpose: This episode of Mythbusters tries to answer the question of whether cockroaches can really survive a nuclear catastrophe or war. Cockroaches, flour beetles and fruit flies are exposed to different levels of radiation, and their survival is monitored for a period of 30 days. Main concepts: Radioactive decay, radioactive deposition, acute, chronic, alpha particles, beta particles, gamma rays. Alpha and Beta Table For Fading Worksheet Goal: This is a worksheet with problems with radioactive decay. Students will use the periodic table to predict alpha and beta decay products of various radioactive elements. Main concepts: Radioactive decay, alpha particles, beta particles. The Semi-Life Nuclear Waste Laboratory is a worksheet review Goal: One of the biggest challenges for nuclear energy is the problem of how to deal with waste. Spent fuel has been accumulating in the dry repository of cashews at the world's nuclear facilities for decades, and there is no long-term plan for burial by the scientific community. In this lab, students will use colored water to simulate decay of strontium-90 while doing some calculations to see how long it takes a radioactive isotope to become harmless. Main concepts: nuclear waste, half-life of radioactive substances. Nuclear Energy Guide See Goal: Once the unit instruction is complete, students can study guide to help prepare them for a written test. The study guide is divided into two parts: vocabulary and short answer questions. Vocabulary words can be found scattered across the different instruction worksheets of this unit. The short questions are conceptual and aim to see if students can apply what they have learned in the department. Page 6 At this point in the course, students can now use a periodic table, write chemical formulas, name compounds, and balance chemical equations. The next important skill is the understanding and use of the mole. Moles are a measurement of the amount of atoms, particles or molecules in a substance. Molar measurements are often very large numbers, such as the number of Avagadro from  $6.02 \times 10^{23}$ . This means that students will also need to be comfortable performing calculations using scientific notation. Mole - Powerpoint Lecture Worksheet Review Purpose: This is a short Powerpoint lecture that guides students through the use of scientific notation, the number of Avagadro, the use of mole as a quantity measurement, and some molecular formulas for a sample, including empirical and molecular formulas. Main concepts: Moles, scientific notation, number Avagadro, empirical formula, molecular formula. Mole - Student Notes Outline View Worksheet This is an empty-style fill so that students can complete until you complete the accompanying Powerpoint lecture. Each slide has a set of questions, fill in blanks or tables that students fill in based on the information provided. This is a good help for students who struggle with taking the notes on a free hand. Main concepts: Moles, scientific notation, number Avagadro, empirical formula, molecular formula. Scientific notation and worksheet Mole View Purpose: The number of particles in a mole from each substance, the number of avagadro is so large that it is difficult for students to understand and visualize. This worksheet compares other measurements, such as the mass of the Earth, while students practice writing large measurements in scientific notation and perform simple calculations using these measurements. Basic concepts: Malls, scientific notation, Avagadro number. Molar mass Overview worksheet Purpose: Molar mass, also known as mass of formula, is the amount of mass of each substance that contains exactly one mole ( $6.02 \times 10^{23}$ ) of particles. Before students start learning how to use molar conversions, they should be able to accurately calculate the molar mass of a compound or element. This worksheet provides examples of this and some problems in practice that students can try on their own. Main concepts: Moles, molar mass, formula table. Percentage composition view worksheet Goal: The percentage composition of a compound is the percentage, by mass, of each individual element within the compound. This worksheet is a good application of the molar table, as students will the mass of the individual atoms of the compounds, such as baking soda. Basic concepts: Molar mass, percentage composition. Single-stage molar conversions View worksheet Goal: Moles are an incredibly useful unit for measuring chemistry because they allow you to convert between mass measurements, the amount of atoms and the volume. This worksheet has students using Mole Map to practice conversion between moles and grams, moles and liters (gas) and moles and particles. Main concepts: Malls, molar conversion, conversion factor, formula mass, molar mass. Two steps Molar conversions View worksheet Goal: Moles are often an intermediate unit used to convert between two more commonly used measurements, such as volume or mass. This can be achieved in the same way as single conversions, with just an additional step. This worksheet will give students a guiding practice in converting between particles and grams, grams and liters, and liters and particles. Main concepts: Malls, molar conversion, conversion factor, formula mass, molar mass. Empirical formula Worksheet overview Purpose: When a chemist studies an unknown substance, it is possible to do a chemical analysis determining the percentage composition of each element that makes up the substance. This percentage composition can be used to find the actual empirical formula, or the most simple possible ratio of the elements of the compound. This worksheet instructs students how to use the percentage composition to calculate the empirical formula of an unknown compound. Main concepts: Moles, molar mass, mole ratio, composition percentage, empirical formula. Molecular Formula Worksheet Review Goal: Many compounds naturally do not exist as their simplest empirical formula. Glucose, for example, has an empirical  $CH_2O$  formula. However, it actually exists as a multiple of this ratio, called the molecular formula. Int their worksheet, students will calculate the molecular formula by comparing the molar mass of the empirical formula with that of the actual compound. Basic concepts: Empirical formula, molecular formula, molar mass. Molecules and Molecular Formulas Guide To Examining Worksheet Purpose: Once the unit instruction has been completed, students can complete this study guide to help prepare them for a written test. The study guide is divided into two parts: vocabulary and short answer questions. Vocabulary words can be found scattered across the different instruction worksheets of this unit. The short questions are conceptual and aim to see if students can apply what they have learned in the department. Page 7 This chapter covers the formation and naming of covalent compounds. This includes drawing Lewis point structures, predicting molecular geometry through vsepr theory, and naming rules for covalent compounds. Covalent lecture Lecture View Powerpoint Purpose: This is a short lecture by Powerpoint that describes the difference between covalent and other types of chemical bonds, including Difference. The rules of the covalent nomenclature are also covered. Basic concepts: covalent binding, covalent compounds, electronegability, VSEPR, Lewis dot structures. Considered Bond Notes On the worksheet: This is filling in an empty style for students to complete until you complete the accompanying Powerpoint lecture. Each slide has a set of questions, fill in blanks or tables that students fill in based on the information provided. This is a good help for students who struggle with taking the notes on a free hand. Basic concepts: covalent binding, covalent compounds, electronegability, VSEPR, Lewis dot structures. Chemthink - covalent binding and nomenclature review of worksheet Purpose: This Chemthink module covers the formation of covalent bonds and how covalent compounds are named through the use of prephxyes. Basic concepts: covalent binding, electro-disgust, covalent nomenclature. Chemthink - Molecular Shapes View Worksheet Purpose: This Chemthink module helps students learn how to build Lewis satch structures for covalent compounds and predict their molecular forms with vsepr theory. Main concepts: Covalent binding, Lewis satch, molecular geometry, VSEPR. Difference in electronegarity and covalent compounds Worksheet Objective review: This worksheet trains students in using difference electronegativity to identify ionic, non-polar covalent and polar covalent compounds. Basic concepts: Electrono-otocene, non-polar covalent bond, polar covalent bond, ion connection. Lewis Dot Structures Worksheet Overview Worksheet Purpose: The creation of Lewis Dot structures is a useful first step in predicting the molecular form made by a covalent compound. In this worksheet, students will be guided in creating Lewis Dot structures for both individual atoms and molecules. Basic concepts: Covalent ingredient, molecular geometry, Lewis Dot structures VSEPR Theory and Molecular Geometry Worksheet Purpose: This worksheet guides students by using the VSEPR theory to predict the three-dimensional shape made of a covalently bound molecule. This worksheet covers only simpler and more common molecular forms, including linear, bent, trigonal planar, trigonal pyrimidal and tetraedr. Basic concepts: Molecular geometry, VSEPR, linear, bent, trigonal planar, trigonal pyrimide and tetraedra. vsePR theory with molecular models See worksheet Purpose: Valence Shell Electron Pair Repulsion, or VSEPR theory, is a way to determine what geometric form covalent compound will make based on the number of connections and uncorrected electrons around the central atom of the compound. This is a diagram that I have students fill in as they use a chemistry model kit to build different covalent compounds. Basic concepts: molecular geometry, linear, trigonal planar, bent, tetrahedr, trigonal pyramidal, Lewis satch. Covalent Composition Nomenclature Worksheet View Worksheet Target: This instruct students to use prefixes (mono-, di-, etc.) to name covalent compounds. Basic concepts: covalent compounds, covalent nomenclature covalent bonding and molecular geometry Study Guide Worksheet Overview Purpose: Once the unit instruction has been completed, students can complete this training manual to help prepare them for a written test. The study guide is divided into two parts: vocabulary and short answer questions. Vocabulary words can be found scattered across the different instruction worksheets of this unit. The short questions are conceptual and aim to see if students can apply what they have learned in the department. Page 8 Stoichiometry is the practice of predicting the quantity of the product or reagent in a chemical equation based on a certain amount of one of the other products or reagents. The ability to make these calculations is the culmination of all the basic skills learned in the first semester. Pre-Stoichiometry View Batch View Worksheet Goal: This is a worksheet that looks at some of the important concepts needed by previous chapters to be successful with stoichiometry. Each section has a sample problem followed by a series of practical questions. Ionic nomenclature, covalent nomenclature, acid nomenclature, reaction types and molan conversions are included. Main concepts: Ion nomenclature, covalent nomenclature, acid nomenclature, synthesis, decomposition, single-substitute, double displacement, combustion, molar conversion. Stoicimetry - moles to ask review worksheet Purpose: This is the first of four stoichiometry worksheets. In this worksheet, students will begin to study the concepts of stoicimetry by performing a simple moth in a mole conversion. They will receive the moles of the product or reagent, then use molar (coefficient) ratios to convert. Basic concepts: stoyometry, moles, mole ratios. Stoicimetry: Moles in grams View worksheet Goal: This is the second of four stoichiometry worksheets. In this worksheet, students will have an added step to convert a reagent gram or product to moles before performing stochiometric conversions. Basic concepts: stoyometry, moles, mole ratios, prayer conversions, molar mass. Stoichiometry grams to grams Worksheet Review Purpose: This is the third of four stoichiometry worksheets. In this worksheet, students will add another step to their stehichoimetry - they will need to convert from grams to reagent moles or product. from moles of another substance into the equation, then back to grams. Main concepts: Malls, molar conversion, conversion factor, formula mass, molar mass. Mixed problems with stoichiometry See worksheet Goal: This is the last of the series of four stoichiometry worksheets. This mixes different types of problems - mole moles, moles in grams, grams in grams and even some particle and volume conversions. Main concepts: Malls, Malls, conversion factor, conversion factor, formula mass, molar mass, Avagadro number, molar volume. Percentage yield Overview worksheet Goal: Using stechizoimetry, we can predict the amount of product that will form in a chemical reaction, based on the amount of each reagent we start with. This predicted amount of product based on stochiometry is called theoretical yield. When the experiment is conducted, the actual yield is the measured amount of product that you physically have at the end. In this worksheet, students calculate how much of the expected product is actually made of reaction. That's a percentage of profit. Basic concepts: Actual, yield rate, theoretical yield. Limit reagents Worksheet Review Goal: In all problems with stoichiometry so far, students have been given a volume, mass or quantity of one particular substance and asked to decide based on this. This worksheet gives them two measurements. They must determine which of the two is the limiting reagent - the one that will be used first in the reaction and thus determine the amount of product made. Basic concepts: stoihiometry, restriction of reagents. Mythbusters - Antacid Jail Break Worksheet View Worksheet Purpose: This episode of Mythbusters tests the idea that an inmate can drag enough antacid tablets during the years of imprisonment to create an acid/base reaction that will release enough carbon dioxide to tear the cell apart and allow it to escape. Basic concepts: stoichiometry, restriction of reagents, acids, alkalis. Mythbusters - In Bourne in Rab Review: The Mythbusters episode tests a scene from Bourne's identity, where Jason Bourne turns into the gas grid in his apartment and puts a magazine in a toaster, creating a belated explosion. This episode speaks specifically of the stoicimetry of combustion reactions and the need for a proper combination of oxygen and fuel. Basic concepts: stoichiometry, burning. Burning.

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