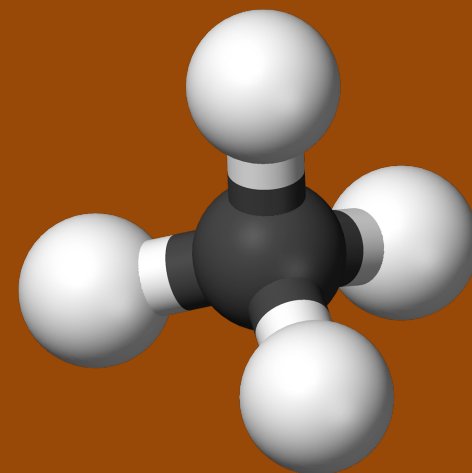


Types of Chemical Reactions

- The 5 Types of Reactions
- Synthesis Reactions
- Decomposition Reactions
- Single Displacement Reactions
 - Thermite Reaction
- Double Displacement Reactions
- Combustion Reactions
- Practice



Preview File

Please enjoy this preview of your Student Version of the presentation. Please note within this sample file:

- Some slides appear blank because they have been removed
- Student versions have portions of the text removed which is given in the teacher version and appear as _____ which the students are to fill in
- Other slides may have on them, this represents writing that has been removed on this sample

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Types of Chemical Reactions

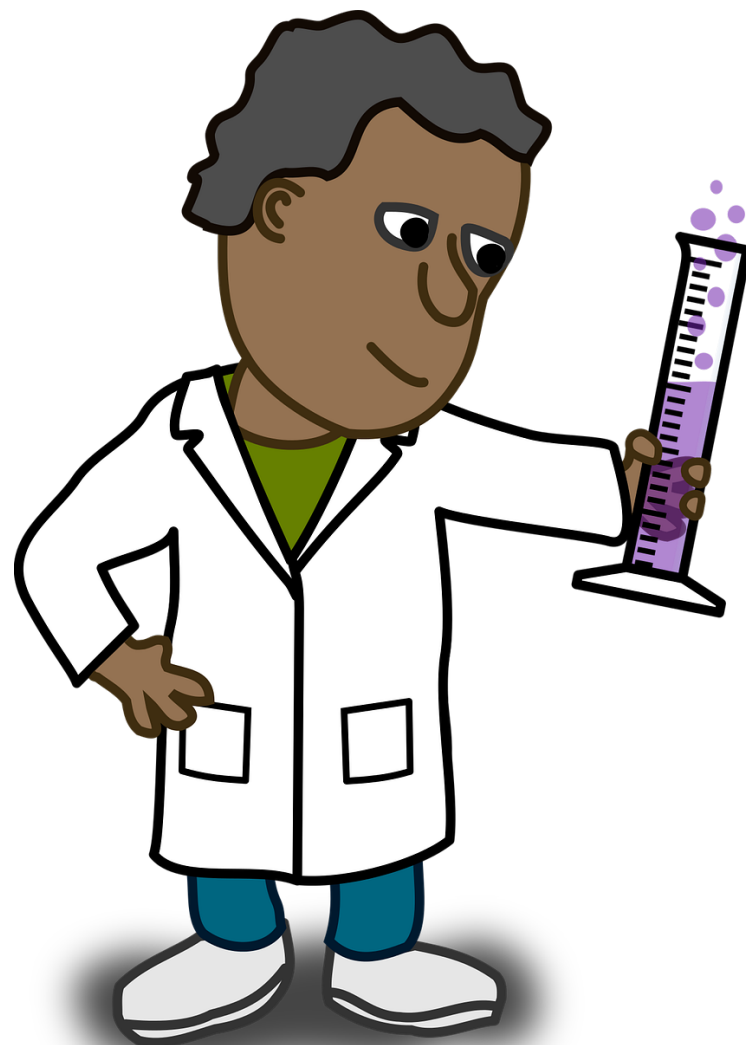
Many chemical reactions have defining characteristics which allow them to be classified as a type.



Types of Chemical Reactions

Lesson Objectives:

1. Describe the *five general types* of reactions.
2. Predict the *products* of the five general types of reactions.



Types of Chemical Reactions

The five types of chemical reactions that will be covered include:

1. Synthesis
2. Decomposition
3. _____
4. _____
5. _____

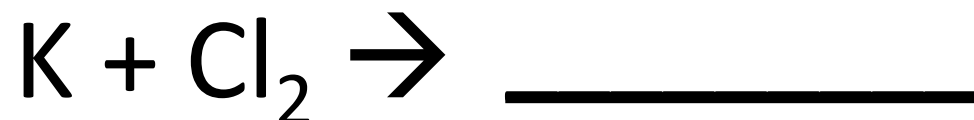
Synthesis Reactions

- Two or more substances combine to form one substance
 - The general form is _____
- Example:
 - Magnesium + oxygen $\rightarrow$ magnesium oxide
 - _____

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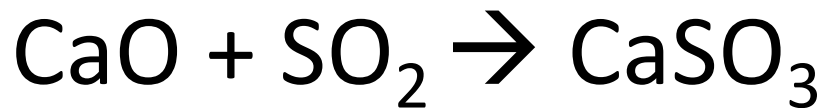
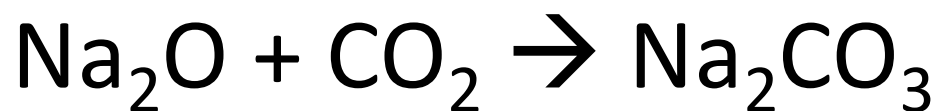
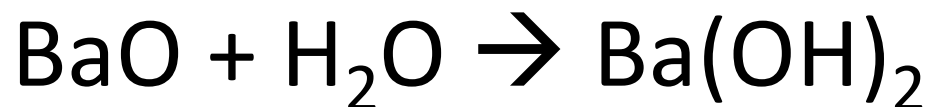
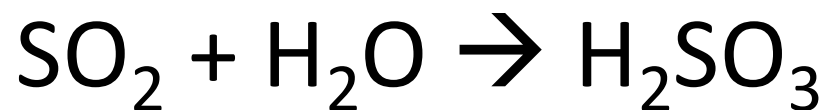
Synthesis Reactions

1. Write the equation



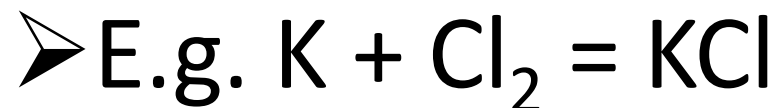
2. Balance the equation:

Synthesis Reaction Examples



Synthesis Reactions

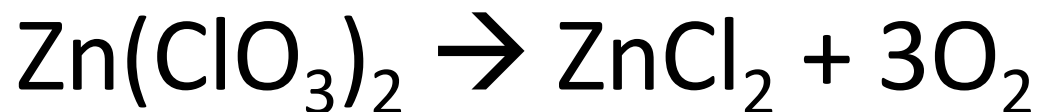
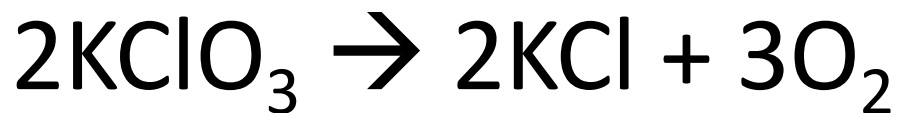
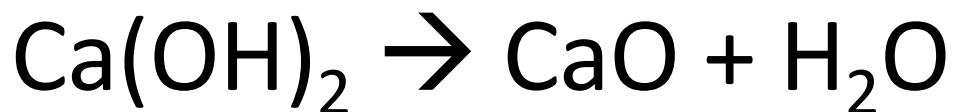
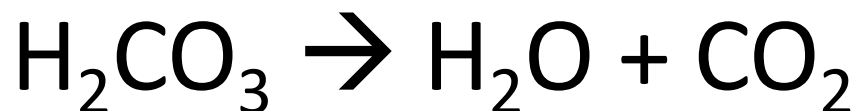
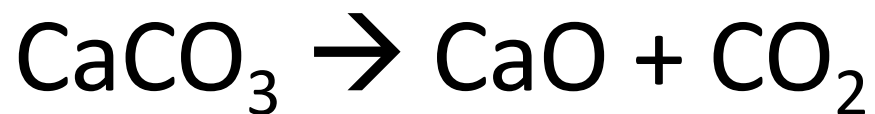
- ---
- The only synthesis reactions you will be asked to determine would be the very simple ones with only 1 possible answer



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Decomposition Reaction

Examples



Decomposition Reactions

- Some substances can easily decompose:
 - Ammonium hydroxide is actually ammonia gas dissolved in water

 - Some acids decompose into water and an oxide

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Single Displacement Reactions

- A metal will replace a metal ion in a compound.
 - The general form is _____
- A nonmetal will replace a nonmetal ion in a compound.
 - The general form is _____

Single Displacement Reaction

Example



- Nickel replaces the metallic ion Ag^+ (metal replaces metal ion)
- The silver becomes free silver and the nickel becomes the nickel (II) ion

Thermite Reaction

- $\text{Al} + \text{Fe}_2\text{O}_3 \rightarrow$
- Aluminum will replace iron (III) as was seen in the video
- Iron (III) becomes Fe and aluminum metal becomes Al^{3+}
- Write the equation

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Double Displacement Reactions

- $\text{NaOH} + \text{CuSO}_4 \rightarrow$
- The Na^+ and Cu^{2+} switch places
- Na^+ combines with SO_4^{2-} to form Na_2SO_4
- Cu^{2+} combines with OH^- to form $\text{Cu}(\text{OH})_2$
- **Write the equation**

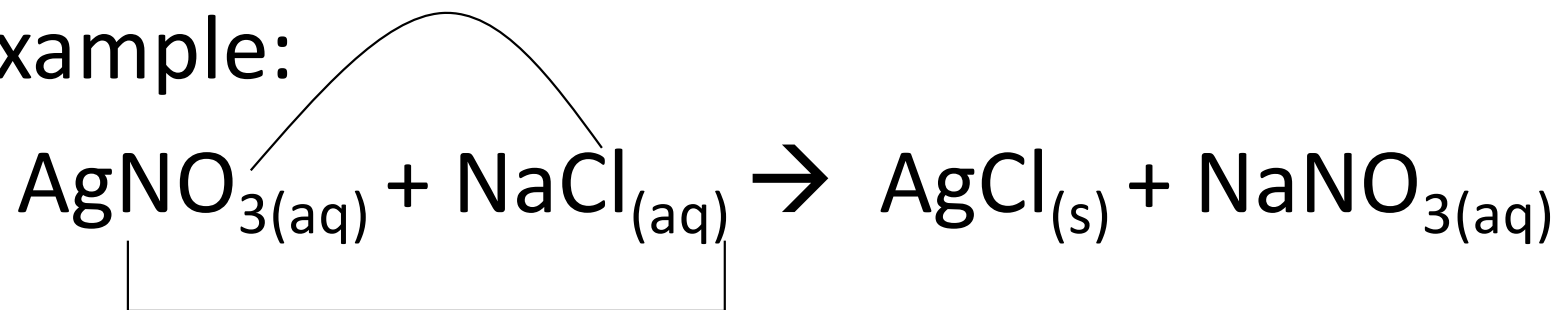
Double Displacement Reactions

- $\text{CuSO}_4 + \text{Na}_2\text{CO}_3 \rightarrow$
- Write the equation and balance it

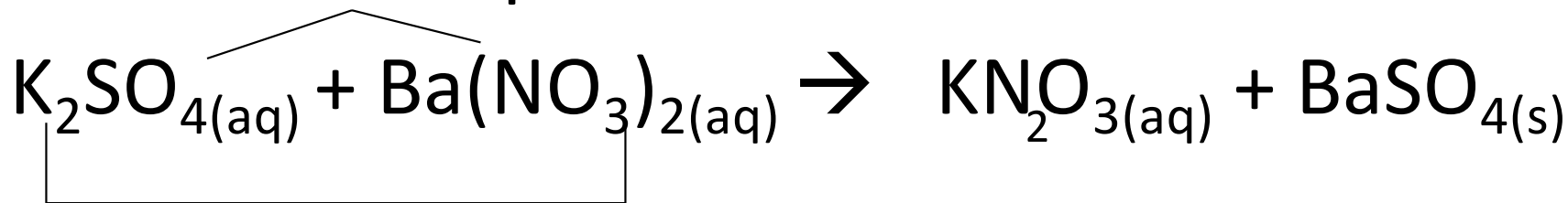
Double Displacement Reactions

- Think about it like “foil”ing in algebra, first and last ions go together + inside ions go together

- Example:



- Another example:



Recognition

You need to be able to recognize which reaction is taking place



Practice Examples

- $\text{H}_2 + \text{O}_2 \rightarrow$
- $\text{H}_2\text{O} \rightarrow$
- $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow$
- $\text{HgO} \rightarrow$
- $\text{KBr} + \text{Cl}_2 \rightarrow$
- $\text{AgNO}_3 + \text{NaCl} \rightarrow$
- $\text{Mg}(\text{OH})_2 + \text{H}_2\text{SO}_3 \rightarrow$

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Combustion Reactions

- When a
- The combustion reaction may also be an example of an earlier type such as
$$2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$$
- An example of a combustion reaction is burning a fuel like wood or gas



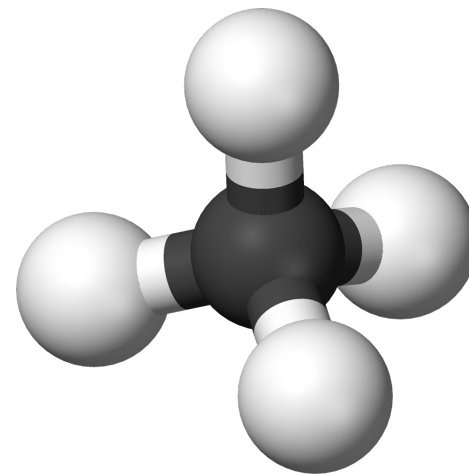
Combustion Reactions

- Combustion reactions involve light and heat energy released.
- Natural gas, propane, gasoline, etc. are burned to produce heat energy.
- Most of these organic reactions produce _____



Combustion Reactions

- When hydrocarbon
- Hydrocarbons are compounds that only contain hydrogen and carbon



Methane – CH_4

Combustion Reactions

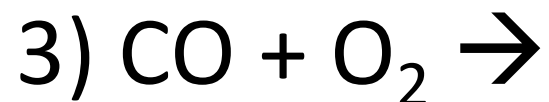
Other elements can also burn with Oxygen



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Check Your Understanding

Name the type, finish the equation, and balance the following reactions



Check Your Understanding

Name the type, finish the equation, and balance the following reactions

