

LESSON 11: TYPES OF REACTIONS

Physical vs. Chemical Changes

- Physical Change
 - No change in the properties of the substance
 - Usually easily reversible
 - Often a change in state

Q: What are some properties of matter that you would be able to observe?

A: - Melting/Boiling points.

- Colour
- Density
- Electrical conductivity
- List other student responses here

Have students provide some examples of a physical change.

- Chemical Change
 - Change in the properties of the substance
 - Sometimes a gas is given off
 - Heat/light released or absorbed.
 - May not be easily reversible

Have students provide some examples of a chemical change.

There is a worksheet on this that can be used as a class activity or for homework.

Reactions can also be classified based on how the chemicals are reacting.

1. Synthesis or combination reactions

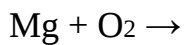
- Reaction in which two or more reactants combine to form only one product
- Generic Equation $A + B \rightarrow AB$
- Example: $Mg + O_2 \rightarrow MgO$ (Now balance!)
 $2Mg + O_2 \rightarrow 2MgO$

For Metal/Non-metal reactions (i.e., ionic situations):

- a. Split up molecules into simple ions
- b. Use crossing over with metal written first

c. Balance the equation

Practice:



Over a period of time, iron reacts with oxygen to produce Iron (III) oxide.



2. Decomposition

- Reaction in which one compound breaks down (decomposes) into two or more products. (i.e., the opposite of synthesis)
- Generic Equation $\text{AB} \rightarrow \text{A} + \text{B}$
- Example: $\text{H}_2\text{O}_2 \rightarrow \text{H}_2 + \text{O}_2$
 - a. Separate the compound into elements (no charges!)
 - b. Determine whether the substance is diatomic (7+1 rule)
 - c. Balance the equation

Practice



Assignment: Worksheet on synthesis and decomposition reactions