

Chemistry B - Review Sheet – Unit 1

- Define each of the following
 - Atomic number
 - Atomic mass
 - Valence electrons
 - Ion
 - Cation
 - Anion
 - Isotope
 - Octet Rule
- Name 3 differences between ionic and covalent bonds.
- Give an example of a compound held together by each type of bond.
- List the 2 types of covalent bonds
- Describe how the 2 types of covalent bonds are different
- Give an example of a molecule for each type of covalent bond.
- List 2 factors that affect the length of a bond between atoms
- What is electronegativity and what does it have to do with polarity?
- Write the **formulas and charges** for each of the following polyatomic ions:
 - Carbonate
 - Sulfate
 - Phosphate
 - Hydroxide
 - Ammonium
 - Chlorate
 - Nitrate
- What is the VSEPR Theory and what does it say?
- What are hydrogen bonds and which atoms are usually the ones involved?
- Write the Lewis structures for each of the following:
 - Carbon
 - Oxygen

- c. Chlorine
 - d. Hydrogen
 - e. H₂O
 - f. CO₂
 - g. NH₃
13. What is the difference between reactants and products in a chemical reaction?
14. What law are we abiding by when we balance chemical equations?
15. What is the only type of number we can use to balance chemical equations?
16. Write the formulas for each of the following compounds:
- a. Aluminum chloride
 - b. Potassium hydroxide
 - c. Iron (III) oxide
 - d. Barium sulfate
 - e. Hydrochloric acid
 - f. Nitrogen gas
 - g. Phosphoric acid
17. **List and describe** each of the 4 types of chemical reactions.
18. Balance each of the following:
- a. $\text{PbO}_2 \rightarrow \text{PbO} + \text{O}_2$
 - b. $\text{Fe}(\text{OH})_3 \rightarrow \text{Fe}_2\text{O}_3 + \text{H}_2\text{O}$
 - c. $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
 - d. $\text{Al} + \text{CuSO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + \text{Cu}$
19. Write the balanced chemical equation for each of the following word equations:
- a. Potassium + Chlorine \rightarrow Potassium chloride
 - b. Calcium oxide + Water \rightarrow Calcium hydroxide
 - c. Magnesium carbonate \rightarrow Magnesium oxide + Carbon dioxide
 - d. Barium nitrate + Sodium carbonate \rightarrow Sodium nitrate + Barium carbonate
20. Identify each of the reactions in #19 and in #20 as synthesis, decomposition, single replacement or double replacement reactions.