**Underlying Theme – I can work safely with chemicals and I can determine what products are going to be formed in a chemical reaction. I know the uses of several chemicals in our everyday lives and the effects they have in our bodies and our environment.**

ATOMS, IONS, MOLECULES, FORMULAS, AND NAMING

1. I know the three subatomic particles of the atom are protons, neutrons, and electrons and I know their charge, location in the atom relative to the nucleus, and relative mass of each
2. I can use the periodic table to
3. Find the electrons, protons, and neutrons for an element
4. Find metal and non-metal elements
5. Find the alkali, alkaline earth metal, halogen, and the noble gas families
6. Know the relative reactivity of each of the above families (in (b) above)
7. Draw an arrow to show how the reactivity of metals increase
8. Draw an arrow to show how the reactivity of non-metals increase
9. Find the 7 diatomic elements
10. I can draw and identify the Bohr model drawings of elements 1-20 by using a periodic table for
11. Atoms (neutral)
12. Ions (charged)
13. Ionic compounds (eg. CaCl2)
14. Covalent Compounds and Molecules (eg. NH3, O2)
15. I know why all atoms on the periodic table have a neutral charge.
16. I know how positive ions form from atoms.
17. I know how negative ions form from atoms.
18. I can identify valence electrons of atoms using a periodic table for all elements (omit bottoms two rows – Lanthanides and Actinides)
19. I can draw Lewis diagrams for
    1. Atoms (neutral)
    2. Ionic compounds (eg. CaCl2)
    3. Covalent Compounds and Diatomic Molecules (eg. PBr3, O2)
20. I can identify the paired and unpaired electrons in a single atom
21. I can identify the lone pairs and bonded pairs of electrons in molecules
22. I know the difference between ionic bonding (metal + non-metal) and covalent bonding (non-metal + non-metal) and I can give examples of each
23. I can use the periodic table and the polyatomic ion chart to write ionic formulas (by criss-crossing) and I know when to:
24. reduce
25. use brackets when writing formulas
26. I can use the periodic table and the polyatomic ion chart to name compounds and I know when to use:
    1. ide, ate, or ite endings when naming
    2. roman numerals when naming
27. I can use the periodic table and the prefix table to name and write formulas for covalent compounds
28. I know the common names for H2O, NH3, and H2O2
29. I can make a list of differences to distinguish between ionic and covalent compounds

Balancing, Chemical Reaction types, rates of reactions

1. I know what the law of conservation of mass is and can use it to explain why chemical reactions should be balanced
2. I can write balanced chemical reactions (in reduced form) from formulas, word equations, and chemical experiments
3. I can identify a chemical reaction as one of the following 6 types:
   1. Synthesis
   2. Decomposition
   3. Combustion
   4. Single Replacement
   5. Double Replacement
   6. Neutralization (acid-base)
4. I can use the above 6 reaction type patterns to predict what the products of a reaction are going to be, when given the reactants.
5. I can explain how the following factors can change the rate of a reaction:
   1. Temperature
   2. Concentration
   3. Catalyst
   4. Surface area

ORGANIC CHEMISTRY

1. I can distinguish between an organic and inorganic compound from its name, formula, or a diagram or model
2. I know the three exceptions of inorganic compounds that contain Carbon

ACIDS, BASES, SALTS, OXIDES

1. I can identify acids and bases by using indicators listed on the indicator table
2. I can figure out the pH of common substances and unknown chemicals using the pH table and the indicator table
3. I understand how the H+ and OH- concentrations of chemicals differ as they become more acidic or basic
4. I can differentiate between acids, bases, and salts with respect to chemical formulas and properties (taste, feel, electrical conductivity)
5. I can recognize the names and formulas of common acids:
   1. Hydrochloric Acid
   2. Sulphuric Acid
   3. Nitric Acid
   4. Acetic Acid
6. I know that most bases are named with hydroxide at the ending.
7. I know that metal oxides react with water to form bases
8. I know that non-metal oxides react with water to form acids

CHEMISTRY VOCABULARY

􀈱acids,

􀈱atomic number

􀈱atoms

􀈱bases

􀈱Bohr diagrams

􀈱bromothymol blue

􀈱catalyst

􀈱combustion

􀈱compounds

􀈱concentration

􀈱conservation of mass

􀈱covalent bonding

􀈱decomposition

􀈱electron

􀈱indigo carmine

􀈱inorganic

􀈱ionic bonding

􀈱ions

􀈱Lewis diagrams

􀈱litmus paper

􀈱mass number

􀈱methyl orange

􀈱molecules

􀈱neutralization

􀈱neutron

􀈱organic

􀈱phenolphthalein

􀈱polyatomic

􀈱proton

􀈱salts

􀈱single and double replacement,

􀈱surface area

􀈱symbolic equations

􀈱synthesis

􀈱valence electron