

Chemical Reactions and Energy



Directions: Answer the following questions using complete sentences.

1. What is an exothermic reaction?

2. What is an endothermic reaction?

3. What is an exergonic reaction?

4. What is an endergonic reaction?

Directions: Decide if each reaction below is endergonic or exergonic. In the blank at the left, write EN for endergonic or EX for exergonic.

5. When a lit match is placed in alcohol, the alcohol ignites producing heat and light.

6. Energy in the form of electricity can be added to water to break apart the water molecules into hydrogen gas and oxygen gas.

7. A piece of coal placed in a furnace gives off heat and light before turning to ash.

8. When ammonium chloride mixes with water, the solution formed feels cold.



Overview Chemical Reactions

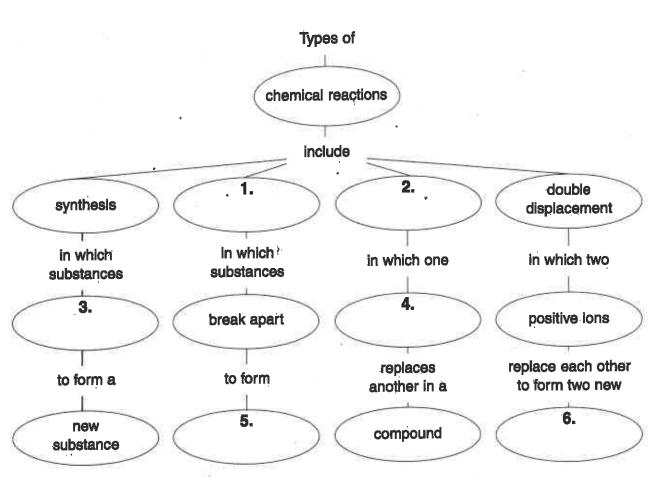
Date

Directions: Complete the concept map using the terms in the list below.

two or more substances single displacement

decomposition element

compounds combine



Directions: Write the letter of the term or phrase that best completes the sentence.

- 7. Which of the following does not speed up the rate of a chemical reaction?
 - a. higher temperature
- b. more surface area

- c. lower air pressure
- and catalyst
- 8. In the equation $H_2(g) + O_2(g) \rightleftharpoons H_2O(l)$, the symbol \rightleftharpoons represents:

 - a. equilibrium b. precipitation c. Le Chatelier
- d. displacement

Chapter Test A

Chemical Reactions

I. Testing Concepts

| Direction | IS: | in the blank at the left, v | vrite the letter of the ter | rm tl | hat best completes ea | ch statement. |
|--------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------|----------------------------|-----------------------------|
| | 1. | new substances. | | | | ces are converted into |
| 1.0 | | a. chemical | b. physical | C. | . state | d. electrical |
| | 2. | The substances that a. nuclear reactors | react are called b. elements | | . compounds | d. reactants |
| | 3. | The new substances a. elements | produced in a reacti b. compounds | on a | are called products | d. reactants |
| | 4, | of the reactants. | | | | equal to the total mass |
| | | a. Lavoisier | b. Dalton | C. | . Newton | d. Einstein |
| - | 5. | Numbers to the left a. superscripts | of formulas for react b. coefficients | tant c. | s are called . elements | d. formulas |
| | | A(n) chemica both sides. | _ | | | |
| | | a. false | b. balanced | C. | imbalanced | d. physical |
| Direction make it tru | | Identify each statement | as true or false. If the | state | ement is false, change | e the underlined word(s) to |
| | 7. | A combustion reaction occurs when a substance reacts with <u>carbon</u> to produce energy | | | | |
| | 8. | A <u>synthesis</u> reaction occurs when one substance breaks down into two or more substances. | | | | |
| | 9. | In a <u>decomposition</u> reaction, two or more substances combine to form another substance. | | | | |
| ;1 | l O. | When one element replaces another in a compound, it is called a <u>double-displacement</u> reaction. | | | | |
| 1 | 1. | In a <u>single-displacement</u> reaction, the positive ion of one compound replaces the positive ion of the other to form two new compounds. | | | | |

Chapter Test B (continued)

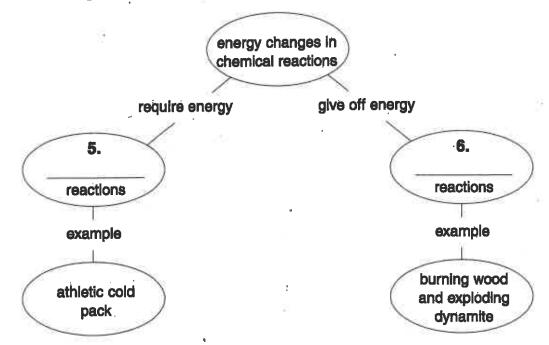
Skill: Hypothesizing

Directions: Answer the following questions in the lines provided.

- 3. When heated, mercury (II) oxide produces oxygen plus mercury. What would be the combined mass of oxygen and mercury if 20 g of mercury (II) oxide were heated?
- 4. How much oxygen would be produced by heating 20 g of mercury (II) oxide if 18.6 g of mercury is produced?

Skill: Concept Mapping

Complete the concept map using the terms endergonic and exergonic.



III. Applying Concepts

Directions: Study the following diagram. Then identify each model of a chemical reaction by filling in each blank below.

- 1. _____
- 2. _____
- 3. _____
- 4.





