**Vocabulary:** **Stoichiometry**

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**Vocabulary**

* Avogadro’s number – the number of atoms or molecules in a *mole* of a substance.
  + Avogadro’s number is equal to 6.0221415 × 1023.
* Balanced equation – an equation that has equal numbers of atoms on each side of the equation.
  + The equation H2 + O2 🡪 H2O is *unbalanced* because there are two oxygen atoms on the left side and only one on the right.
  + The equation 2H2 + O2 🡪 2H2O is balanced because there are four hydrogen atoms and two oxygen atoms on each side of the equation.
* Cancel – to cross out, remove, delete, or invalidate something.
  + In an algebraic expression, identical terms that are found in the numerator and denominator can be cancelled, such as the unit “seconds” in this equation:

120 seconds • 1 minute = 2 minutes

60 seconds

* Coefficient – a number that multiplies a term in an equation.
  + In a chemical equation, the coefficients indicate the number of each type of molecule. For example, 6H2O means that there are six water molecules.
* Conversion factor – a ratio or fraction equivalent to one that is used to multiply or divide a quantity when converting from one unit to another.
  + For example, the conversion factor for moles of CO2 to liters of CO2 is:

1 mol CO2

22.41 L CO2

This conversion factor is equivalent to one because one mole of carbon dioxide has a volume of 22.41 liters.

* Dimensional analysis – a technique in which comparison of units on both sides of an equation is used to solve problems.
* Formula mass – the mass of one unit of a compound, as measured in unified mass units (u). For example, to find the formula mass of NaCl
  + For example, the formula mass of NaCl is found by adding the average atomic masses of sodium (Na) and chlorine (Cl): 22.99 u + 35.45 u = 58.44 u.
* Molar mass – the mass of one mole of a substance.
  + The molar mass of a compound in grams per mole is equal to the formula mass of the compound in unified mass units.
  + For example, the formula mass of oxygen (O2) is 32 unified mass units (32 u). The molar mass of oxygen gas is 32 grams per mole, or 32 g/mol.
* Mole – (mol) a unit amount of a substance.
  + A mole of a substance has the same number of particles as 12.0 grams of carbon-12.
  + This number of particles is equal to Avogadro’s number (6.0221415 × 1023).
* Molecular mass – (M) the mass of a molecule of a substance, as measured in unified mass units (u).
* Stoichiometry – the relationships between quantities of substances that take part in a chemical reaction.