HORNET TARGETS

"CAN I?"

HS Chemistry

Discover · Explore · Practice · Create

Target #	Target	Can I?'s
1	I am able to use and identify laboratory equipment accurately and precisely	• *Define and use the scientific method to solve problems* • *Identify basic lab equip used in a chemistry lab* • *Follow an experiment with minimal help from instructor or others* • *Explain what makes a lab valid* • *Measure accurately and precisely using a ruler, graduated cylinder, and thermometer* • *describe the numeric value of the metric prefixes milli through kilo* • *Convert from one metric prefix to another* • *use the correct units on mass, volume, length, temperature, and density.*
2	Define and measure matter, mass, volume, and density/ be able to compare them all.	• *define matter, mass, volume, and density* • *calculate the volume of a geometric object* • *calculate the volume of an object using water displacement*
3	Identify a substance by calculating the density of a substance and taking observations.	• *calculate the density of an object and use it to identify the material.* • *write a procedure to identify whether or not a penny has been changed to gold.*
4	Identify elements, compounds, and mixtures from symbols, formulas, and names.	• *elements have one capital letter* • *compounds have two or more capital letters and are solids liquids or gases* • *compound names have two names that sound like elements* • *elements can be identified using the periodic table.* • *mixtures can be identified by aq in their formula or solution in their name* • *identify homogeneous and heterogeneous mixtures* • *identify symbols and chemical formulas* • *identify physical states of substances*
5	Identify chemical and physical properties and changes.	• *identify physical and chemical properties* • *identify physical and chemical changes* • *Using chemical equations explain when a physical change or a chemical change has occurred* • *observing change determine what is physical and what is chemical*
6	Define and support the Law of conservation of mass using evidence	• *using evidence from a chemical reaction to prove the law of conservation of mass* • *show that an element in a series of steps will return to its original elemental form but using chemical equations to prove that it is not destroyed*
7	Using the periodic table to predict the properties of an element.	• *identify the groups and periods on the periodic table* • *locate metals, nonmetals, and metalloids on the periodic table* • *know the physical states of the elements on the periodic table* • *Identify the main group and transitional elements on the Periodic table*

		• *identify the groups that have a common name such as alkali metals, alkaline earth metals, halogens, noble gases* • *identify periods that have a common name such as lanthanides and actinides.* • *identify an element's reactivity by its location on the periodic table* • *find the atomic number and the average atomic mass on the periodic table*
8	Explain the history of the atom.	• *describe how the atom has changed over time and what scientist helped with these discoveries* • *identify the different models that we have had for the atom and explain why these changes occurred.* • *defend our modern model using data*
9	Draw and describe the structure of an atom using the periodic table	• know the atom is made up of a nucleus and an electron cloud • Draw an atom of an element in the first three rows using patterns of atomic drawings and periodic table info. • know the atom contains three subatomic particles, proton, neutron, and electron • know the atomic number is = protons • atoms are neutral so protons = electrons • protons have +charge, electrons have - charge and neutrons are neutral • atom is held together by an electrical charge • fill in a chart that shows how many subatomic particles are in an atom and its atomic mass • Define and calculate the mass number • explain and calculate the average atomic mass • explain how atoms of one element are different from another element • I can explain how atoms of the same element are similar
10	Define and describe the structure of isotopes	• explain what an isotope is. • be able to fill out a chart to show a visual of the similarities and differences of isotopes atomic structure • Be able to write isotope symbols for elements and atomic particles • predict most common isotope using the periodic table
11	Identify and define radioactive/natural isotopes using a chart	• define a radioactive isotope • using a chart determine the radioactive isotope and the most abundant • what causes an isotope to be more stable than another • compare the predicted isotope using the periodic table to the most common isotope on the chart
12	I can identify and predict the 4 main nuclear reactions. FIssion, fusion, beta decay and alpha decay.	• identify and predict fission reactions • identify and predict fusion reactions • identify and predict alpha decay • identify and predict beta decay • show the conservation of mass using the top mass number and bottom atomic number in isotope symbols
13	I can Connect the periodic table to electron configurations in the atom	• identify the s, p, d, and f • identify the energy level that an element contains using the periodic table • draw the model of an atom using the periodic table as a guide • write full electron configurations • write noble gas configurations • identify the ion that an element would make according to its place on the periodic table • predict how many electrons an atom would lose or gain according to its place on the periodic table
14	I can name molecular and ionic compounds	• identify ionic, molecular and acid compounds • understand what occurs when ionic bonds and molecular bonds are formed(transfer/sharing of electrons) • predict the formula of an ionic and molecular compound with its name • name polyatomic ions • use Roman numerals with metal ions • Name and predict formulas for ionic compounds using a chart of ions

15	I can identify, balance and predict chemical reactions	• Identify the basic symbols in a chemical reaction • balance a chemical reaction • identify a chemical reaction as synthesis, decomposition, single exchange, double exchange, or combustion • predict single and double exchange reactions • predict synthesis and decomposition using a template
16	Define the mole and use the three definitions in dimensional analysis conversion problems	• write the 3 definitions of the mole(mole/mass, mole/particle, mole/volume) • use the dimensional analysis set up to convert from one unit to another using the mole definitions • calculate molar mass to be used in conversion problems
17	Use the mass definition of the mole to determine the empirical and molecular formula of a compound	• find the empirical and molecular formula of a compound using the mass definition of the mole
18	Use Stoichiometry to determine the amount of a substance produced or reacted in a chemical reaction	• calculate the amount of substance you need or form from a known amount of substance in a chemical reaction • Calculate basic stoichiometry problems (mole/mole, mole/mass, mass/mole, mass/mass) • Determine to limit reactant using amounts of reactant and stoichiometry • Calculate the percent yield using stoichiometry for theoretical results
19	Calculating the concentration of solutions	• Define solubility and its terms: soluble, insoluble, solute, solvent, and solution • Calculate and define percent concentration by mass, molarity, and molality
20	Using molality solve for colligative properties	• calculate and define freezing point depression • calculate and define boiling point elevation
21	Write ionic and net ionic equations for dissolvable solids	• define and write equation what happens during the dissolution • write ionic equations when two solutions mix and write net ionic equations for reactions that produce a precipitate. • identify a precipitate using solubility rules chart