**Unit 2 Study Guide**

**Test is on Friday, October 2nd !**

**Properties of Matter**

**Elements, Compounds and Mixtures**

1. **What is a physical property? Give 3 examples.**
   1. A physical property is a property that can be observed with the five senses without changing the identity of the substance.
   2. Ex: color, texture, density, boiling point, state of matter
2. **What is a physical change? Give 3 examples.**
   1. A physical change is a change that alters the appearance of a substance but not the identity.
   2. Ex: painting a canvas, cutting a piece of paper in half, dying frosting pink
3. **What is a chemical property? Give 3 examples.**
   1. A chemical property is a property that cannot be observed without changing the identity of the substance.
   2. Ex: flammability, reactivity, combustibility
4. **What is a chemical change? Give 3 examples.**
   1. A chemical change is a change that alters the identity of a substance.
   2. Ex: a paper catches on fire, baking soda reacts with vinegar to release a gas, a bike left in the rain begins to rust.
5. **What is a pure substance?**
   1. A pure substance is a substance that is made up of only one particle type. Both elements and compounds are pure substances.
6. **What are elements and compounds? How are they similar? Different?**
   1. Compounds are pure substances made of two or more atoms/elements. They combine chemically in a specific ratio.
   2. Similarities: Both are pure substances
   3. Differences: Compounds can be broken down through chemical changes such as adding heat or electric current. Elements cannot be broken down.
7. **What is a mixture?**
   1. A mixture is a combination of elements and/or compounds that are NOT chemically combined. Each part of a mixture keeps its identity.
8. **Compare and contrast solutions, colloids and suspensions.**
   1. All are types of mixtures meaning there are different types of particles physically combined.
      1. Solutions: very small particles that are evenly mixed, appears to be one uniform substance and it cannot be filtered (Kool-Aid)
      2. Colloids: medium sized particles that are large enough to block light but not heavy enough to settle out (mayonnaise, milk, jello)
      3. Suspensions: Large particles that are not well mixed and heavy enough to settle out if left to sit, can usually be filtered (Italian Salad Dressing)
9. **What is the difference between a heterogeneous and homogeneous mixture?**
   1. Homogeneous mixtures look the same (uniform) throughout the mixture. Heterogeneous mixtures are those mixtures in which you can see individual particles in the mixture.
10. **How can mixtures be separated?**
    1. Mixtures can be separated through physical means usually distillation, magnetism, or special machines that separates according to weight like the centrifuge.
11. **What are the similarities and differences between elements, compounds and mixtures?**
    1. All are classifications of matter. Elements are made up of a single atom, compounds are two different elements chemically combined, and mixtures are a combination of elements and compounds physically combined.
12. **What is the difference between and atom and a molecule?**
    1. An atom is the simplest form of matter and cannot be broken down. A molecule is 2 atoms that are chemically combined.
13. **What is the difference between a solute and solvent?**
    1. A **solvent** is the substance in a solution that is present in a greater amount and dissolves the **solute** which is present in a smaller amount.

