

Review **Worksheet 20.1****Part A Review**

- Describe three types of evidence for chemical reactions.
- What happens to chemical bonds between atoms or ions during a chemical reaction?
- What is the difference between endothermic reactions and exothermic reactions?
- Compare the substances before and after a chemical reaction. How do the properties of the substances compare?

Part B Skills Development**Classify**

Decide which of the following interactions is a chemical reaction. Then classify each chemical reaction as either endothermic or exothermic. Complete the table by placing a check mark in the correct column(s).

Event	Chemical Reaction		Type of Reaction	
	Yes	No	Endothermic	Exothermic
Boiling an egg				
Mixing oil and vinegar to make salad dressing				
Peeling an orange				
Striking a match				
Taking a photograph				
An interaction that releases energy				

Vocabulary **Worksheet 20****Chemical Reactions**

Match each vocabulary term to one of the following statements. Write the letter for each term on the correct numbered line.

- | | |
|---|--|
| <ol style="list-style-type: none"> _____ A chemical reaction in which one reactant breaks down into simpler substances _____ A substance that undergoes a chemical change _____ A substance that speeds up a chemical reaction but does not get used up in the process _____ What chemical reactions need in order for reactants to combine _____ A reaction in which two positive ions trade places between different ionic compounds _____ A chemical reaction that absorbs energy _____ A number written in a chemical equation that shows the ratios of the number of atoms in a chemical reaction _____ Protein molecule that is a catalyst _____ A new substance formed after a chemical change takes place _____ A reaction in which atoms of one element replace atoms of another element in a compound _____ An expression that uses symbols to describe a chemical reaction _____ A reaction that releases energy, most often in the form of heat, light, or electricity _____ Occurs when chemical bonds between atoms or ions break and new bonds form between different atoms or ions _____ A type of reaction that occurs when two simple substances combine to form a more complex substance | <ol style="list-style-type: none"> chemical reaction exothermic reaction endothermic reaction chemical equation reactant product coefficient synthesis reaction decomposition reaction single-replacement reaction double-replacement reaction activation energy catalyst enzyme |
|---|--|

Review

Worksheet 20.2

Part A Review

1. What is a chemical equation?

2. Answer each question about the following chemical equation:



- What are the reactants?
 - What are the products?
 - What number is the subscript?
 - What number is the coefficient?
 - What does the arrow mean?
 - How many atoms are involved in the reaction?
3. How can you tell if a chemical equation is balanced?

Part B Skills Development

Calculate

Balance the following chemical equations. Circle any equation that is already balanced.

- $\text{Al} + \text{N}_2 \rightarrow \text{AlN}$
- $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
- $\text{P} + \text{O}_2 \rightarrow \text{P}_2\text{O}_5$
- $\text{N}_2 + \text{O}_2 \rightarrow \text{NO}$
- Write as a chemical equation: silver nitrate plus potassium chloride produces silver chloride plus potassium nitrate. The formula for nitrate is NO_3 .

Review

Worksheet 20.4

Part A Review

1. What is needed for a chemical reaction to start? Give an example.

2. If a reaction continues without a supply of added energy, what type of reaction is it? Why does the reaction continue?

3. Explain what will happen to the rate of reaction if the temperature, surface area, or concentration of the reactant is increased.

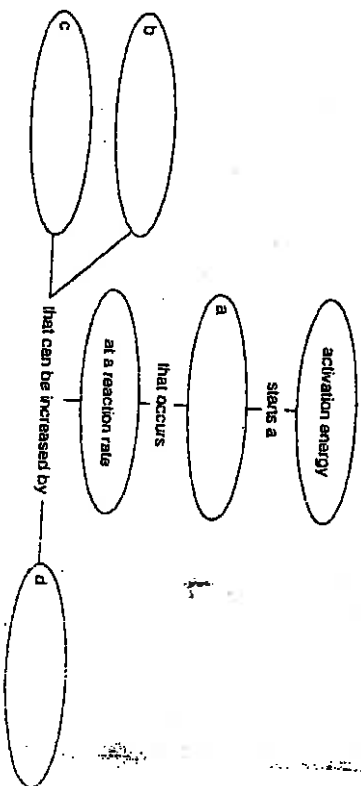
4. What is a catalyst? How does it work?

5. What is an enzyme? Give an example.

Part B Skills Development

Organize data

Complete the following concept map.



Vocabulary Review

activation atoms coefficient endothermic exothermic synthesis

1. In a chemical equation, subscripts show how many _____ of each element are present in each molecule.
2. Chemical reactions that absorb energy are called _____ reactions.
3. The energy needed to get a chemical reaction started is the _____ energy.
4. To balance a chemical equation, you add _____.
5. An _____ reaction releases energy.
6. The opposite of a decomposition reaction is a _____ reaction.

Chemical Equation Review

7. Reactants are written to the _____ of the yield sign in a chemical equation.
8. In the above chemical equation, name the reactants.

9. In the above equation, the _____ means or stand for what?

10. In the above chemical equation, name the products.

Balance the Following Chemical Equations

Type of Reaction: _____



Type of Reaction: _____



Type of Reaction: _____



Type of Reaction: _____



Type of Reaction: _____

16. Give four (4) kinds of evidence of a chemical reaction.

- a.) _____
- b.) _____
- c.) _____
- d.) _____

17. Give three (3) ways to increase the rate of a reaction.

- a.) _____
- b.) _____
- c.) _____

18. In what type of reaction do two elements exchange (swap) places in two compounds?

19. In what type of reaction do two simple substances combine to form a third complex substance?

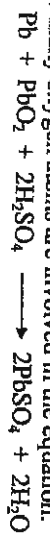
20. In what type of reaction does a substance break down to form two new substances?

21. How many hydrogen atoms are involved in the equation:



Circle your answer: 2 4 6 8

22. How many oxygen atoms are involved in the equation:



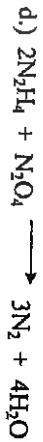
Circle your answer: 2 4 10 20

23. In each pair of reactions, circle which will go faster?

a.) Zinc in concentrated hydrochloric acid or zinc in dilute hydrochloric acid?

b.) Zinc in sulfuric acid at 15°C or Zinc in sulfuric acid at 20°C?

24. Which of the following equations is balanced? (Circle your answer)



25. To speed up certain reactions, a _____ can be used.