Summary/Study Notes ANSWER KEY

Name: _____ Date: _____ Section: 5.4

The Kinetic Molecular Theory and Changes of State (continued)

While You Read READ Chapter 5.4 (text book)

Pause and think as you read. After you read the parts of the section identified in column 1, pause and write brief notes or make sketches in column 2 of ideas you want to remember.

Part read/viewed	Ideas to remember
The Kinetic Molecular Theory	
Explaining Changes in Matter	Make your own summary notes.
Explaining Dissolving and Density	

After You Read

- Compare your notes with those of another student. Identify what is the same and what is different in the ideas you want to remember.
- Discuss with another student how the tables and figures relate to the information in the paragraphs.

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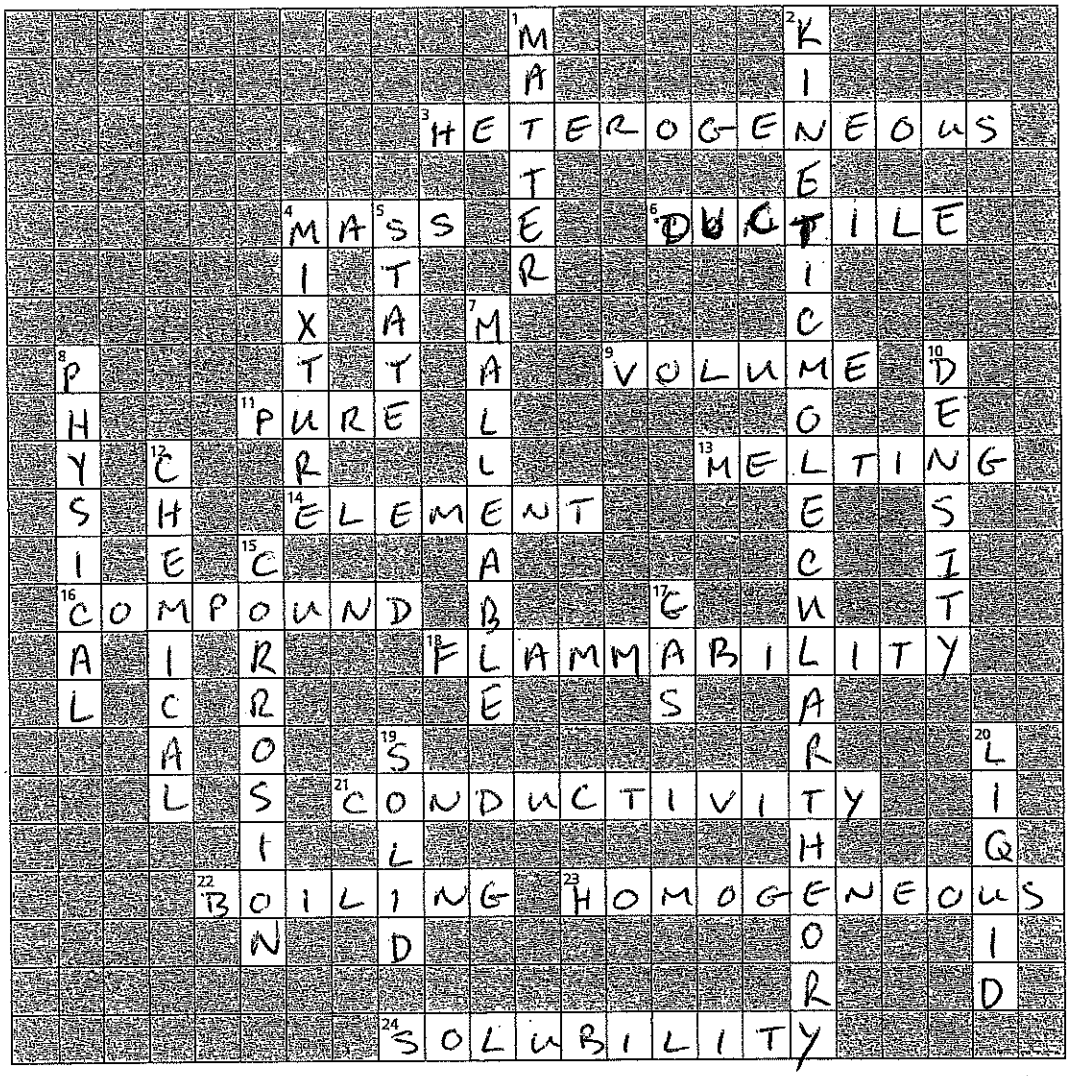
Matter and Change Crossword Puzzle



ACROSS

3. a mixture that is not uniform in its composition
4. the amount of matter that an object has
6. Copper is used for electrical wiring because it is a ____ material.
9. the amount of space that an object fills
11. A ____ substance is matter that contains only one type of particle.
13. ____ point: when a solid changes to a liquid
14. a pure substance that cannot be changed into anything simpler
16. a pure substance that consists of two or more elements
18. the rapid reaction of some substances with oxygen
21. the ability of a material to conduct electricity or heat
22. ____ point: when a liquid changes to a gas
23. A ____ mixture is made of substances that are evenly and microscopically mixed together.
24. ____ is the ability of a substance to dissolve.

DOWN

1. anything that has mass and volume
2. the idea that matter is made from moving invisible particles
4. A ____ contains two or more pure substances.
5. Liquid is one ____ in which matter can be found.
7. If a solid is ____, it can be hammered into shapes.
8. Condensation is a ____ change.
10. the mass per unit volume of a substance
12. Rusting is a ____ change.
15. the slow reaction of certain metals with oxygen
17. In a ____, the particles are very far apart.
19. A liquid becomes a ____ when heat energy is removed.
20. Water is a ____ at room temperature.

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CHAPTER 5

Chapter 5 Quiz (Practice Quiz)

Part A: Matching

1. Match the term with the appropriate definition.

g	A. evaporation	~~(a)~~	macroscopic changes only, particles stay the same
d	B. ductile	~~(b)~~	makes frost
f	C. mass	~~(c)~~	can be separated using physical properties
J	D. solid	~~(d)~~	non-metals do not have this property
e	E. chemical change	~~(e)~~	new substances are produced
b	F. deposition	~~(f)~~	density multiplied by volume
h	G. boiling point	~~(g)~~	creates water vapour from liquid
i	H. volume	~~(h)~~	same temperature as condensation point
a	I. physical change	~~(i)~~	space something occupies
c	J. heterogeneous mixture	~~(j)~~	state with least particle movement

Part B: Completion

Complete each sentence.

2. The difference between a "cool" solid and a "hot" solid is that the particles vibrate less quickly in the cool solid.
3. The difference between a solid and a liquid at the same temperature is that the particles of the liquid can move freely past each other.
4. One difference between a hot liquid and a gas is that the particles of the gas do not attract each other.
5. When the water vapour in clouds is cooled rapidly, it experiences deposition and forms hail (?).
6. A substance dissolving is considered a physical property, while a substance's reaction with acid is considered a chemical property.
7. Car bodies can have interesting shapes because metals are malleable, a physical property.
8. Car bodies can also rust, which is called corrosion, a chemical property.

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CHAPTER 5

Chapter 5 Quiz (continued)

Part C: Multiple Choice

Circle the letter beside the answer that best completes the statement or answers the question.

9. Which of the following is not a physical property?

(a) state (b) density (c) ductility (d) flammability

10. Which of the following geological processes are chemically created?

(a) erosion of a riverbank
(b) flow of molten lava
(c) heaving of rock by ice formation
(d) formation of limestone cave

11. The 787 is a new airliner. Much of it is made of carbon fibre panels. What do you think is the primary combination of properties that make this a good choice?

(a) flammable and low density
(b) high density and malleable
(c) low density and high strength
(d) high density and flexibility

12. Which property of plastic makes it useful as a handle for pots and pans?

(a) is brittle
(b) conducts heat poorly
(c) does not conduct electricity well
(d) has high density

13. Giselle buys a ring and wants to find what type of gold alloy it is. She measures its volume using a graduated cylinder and finds it is 1.9 cm^3. Then she measures its mass and discovers it to be 29.5 g. Which alloy is it likely to be? Use the table to answer the question.

$d = \frac{m}{V}$

Gold (k)	Density (g/cm^3)
10	11.4
14	13.1
18	15.5
24	19.3

(a) 10k (b) 14k (c) 18k (d) 24k

14. A particle is vibrating, it is able to slip by other particles, and it moves downward. The particle must be a part of a

(a) solid (b) liquid (c) plasma (d) gas

15. Snow and hail are formed by which two different processes?

(a) deposition and solidification
(b) deposition and evaporation
(c) condensation and evaporation
(d) melting and solidification

16. Davy Lamps were used by coalminers of the 19th century. They were called safety lamps because their flame was surrounded by a copper metal screen to prevent the flame from igniting any explosive coal gas. How did the lamp work?

(a) The screen prevented any gas from getting to the flame.
(b) The screen cooled the heat of the flame to a temperature that would not ignite the gas.
(c) The gas could not ignite inside the lamp.
(d) The gas was not flammable.

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CHAPTER 5

Chapter 5 Quiz (continued)

Part D: Short Answer

Use complete sentences or diagrams to answer each question.

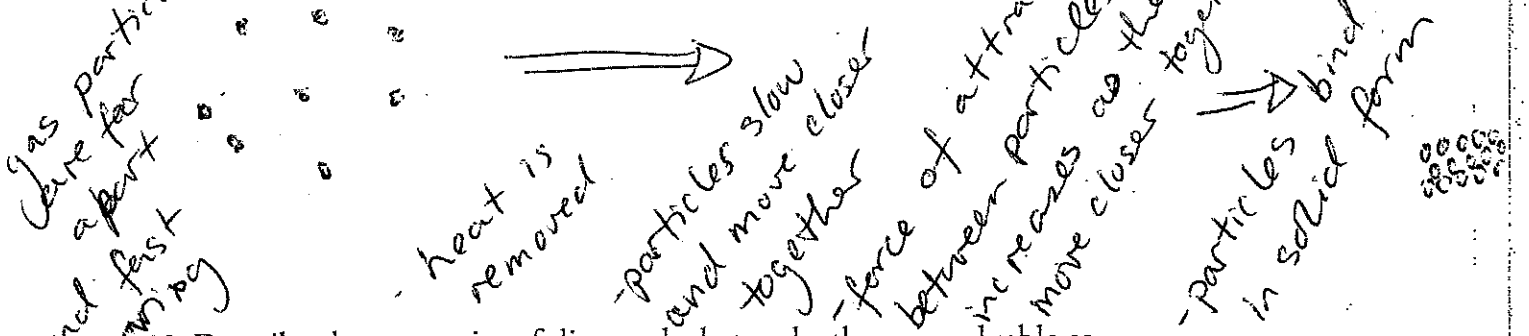
17. James accidentally spills two containers, mixing their contents. He checks and finds that one contained salt crystals, while the other contained powdered sand. Describe a method that he might use to separate the two mixtures without losing any of either mixture.

Since salt is soluble in water but sand is not, put the mixture in water so that the salt dissolves then filter the mixture, separating the sand from the salt water, then let the sand dry, and boil off the water from the salt water solution

18. Explain how pouring water on a fire puts out the fire in more than one way.

Water cools the fire (removes heat) and blocks the flame from access to oxygen. Furthermore Both heat and oxygen are needed for combustion.

19. Using diagrams, describe what happens to a gas as it is rapidly cooled to directly form a crystalline solid such as frost.



20. Describe the properties of diamonds that make them so valuable as

(a) gemstones

-optical properties - they disperse light into rainbow colours

(b) industrial cutting stones

-hardness - diamond is the hardest natural material, therefore it can cut other things.

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