Chap 2

1. Atoms-
   Everything is composed of atoms.
   Atoms are the smallest part of an element that retains the same properties of that element.

   Compounds are formed from two or more elements that are chemically bound.

   \[ \text{C} + \text{O}_2 \rightarrow \text{CO}_2 \]

   Law of definite proportions- the elements that form a compound must come together in whole number ratios. (tell difference by capital letters)

   \[ 2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O} \text{ (Hindenberg)} \]

   The same elements can form more than one ratio.
   \[ \text{CO, CO}_2 \quad \text{NO, NO}_2 \]

2. Law of conservation of mass- matter is neither created or destroyed in a chemical reaction.

   Lavoisier- did the following reaction.

   \[ \text{HgO} \rightarrow \text{Hg} + \text{O}_2 \]

   \[ 100.0 \text{ g} \quad 93.57 \text{ g} \quad 6.43 \text{ g} \]

3. Dalton’s Atomic Theory- (show overhead)
   1. All matter is composed of extremely small particles called atoms.
2. All atoms of a given element are alike, but atoms of one element differ from the atoms of any other element.

3. Compounds are formed when atoms of different elements combine in fixed proportions.

4. A chemical reaction involves rearrangement of atoms. No atoms are created, destroyed, or broken apart in a chemical reaction.

Modern modifications-
1. Atoms are divisible.
2. All atoms of an element are not identical. (isotopes)

4. Periodic table-
   Lists mass by atomic mass units (amu)
   Periodic table is organized by masses and then by chemical reactivity.