Chemical Reactions and Equations - Ch. 10

I. Chemical Reactions

A. Occur when matter to form

1. Signs a chemical reaction has occurred:
   a.
   b.
   c.
   d.

B.

1.
2.

II. Chemical Equations

A. How chemical reactions are communicated

1. Types:
   a.
   b.

B. Parts of a chemical equation

1. – in the reaction (of the arrow)
2. – in the reaction(of the arrow)
3. –

4. States of matter - Shown using a
   i.
   ii.
   iii.
   iv.
5.

III. Balancing Chemical Equations

A. Goal: ensure that you have the

B. Write the reactants and products.

What do you need for a hot dog?

Complete dog:

C. Determine on both sides.

D. If the number of on both sides, one at a time to make it equal.

1. Remember, adding a coefficient will affect all the elements in that molecule.
2. Every time you add a coefficient, recount your atoms!
3.

4. HINT: Balance the single or diatomic elements last.

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IV. Types of Chemical Reactions

A. Reactions are classified into (p. 291)

1. By knowing the type, you can predict the products of a chemical reaction.

B. The types are:

1. Reactions
   a.
   b. The
c.
d. General formula:

e.

f.

2. Reactions ( )
   a. Two or more substances ( ).
   b. General Formula:

3. Reactions
   a. A , which simpler products, either elements or compounds.
   b. General Formula:

4. Reactions
   a. Two of the elements in the , forming two new products.
   b. Involves a
   c.
   d. General Formula:

5. Reactions
   a. Both reactants and both products
   b. The compounds to form the products.
   c. Again,
   d. General Formula:

V. Predicting Reactions

A. Not all reactions will occur!

1. First,
2. Then, use the to predict the products.
   a. Combustion:
      i.
      ii. If a is the other reactant, the

   b. Single replacement:
      i. If a is the element, it will of the compound.
      ii. If a is the element, it will of the compound.
      iii. Make sure that the ions recombine to make

c. Double replacement:
   i. The cations are going to
   ii. Remember that cations are bonded to anions. There is

   iii. Make sure that the ions recombine to make correct chemical formula (ionic rules!)

3. Figure out if the reaction will happen!
   a. ALL
   b. For Single Replacement reactions
      i. Check
      ii. An element can

      iii. If the compound on the product side includes the more reactive element,

      iv. If the compound on the product side includes the less reactive element,

   c. For Double Replacement reactions
      i. Check
      ii. If

      iii. If
      iv. If

4. Lastly,