

Science 10

KEY

scroll
down.

Chemistry Unit (Part II) review package

Textbook pg.252 “checking concepts” # 4-6, 9a,b,d,e,g, 10, 14a, 16, 17, 19-21

Textbook pg. 282 “checking concepts” #1-3, 5.

Answers will be posted to MOODLE

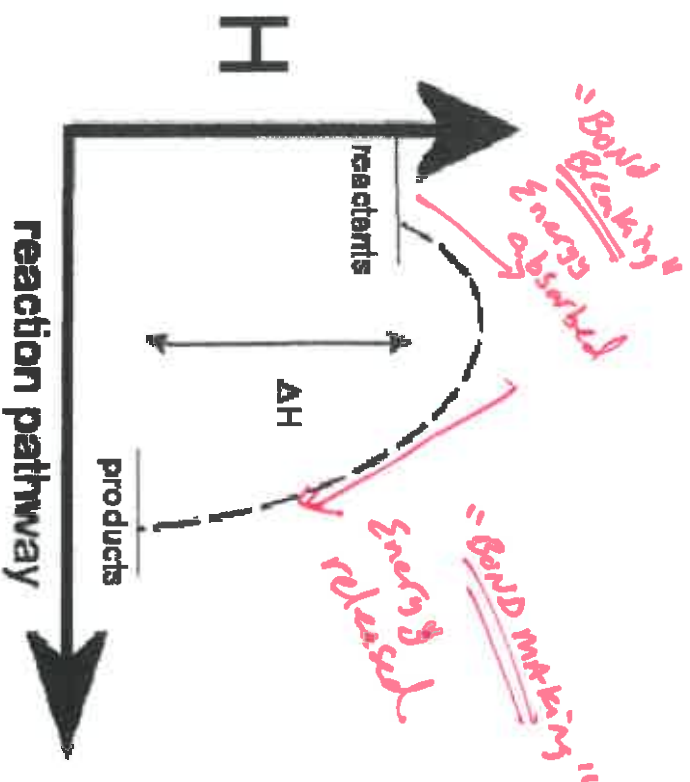
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Endothermic Reactions vs. Exothermic Reactions Worksheet

Process	System	Exo	Endo	Explanation
1. An ice cube melts after being left out on the table.	ICE		✓	ICE melts b/c it's absorbing Heat.
2. Cooking an egg in a frying pan.	EGG		✓	Egg absorbs Heat
3. Burning a match.	match	✓		match feels hot because it releases Heat.
4. The human body uses the energy provided from food digestion.	Body		✓	Absorbs energy from food.
5. Morning dew forming on grass and plants.	DEW	✓		Heat is released when water is condensed. The Dew is Grass "Cooling" WATER gas.
6. Dynamite explodes in the destruction of a building.	Dynamite	✓		Explosions release Energy to their surroundings.
7. Making ice cubes.	ICE	✓		WATER must release heat to freeze.
8. A puddle of water evaporates.	WATER		✓	WATER absorbs heat to freeze evaporate.
9. Plants making sugar through photosynthesis	plant		✓	Energy is absorbed in photosynthesis and stored in sugar.
10. Nuclear fission	emit			
11. Converting frost to water vapor.	WATER		✓	Frost must absorb heat to convert to the gas state.
12.				

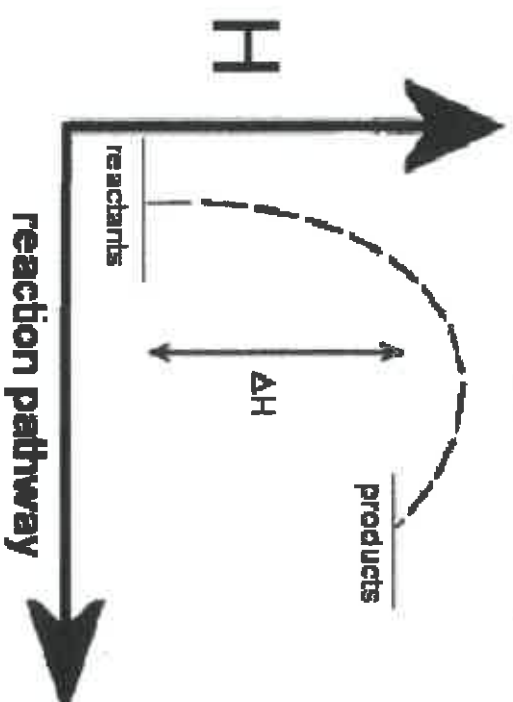
Your own idea

Name _____
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4. Endothermic or exothermic?

EXO



1. Endothermic or exothermic?

ENDO.

5. Is energy released or absorbed? Explain how you know in terms of the graph.

*BOTH, but there is a
NET release in energy
($\Delta H = -$)*

6. Which numbers on page 1 could this graph represent?

3, 5-7

2. Is energy released or absorbed? Explain how you know in terms of the graph.

*BOTH, but there is a
NET energy increase ($\Delta H = +$)*

3. Which numbers on page 1 could this graph represent?

1, 2, 4, 8-9, 11

Use with textbook pages 206–211.

Balancing equations

Starting with the skeleton equations, balance the following equations by adding coefficients where appropriate.

1. $\text{H}_2 + \text{F}_2 \rightarrow \text{HF}$ $\text{H}_2 + \text{F}_2 \rightarrow 2\text{HF}$
2. $\text{Sn} + \text{O}_2 \rightarrow \text{SnO}$ $2\text{Sn} + \text{O}_2 \rightarrow 2\text{SnO}$
3. $\text{MgCl}_2 \rightarrow \text{Mg} + \text{Cl}_2$ ✓
4. $\text{KNO}_3 \rightarrow \text{KNO}_2 + \text{O}_2$ $2\text{KNO}_3 \rightarrow 2\text{KNO}_2 + \text{O}_2$
5. $\text{BN} + \text{F}_2 \rightarrow \text{BF}_3 + \text{N}_2$ $2\text{BN} + 3\text{F}_2 \rightarrow 2\text{BF}_3 + \text{N}_2$
6. $\text{CuI}_2 + \text{Fe} \rightarrow \text{FeI}_2 + \text{Cu}$ ✓
7. $\text{Li} + \text{H}_2\text{O} \rightarrow \text{LiOH} + \text{H}_2$ $2\text{Li} + 2\text{H}_2\text{O} \rightarrow 2\text{LiOH} + \text{H}_2$
8. $\text{NH}_3 + \text{O}_2 \rightarrow \text{N}_2 + \text{H}_2\text{O}$ $4\text{NH}_3 + 3\text{O}_2 \rightarrow 2\text{N}_2 + 6\text{H}_2\text{O}$
9. $\text{V}_2\text{O}_5 + \text{Ca} \rightarrow \text{CaO} + \text{V}$ $\text{V}_2\text{O}_5 + 5\text{Ca} \rightarrow 5\text{CaO} + 2\text{V}$
10. $\text{C}_9\text{H}_6\text{O}_4 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ $2\text{C}_9\text{H}_6\text{O}_4 + 17\text{O}_2 \rightarrow 18\text{CO}_2 + 6\text{H}_2\text{O}$
11. $\text{H}_2\text{S} + \text{PbCl}_2 \rightarrow \text{PbS} + \text{HCl}$ $\text{H}_2\text{S} + \text{PbCl}_2 \rightarrow \text{PbS} + 2\text{HCl}$
12. $\text{C}_3\text{H}_7\text{OH} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ omit.
13. $\text{Zn} + \text{CuSO}_4 \rightarrow \text{Cu} + \text{ZnSO}_4$ ✓
14. $\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
15. $\text{C}_2\text{H}_5\text{OH} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ omit
16. $\text{Al} + \text{H}_2\text{SO}_4 \rightarrow \text{H}_2 + \text{Al}_2(\text{SO}_4)_3$ $2\text{Al} + 3\text{H}_2\text{SO}_4 \rightarrow 3\text{H}_2 + \text{Al}_2(\text{SO}_4)_3$
17. $\text{FeCl}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Fe}(\text{OH})_3 + \text{CaCl}_2$ $2\text{FeCl}_3 + 3\text{Ca}(\text{OH})_2 \rightarrow 2\text{Fe}(\text{OH})_3 + 3\text{CaCl}_2$
18. $\text{Pb}(\text{NO}_3)_2 + \text{K}_2\text{CrO}_4 \rightarrow \text{PbCrO}_4 + \text{KNO}_3$ $\text{Pb}(\text{NO}_3)_2 + \text{K}_2\text{CrO}_4 \rightarrow \text{PbCrO}_4 + 2\text{KNO}_3$
19. $\text{Cd}(\text{NO}_3)_2 + (\text{NH}_4)_2\text{S} \rightarrow \text{CdS} + \text{NH}_4\text{NO}_3$ $\text{Cd}(\text{NO}_3)_2 + (\text{NH}_4)_2\text{S} \rightarrow \text{CdS} + 2\text{NH}_4\text{NO}_3$
20. $\text{Ca}(\text{OH})_2 + \text{NH}_4\text{Cl} \rightarrow \text{NH}_3 + \text{CaCl}_2 + \text{H}_2\text{O}$ omit.

Use with textbook pages 202–211.

Word equations

Write the skeleton equation for each of the following reactions. Then balance each of the following chemical equations.

1. hydrogen + oxygen → water



2. iron(III) oxide + hydrogen → water + iron



3. sodium + water → sodium hydroxide + hydrogen



4. calcium
- carbide
- + oxygen → calcium + carbon dioxide

~~Ca~~ omit

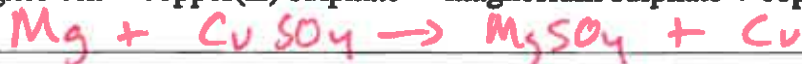
5. potassium iodide + chlorine → potassium chloride + iodine



6. chromium + tin(IV) chloride → chromium(III) chloride + tin



7. magnesium + copper(II) sulphate → magnesium sulphate + copper



8. zinc sulphate + strontium chloride → zinc chloride + strontium sulphate



9. ammonium chloride + lead(III) nitrate → ammonium nitrate + lead(III) chloride



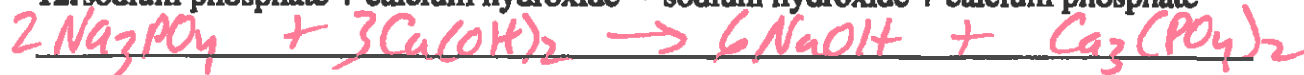
10. iron(III) nitrate + magnesium sulphide → iron(III) sulphide + magnesium nitrate



11. aluminum chloride + sodium carbonate → aluminum carbonate + sodium chloride



12. sodium phosphate + calcium hydroxide → sodium hydroxide + calcium phosphate





KEY: WORKSHEET ON CHEMICAL VS PHYSICAL PROPERTIES AND CHANGES

Keep this in your binder as a study guide!

Background: Keeping the difference between physical and chemical properties as well as changes can be a challenge! This worksheet will help you do this. First, use the book to define the following terms.

VOCABULARY WORD	DEFINITION
Physical Property	Characteristics of matter that can be seen through direct observation such as density, melting point, and boiling point
Physical Change	Change in which the identity of the substance does NOT change
Chemical Property	Characteristic of matter that can only be observed when one substance changes into a different substance, such as iron into rust
Chemical Change	Transforms one type of matter into another kind, which may have different properties

Part One: Physical or Chemical Property? Fill in the chart using the vocabulary words or phrases provided.

Vocabulary words

Boiling point	Ability to rust	Melting point	Brittleness	Reactivity with vinegar
elasticity	Flammability	Freezing point	Transparency	ductility

Each word is used once. Define the word when done!

Chemical Property!	Definition
• flammability	• The ability to burn
• Ability to rust	• Reacts with oxygen to produce rust
• Reactivity with vinegar	• Reacts with vinegar to produce new substances

Physical Property!	Definition
• transparency	• The property of letting light pass through something
• Boiling point	• Temperature at which a substance goes from liquid to gas
• Melting point	• Temperature at which a substance goes from solid to a liquid
• Brittleness	• Tendency to crack or break
• Ductility	• Ability to bend without breaking
• Elasticity	• Ability to be stretched or compressed then return to original size
• Density	• Mass per unit volume

Part Two: Physical or Chemical Change? Indicate with a 'P' or a 'C' which type of change is taking place.

1. <u> p </u> glass breaking	10. <u> p </u> mixing salt and water
2. <u> p </u> hammering wood together	11. <u> p </u> mixing oil and water
3. <u> c </u> a rusting bicycle	12. <u> p </u> water evaporating
4. <u> p </u> melting butter	13. <u> p </u> cutting grass
5. <u> p </u> separate sand from gravel	14. <u> c </u> burning leaves
6. <u> c </u> bleaching your hair	15. <u> c </u> fireworks exploding
7. <u> c </u> frying an egg	16. <u> p </u> cutting your hair
8. <u> p </u> squeeze oranges for juice	17. <u> p </u> crushing a can
9. <u> p </u> melting ice	18. <u> p </u> boiling water

Types of Reactions Worksheet

Balance the following equations and indicate the type of reaction taking place:



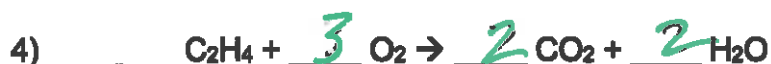
Type of reaction: Double Replacement



Type of reaction: Double Replacement



Type of reaction: Single Repl.



Type of reaction: Hydrocarbon Combustion



Type of reaction: Decomposition



Type of reaction: Single Repl.



Type of reaction: Combination (or) Synthesis



Type of reaction: Neutralization

BALANCED!

Fun With Predicting Reaction Products

NOT DONE
in Sc. 10

Predict the products of each of the following chemical reactions. ~~If a reaction will not occur, explain why not.~~

