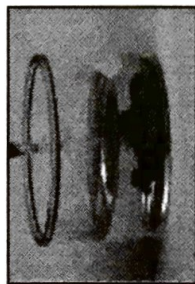


Unit 5 – Chemical Reactions

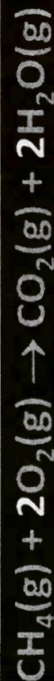


II. Types of Chemical Reactions (p. 262 - 270)



A. Combustion

- the burning of any substance in O_2 to produce heat



A. Combustion

- Products:**
 - Contain oxygen
 - Hydrocarbon combustion forms $CO_2 + H_2O$

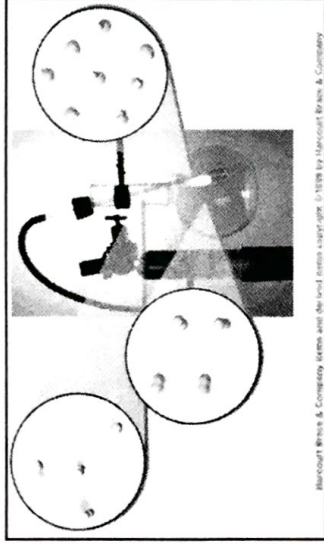


B. Synthesis(Combinations)

- the combination of 2 or more substances to form a compound
- only one product



B. Synthesis (Combination)



B. Synthesis (Combination)

- Products:
 - ionic formula units - cancel charges (CRISS-CROSS)
 - covalent molecules - hard to tell



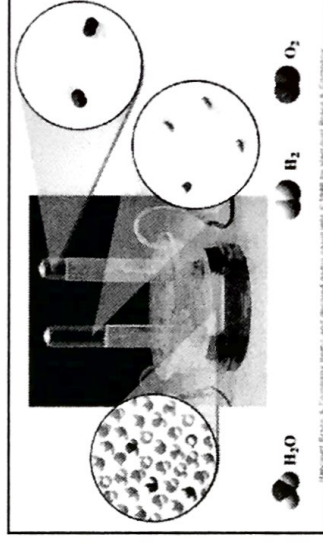
C. Decomposition

- a compound breaks down into 2 or more simpler substances

- only one reactant



C. Decomposition



C. Decomposition

- Products:
 - Binary compounds - break into elements
 - others - hard to tell

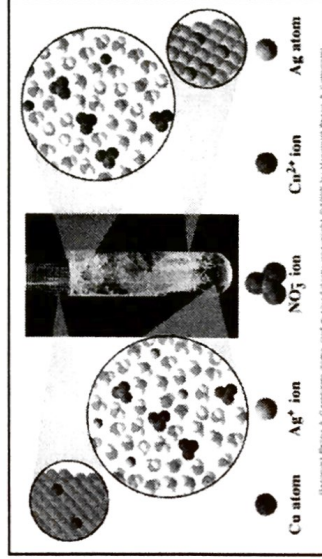


D. Single Replacement

- one element replaces another in a compound
 - metal replaces metal (+)
 - nonmetal replaces nonmetal (-)



D. Single Replacement



D. Single Replacement

- Products:
 - metal \rightarrow metal (+)
 - nonmetal \rightarrow nonmetal (-)
 - free element must be **more active** (check **activity series**)

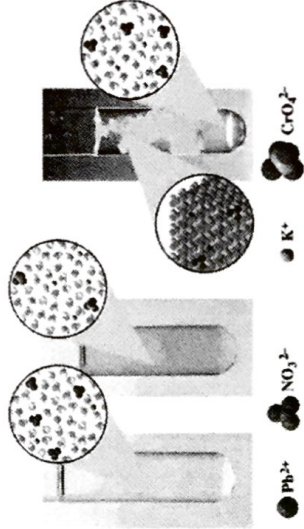


E. Double Replacement

- ions in two compounds "change partners"
- cation of one compound combines with anion of the other



E. Double Replacement



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E. Double Replacement

- Products:
 - switch negative ions
 - one product must be **insoluble** (check solubility table)



Name _____ Date _____ Period _____

Types of Reactions WS 1

1. Define each type of reaction. Write the general equation (using A, B, C, or D as needed with a →).

a) Synthesis/Combination - _____

General Equation: _____ → _____

b) Decomposition - _____

General Equation: _____ → _____

c) Single Replacement - _____

General Equation: _____ → _____

d) Combustion - _____

General Equation: _____ → _____

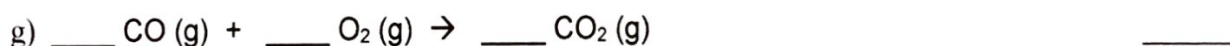
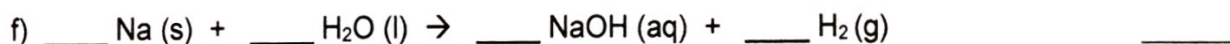
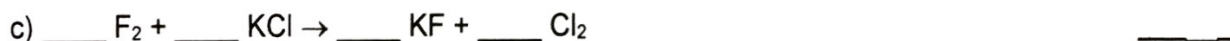
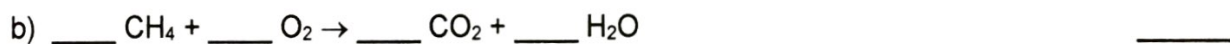
e) Double Replacement - _____

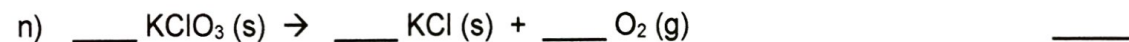
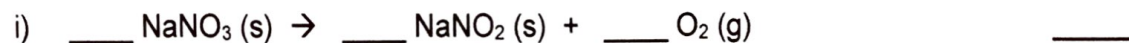
General Equation: _____ → _____

2. Choose the correct symbol for the type of reaction. Place that answer in the blank at the end of each equation and then balance each equation correctly.

S = synthesis
D = decomposition
C = combustion

SR = single replacement
DR = double replacement





p) When camping, most food is cooked on butane stoves. What type of reaction is taking place when butane (C₄H₁₀) **burns** to produce a flame?

q) Hydrogen peroxide (H₂O₂) is kept in a dark brown bottle because light causes it to spontaneously **break down** into water and oxygen gas. What type of reaction is this?

r) When you leave your little red wagon outside, the iron **combines** with oxygen in the atmosphere to produce rust (Fe₂O₃). What type of reaction is this?

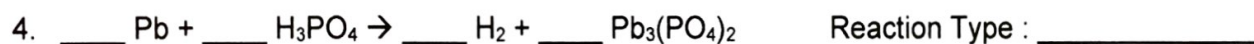
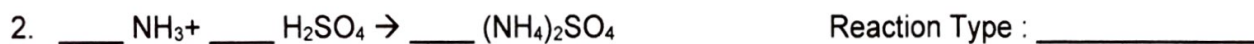
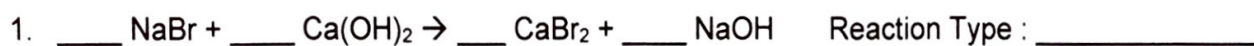
Name: _____

Per: _____

Date: _____

Types of Reactions WS 2

Balance the reactions **1 to 6** and indicate which type of chemical reaction (synthesis, decomposition, single-replacement, double-replacement or combustion) is being represented:



Indicate which type of chemical reaction (synthesis, decomposition, single-replacement, double-replacement or combustion) is being represented in 7 to 20.

