

## CHEMISTRY 2, LESSON 13

## CHEMICAL REACTIONS AND EVIDENCE OF A CHEMICAL REACTION

1. What are the seven signs that a chemical reaction has occurred?

Change in temperature, color, odor, or flavor may indicate a chemical reaction. Additionally, bubbles, precipitation, or light may be indicators of a chemical reaction.

2. True or false. All 7 signs of a chemical change are visible in every chemical reaction. Explain your answer.

False. Some reactions show some signs, others show others.

3. Physical vs. Chemical Changes – For each of the following examples, write “P” to indicate a physical change and “C” to indicate a chemical change has occurred.

- Ice melting

P

- Food rots

C

- Iron rusts

C

- An apple is cut

P

4. Match the picture with the main evidence that a chemical change has occurred. Use each answer choice only once.

*a.* Change in color

Copper reacts with oxygen in the air to produce copper oxide (copper patina), as seen on the Statue of Liberty.



*b.* Change in color and taste

As fruit ripens, it undergoes many kinds of chemical changes. These changes in the plant cells change the fruit's composition.



*c.* Change in temperature

Bonfire lit upon coals.



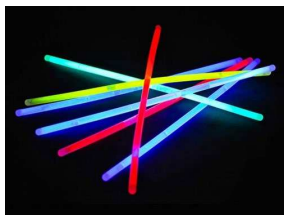
e. Formation of a gas

Effervescent tablets are dissolved in water.



f. Release of energy as light

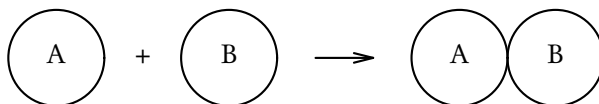
Glow sticks, when cracked, release two chemicals that mix.



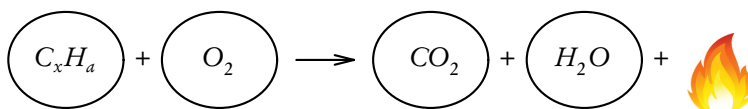
### CLASSIFYING CHEMICAL REACTIONS

1. Match the following pictures with their corresponding labels.

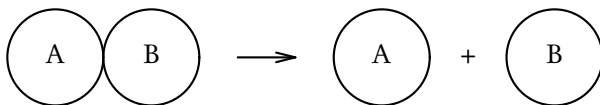
a. Composition / Synthesis



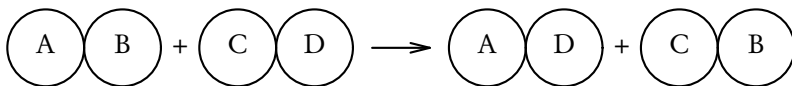
b. Combustion



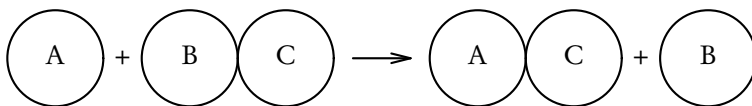
c. Decomposition



d. Double-Replacement Reaction



e. Single-Replacement Reaction



2. All the reaction types listed above occur in everyday life. Analyze the real-world reactions below and state which type of reaction they are.

a. Sodium + Chloride  $\rightarrow$  Sodium Chloride (table salt)

Composition.

b. Digestion: Food  $\rightarrow$  Protein + Carbohydrates

Decomposition.

c.  $\text{Fe}_2 + (\text{aq}) + 2\text{OH}^- (\text{aq}) \rightarrow \text{Fe}(\text{OH})_2 (\text{s})$

Iron + Oxygen  $\rightarrow$  Rust

Composition.

3. In the space below, write out one real-world chemical reaction and state which type of reaction it is.

When a material – such as wood – is burning, combustion reactions are occurring.