

Chemistry Target Log
Fall 2017 Semester

Name _____

Semester _____

Period _____

Directions: Place a level of understanding, as aligned to the rubric, for each assessment that provides an opportunity to practice a given learning target.

Rubric

4	3	2	1
<ul style="list-style-type: none"> • <i>"I should be teaching this!"</i> • I completely understand all concepts and I can fully explain them to my peers with supporting examples and with correct scientific language. 	<ul style="list-style-type: none"> • <i>"I get it. "</i> • I understand most concepts, but I need to practice more so I can explain them to others with supporting examples and with correct scientific language. 	<ul style="list-style-type: none"> • <i>"I mostly get it, except for that thing about..."</i> • I am starting to understand most of these concepts. However, I need more support from peers or the instructor. 	<ul style="list-style-type: none"> • <i>"I don't know where to begin."</i> • I do not understand these concepts. I need more time for practice and extra support from peers or the instructor.

LT #	Learning Targets	Level Start	Level After Lesson	Level After Practice 1	Level After Practice 2 (Quiz)	Review Day Level	Study Level	Post Test Error Analysis Level
1	I can evaluate and identify physical and chemical properties of materials.							
1.1	I can measure simple properties in lab.							
1.1a	I can apply all lab safety criteria in the Chemistry lab.							
1.1b	I can identify and use scientific instruments.							
1.1c	I can measure mass, volume, and temperature to the correct degree given a measurement device.							
1.1d	I can calculate density based on information or using measurements.							
1.2	I can express measurements using scientific notation and with correct significant figures.							
1.2a	I can differentiate between precision and accuracy of measurements.							
1.2b	I can identify zeros that are significant.							
1.2c	I can decide when and how to round measurements.							
1.3	I can distinguish between a physical property and a chemical property.							
1.3a	I can describe a substance using physical properties.							
1.3b	I can argue why a physical property also indicates a chemical property.							
1.3c	I can compare and contrast atomic levels of solids, liquids, and gases.							
1.4	I can classify elements on the periodic table, and identify some simple properties.							

1.4a	I can describe properties of metals, and identify their locations on the periodic table.							
1.4b	I can describe properties of nonmetals, and identify locations on the periodic table.							
1.4c	I can describe metalloids, and identify their position on the periodic table.							
2	I can account for subatomic particles in an atom.							
2.1	I can document the scientific developments that led to the modern atomic structure.							
2.1a	I can connect the earliest atomic theories to Dalton's atomic theory.							
2.1b	I can trace the contributions of scientists such as Thomson and Millikan to the discovery of subatomic particles.							
2.1c	I can interpret the results and conclusions of Rutherford's gold foil experiment.							
2.2	I can account for subatomic particles in an atom.							
2.2a	I can identify the element based on protons.							
2.2b	I can relate charge to numbers of electrons.							
2.2c	I can relate an isotopes' mass number to the number of neutrons.							
3	I can translate between chemical equations and the compounds involved in the reaction.							
3.1	I can name compounds.							
3.1a	I can distinguish between ionic and molecular compounds.							
3.1b	I can balance charges to write ionic compounds.							
3.1c	I can identify the formula and charge of several polyatomic ions.							
3.1d	I can use prefixes to name molecules.							
3.1e	I can name binary acids and oxyacids.							
3.1f	I can name alkyl branched alkanes.							
3.2	I can write a chemical equation.							
3.2a	I can use names of compounds to write a chemical equation.							
3.2b	I can balance equations.							
3.2c	I can draw atomic level models to prove the law of conservation of mass.							
3.2d	I can classify types of chemical reactions.							
3.2e	I can predict the likely products of a chemical reaction given only reactants.							
4	I can relate mass in grams to moles of reactants and products in a chemical reaction.							
4.1	I can relate composition of compounds to molar mass.							

4.1a	I can calculate the molar mass of a compound.							
4.1b	I can convert between mass in grams and moles of a compound.							
4.1c	I can find the percent composition of an element in a compound.							
4.1d	I can use percent composition to find the empirical and molecular formulas of a compound.							
4.2	I can relate moles (or mass) of one chemical species in a reaction to the moles (or mass) of another chemical species.							
4.2a	I can identify and document the limiting reactant of a reaction.							

Chemistry Target Log
Spring 2018 Semester

Name _____

Semester _____

Period _____

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Rubric

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<ul style="list-style-type: none"> • <i>"I should be teaching this!"</i> • I completely understand all concepts and I can fully explain them to my peers with supporting examples and with correct scientific language. 	<ul style="list-style-type: none"> • <i>"I get it."</i> • I understand most concepts, but I need to practice more so I can explain them to others with supporting examples and with correct scientific language. 	<ul style="list-style-type: none"> • <i>"I mostly get it, except for that thing about..."</i> • I am starting to understand most of these concepts. However, I need more support from peers or the instructor. 	<ul style="list-style-type: none"> • <i>"I don't know where to begin."</i> • I do not understand these concepts. I need more time for practice and extra support from peers or the instructor.

LT #	Learning Targets	Level Start	Level After Lesson	Level After Practice 1	Level After Practice 2 (Quiz)	Review Day Level	Study Level	Post Test Error Analysis Level
1	I can diagram electrons in atoms and compounds.							
1.1	I can diagram electrons in atoms.							
1.1a	I can locate the electron orbital blocks on the periodic table.							
1.1b	I can write full electron configurations for any element on the periodic table.							
1.1c	I can write noble gas abbreviated electron configurations of elements.							
1.1d	I can represent electrons using an atomic orbital diagram.							
1.2	I can interpret electron emission spectra as energies absorbed and released.							
1.2a	I can measure wavelengths, frequencies, and energies using electron emission spectra.							
1.2b	I can relate multiple energy sources absorbed to photons released in lab.							
1.3	I can write Lewis structures of compounds.							
1.3a	I can differentiate between core and valence electrons.							
1.3b	I can count and represent valence electrons of elements.							
1.3c	I can represent molecules using valence electrons and single bonds.							
1.3d	I can represent molecules using valence electrons and single, double, or triple bonds.							
1.3d	I can recognize when resonance structures exist in molecules.							
1.3e	I can represent valence electron transfers in ionic compounds.							

1.3f	I can explain the stability of electron deficient structures.							
1.4	I can use VSEPR to predict the molecular geometries of compounds.							
1.4a	I can differentiate between a bonding and a lone pair.							
1.4b	I can model the effects of lone pairs on central atoms to the overall molecular geometry.							
1.4c	I can use a molecular model kit to prove VSEPR predictions.							
2	I can explain how temperature, pressure, and atomic level interactions determine state of matter.							
2.1	I can mathematically model gases using gas laws.							
2.1a	I can identify the correct gas law to apply to a given problem.							
2.1b	I can evaluate a gas problem using P, V, T, and n.							
2.1c	I can predict the effect of changing one variable on the other variable(s). <i>Ex: If you increase temperature, what is the effect on the pressure?</i>							
2.1d	I can apply the ideal gas law to solve for one variable.							
2.1e	I can relate gas density to molar mass at STP and other conditions.							
2.2	I can relate temperature and pressure to state of matter.							
2.2a	I can identify state of matter using a phase diagram.							
2.2b	I can describe vapor pressure and its relationship to volatility.							
2.3	I can explain water's extraordinary properties.							
2.3a	I can draw a network of hydrogen bonds between water molecules.							
2.4	I can explain why substances are soluble, insoluble, or slightly soluble.							
2.4a	I can distinguish between polar and nonpolar							
3	I can model, test, and explain chemical equilibrium.							
3.1	I can use chemical equilibrium equations to explain reversible reactions.							
3.1a	I can write an expression for equilibrium constant.							
3.1b	I can interpret the value of the equilibrium constant as favoring reactant or product.							
3.2	I can predict the direction of chemical equilibrium shift using Le Chatelier's principle.							
3.2a	I can predict how stresses like addition of chemical species, heat, pressure or volume change affect equilibrium.							
3.3	I can describe acids and bases in terms of equilibrium.							
3.3a	I can write the equilibrium expression for autoionization of water.							
3.3b	I can interpret pH.							
4	I can model and explain chemical effects on the environment.							

4.1	I can relate atmospheric concentrations of greenhouse gases to global warming.							
4.1a	I can identify human impact on the environment.							
4.1b	I can relate the effects of global climate change on human populations.							
4.2	I can track major atmospheric compounds.							
4.2a	I can account for carbon consumption and generation in the carbon cycle.							
4.2b	I can account for nitrogen consumption and generation in the carbon cycle.							
4.3	I can relate Earth's environment and atmosphere to other planets.							
5	I can explain how nuclear reactions produce energy.							
5.1	I can relate nucleus stability to proportions of neutrons to protons.							
5.2	I can define α , β , γ decay, and how these particles contribute to nuclear reactions.							
5.2a	I can identify when a nuclear reaction involves α , β , γ decay or capture.							
5.3	I can document half-life of nuclear decay graphically or numerically.							
5.4	I can diagram a simple nuclear power plant, and how it produces electricity.							
5.5	I can explain the design and mechanics of an atomic bomb.							
5.5a	I can argue the ethics of nuclear arms use.							
6	I can define the major classes of organic and biomolecules.							
6.1	I can name simple alkanes, alkenes, and alkynes.							
6.1a	I can name branched alkane chains.							
6.2	I can diagram the mechanics and results of fracking.							
6.3	I can recognize the functional groups of alcohols, carboxylic acids, ethers, and esters.							
6.4	I can model aromatic hydrocarbons with several models.							
6.5	I can define and identify major biomolecules, including: sugars, lipids, fats, steroids, proteins, and nucleic acids.							
7	I can perform tasks in lab at the proficiency of a first-year college student.							
7.1	I can identify and describe lab safety apparatus, and when to use them.							
7.2	I can decide on the best glassware to use for several lab procedures.							
7.3	I can safely operate heating equipment like hot plates and Bunsen burners, along with required accessories.							
7.4	I can perform a gravimetric and a vacuum filtration using a Buchner funnel and vacuum Erlenmeyer flask.							
7.5	I can perform an acid or base titration using phenolphthalein as an indicator.							
7.6	I can decide the best method for drying a product.							

