Quiz 6 – Matter and Change

Name: _____ Group_____

1. Name some examples of physical properties and chemical properties of matter. (A minimum of two of each type)
   a. Physical Properties
      Properties of matter that can be observed without changing the identity of a substance.

      Shape, size, color, boiling point, brittleness, elasticity, density, transparency, texture, conductivity

   b. Chemical Properties
      Properties of matter that can only be observed when a substance is transformed into new substances.

      Flammability, tendancy to rust, toxicity

2. How would you determine if a change is a physical change or a chemical change? (Name at least two observations that are clear evidence for the type of change)
   When determining whether a change is a physical change or a chemical change, the most important question to ask is "is new substance formed or not during the change?"

   Chemical changes are typically accompanied by a) release of energy in the form of light, sound or heat; b) release of gas; c) release of odor, tastes different.

   Physical changes are typically a) reversible (but not always) and b) only involves the change of physical properties such as size, shape, state of matter etc. without forming new substance.

3. What are phases of matter? Name at least two different types of phase changes.
   Phases of matter are different physical states of matter such as solid, liquid or gas

   Melting (solid to liquid); vaporization (liquid to gas); sublimation (solid to gas)

   Freezing (liquid to solid); condensation (gas to liquid); deposition (gas to solid)

4. Name the fundamental building blocks of matter.
   Atoms, molecules and ions.

5. Clearly describe the differences between elements, compounds and mixtures?
   - **Element** contains only one type of atom and only one substance.
   - **Compound** contains two or more types of atom chemically bonded together. But it is still only one substance.
   - **Mixture** contains two or more substances physically mixed together.

6. Look at the periodic table on the wall.
   a. How is the periodic table organized?
      There is a big section of metals, most of the table on the left. There are non metals on the upper right side and then a small vertical set of metalloids between these.

      The table is also organized by mass and number of protons. The lightest atoms are at the beginning and the heaviest at the end if you read left to right from the top down.

      There's much more to the organization that we did not get to yet but will: They are also organized into vertical columns called groups and horizontal rows called periods.

   b. What can you tell about an element in the table based on its location?
      Based on where an element is located in the periodic table, we can tell

      a) The number of protons in an atom of the element
      b) The relative mass of an atom of the element.
      c) whether it is a metal, a non-metal or a metalloid.
      d) Later we will learn how to see from the table whether they are solid, liquid or gas at room temperature.
7. Which of the following is NOT a physical property of a chair?

   A. The chair is blue.
   B. The chair is made of wood.
   C. The chair will burn.
   D. The chair has four legs.

8. Which of the following is a physical change?

   A. Fermenting of cheese
   B. melting gold to make jewelry
   C. burning gasoline in a lawnmower
   D. mixing baking soda and vinegar

9. Which of the following is a chemical change?

   A. Getting a haircut
   B. Painting a picture
   C. **Lighting a campfire**
   D. Melting an ice cube

10. A(n) _____ is made of two or more elements chemically combined together?

    A. Element
    B. compound
    C. heterogeneous mixture
    D. homogeneous mixture

11. Which of the following is NOT a symbol for an element?

    A. Na
    B. CO
    C. Co
    D. Au

12. Which of the following is an example of a compound?

A. Oxygen B. pizza **C. sodium chloride** D. sulfur

13. Which of the following is an example of heterogeneous mixture?

A. Gatorade B. oxygen **C. Pizza** D. water