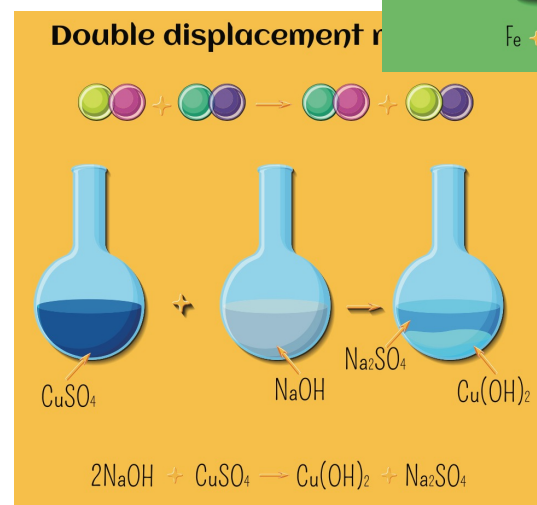
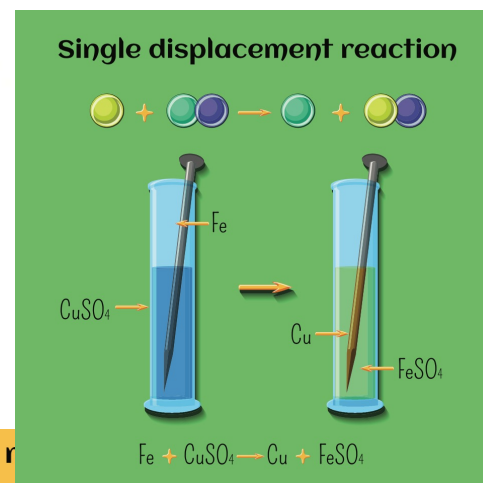
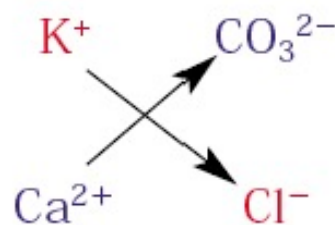


Single and Double Displacement Reactions

- Single Displacement Reactions
- The Activity Series
- Halogen Activity Series
- Double Displacement Reactions
- Solubility Table
- Neutralization Reactions
- Total and Net Ionic Equations



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
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Types of Reactions

There are five types of chemical reactions:

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

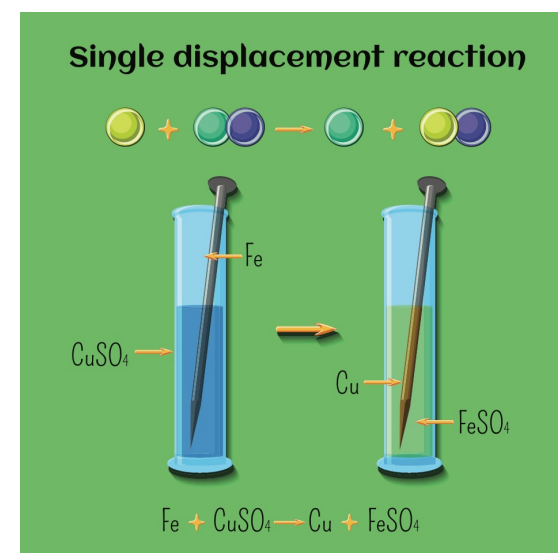
You need to be able to identify the type of reaction and predict the product(s). This lesson will cover single and double displacement/replacement reactions.

Single Displacement Reactions

- _____
- Can also be called single replacement reactions



- Example:



Metals replace metals and non-metals replace non-metals.

The Activity Series

- The activity series allows you to predict if a reaction will occur
- _____
- _____

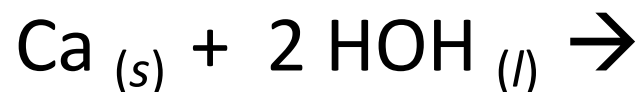
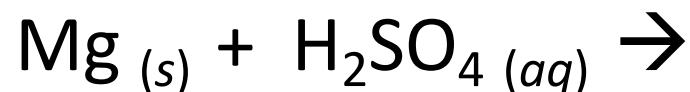
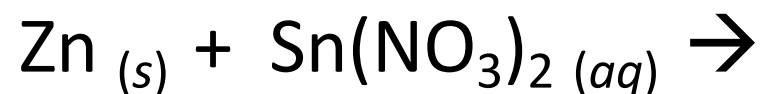
Li K Ba Ca Na Mg Al Zn Fe Ni Sn Pb H Cu Hg Ag Au

Metal Activity Series

- Although not a metal, hydrogen is included in the activity series

Check Your Understanding

Complete the following chemical reactions:



Li K Ba Ca Na Mg Al Zn Fe Ni Sn Pb H Cu Hg Ag Au

Metal Activity Series

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No Reactions

What happens if you try to displace a metal that is higher on the activity series?

Nothing!

Determine the product from the reaction below.



Li K Ba Ca Na Mg Al Zn Fe Ni Sn Pb H Cu Hg Ag Au

Metal Activity Series

No Reactions

Determine the product from the reaction below.

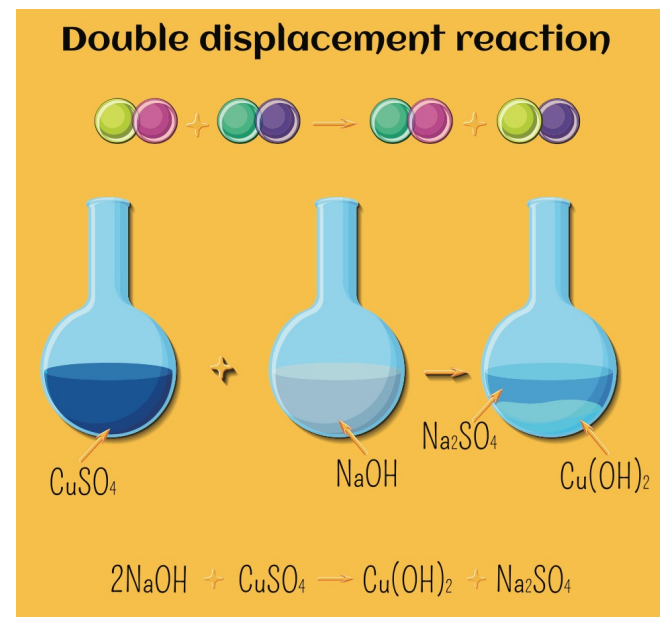
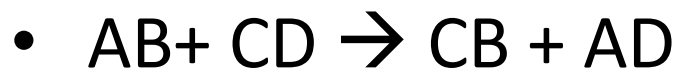
Cu cannot displace H because Cu is to the right of H on the activity series therefore no reaction occurs.

Li K Ba Ca Na Mg Al Zn Fe Ni Sn Pb H Cu Hg Ag Au

Metal Activity Series

Double Displacement Reactions

- _____

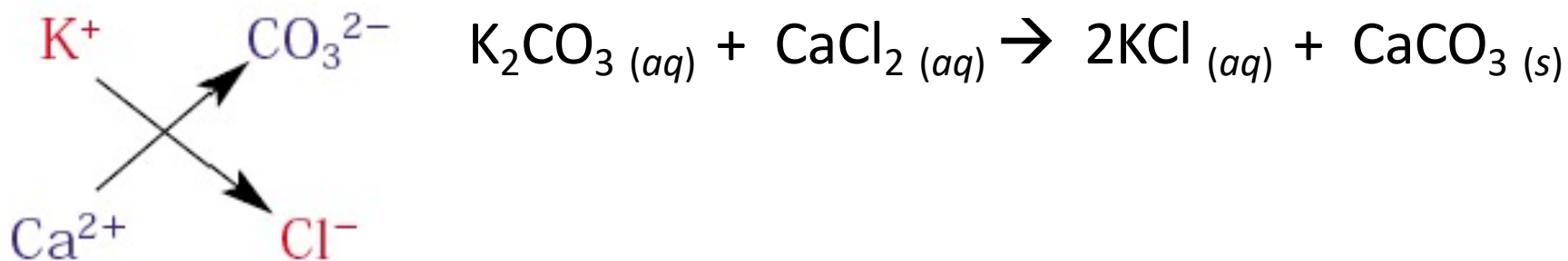


- Both reactants must be in aqueous form. Why??

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Double Displacement Reactions

- _____



- How do we know the states of the products?

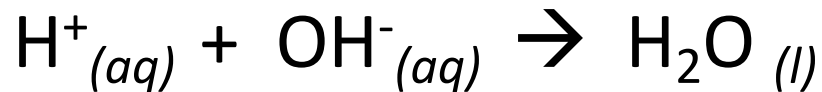
Solubility Table

To determine the states of the products, we need to check the solubility of the new compounds. If they are soluble then they are written as (*aq*), if not, they become a precipitate (*s*).

Rule	Exception
.....	None
Halides (Cl^- , Br^- , I^-) are soluble.	
Sulfates (SO_4^{2-}) are soluble.	Ca^{2+} , Ba^{2+} , Pb^{2+} , Hg_2^{2+} , Ag^+
Sulfides (S^{2-}) are soluble.	
Carbonates (CO_3^{2-}) are insoluble.	NH_4^+ and ions of group 1 elements.
Phosphates (PO_4^{3-}) are insoluble.	NH_4^+ and ions of group 1 elements.
.....	Ba^{2+} , Sr^{2+} , Ca^{2+} , and ions of groups 1 elements.

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Neutralization Reactions



- ---
- Because the hydrogen and hydroxide ions combine to form water, the amounts of these potentially harmful ions decrease

Example

When a tanker derailed it spilled sulfuric acid, $\text{H}_2\text{SO}_{4(aq)}$. A basic solution containing

The chemical equation is as follows:



Total and Net Ionic Equations

For reactions that occur in solution, writing the equation for the reaction in ionic form indicates the ionic species that actually exist in solution.

Example: BaCl_2 reacting to Na_2SO_4

1. Write out the total ionic equation (includes the individual ions):
2. Cross out any spectator ions (ions that occur on both the reactant and product sides) because they are not reacting.

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