

Chemistry Unit Review – KEY IDEAS AND QUESTIONS

Topic 1

1. What is a physical property? List some examples
2. What is a chemical property? List some examples
3. What is a chemical change? Give some examples
4. What is a physical change? Give some examples
5. What are the six pieces of evidence that a chemical reaction may have happened?
6. Define each of the following terms:
 - a. Element
 - b. Compound
 - c. Mixture
 - d. Pure Substance

Topic 2

1. Review the history of the atomic model. What does the current model look like?
2. Draw a model of an atom. Where do the protons, neutrons and electrons go in the diagram?
3. Explain what each particle does in an atom and what charge it has
 - a. Proton
 - b. Neutron
 - c. Electron
4. What is an atomic number? What particles does this represent?
5. What is atomic mass? What particles does this represent?
6. How do you figure out how many electrons are in a neutral atom?
7. What is the name for a row of elements on the periodic table?
8. What is the name for a column of elements on the periodic table?
9. Explain how the periodic table is organized
 - a. What do elements in the same column have in common?
 - b. What is a **valence electron**? What elements share the same number of valence electrons?
 - c. What do elements in the same row have in common?
 - d. Where is the lightest element? The heaviest element?
10. Describe the physical and chemical properties of metals, non-metals, Alkali metals, Alkaline Earth Metals, Transition Metals, Halogens and Noble Gases
11. Define each of the following terms:
 - a. Isotope
 - b. Ion
 - c. Atom

Topic 3

1. Define the following terms:
 - a. Chemical formula
 - b. Ionic compound
 - c. Molecular compound

2. What are the properties of ionic compounds?
3. What are the properties of molecular compounds?
4. For ionic compounds:
 - a. Predict the number of atoms of each element in a compound based on their charges
 - b. Write the chemical formula for an ionic compound
 - c. Write the chemical name for an ionic compound
5. For molecular compounds
 - a. Write the chemical formula for a molecular compound
 - b. Write the chemical name for a ionic compound
6. Draw a ball and stick model for a given compound

Topic 4

1. Identify the different types of chemical reactions
 - a. Synthesis
 - b. Combustion
 - c. Decomposition
 - d. Replacement
2. Write a chemical equation to show what the reactants and products are in a chemical reaction
3. Use the type of reaction to predict the products of a chemical reaction
4. Explain the different types of splint tests that are used to test gas products
5. Explain how the following affect rate of reaction:
 - a. Temperature
 - b. Concentration
 - c. Pressure
 - d. Surface Area
6. What is the law of conservation of mass?
7. How can you identify if an equation is balanced?
8. Define the following terms:
 - a. Product
 - b. Reactant
 - c. Catalyst
 - d. Exothermic
 - e. Endothermic