REVIEW WS_Heat & Matter Unit Name: Hour:

Learning Target 1: I can describe the general movement of particles/molecules within the three common phases of matter.

Short Answer:

1. Which phase of matter has a definite volume but does not have a definite shape?

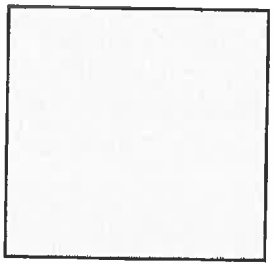
2. Which phase of matter has particles that move the slowest?

3. Which phase of matter will expand to completely fill its container?

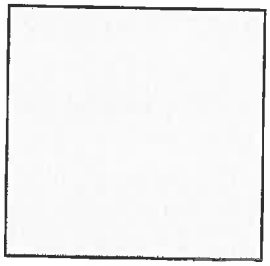
4. Which phase of matter has a definite shape and definite volume?

5. Which phase of matter has particles that will compress most easily?

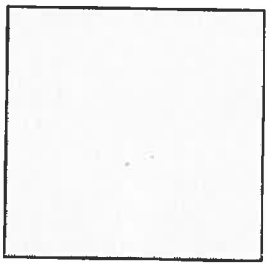
Draw particle models in the boxes below. **Be sure to show the proper spacing and movement.**



SOLID



LIQUID

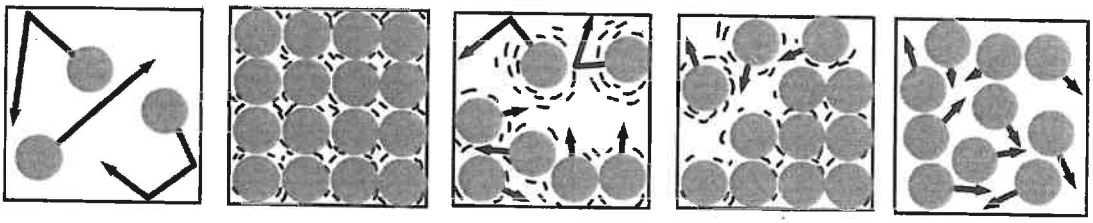


GAS

7. Explain how heat energy affects the movement of particles (atoms.)

LT 2: I can explain the effect of adding or removing thermal energy on particle movement (Phase changes.)

Use the following diagrams to answer the questions below:



A B C D E

6. Which particle model above represents a substance that is changing from a liquid to a gas? (Is it model A, B, C, D or E?)

7. Which particle model represents a gas?

8. Which particle model represents a substance that is changing from a solid to a liquid?

9. Which particle model shows a liquid?

SHORT ANSWER/FILL IN THE BLANK:

10. Explain the difference between the particle model for liquids and the particle model for gases.

11. As heat is added to a substance, the particles of that substance: (fill in the 3 bulleted points)

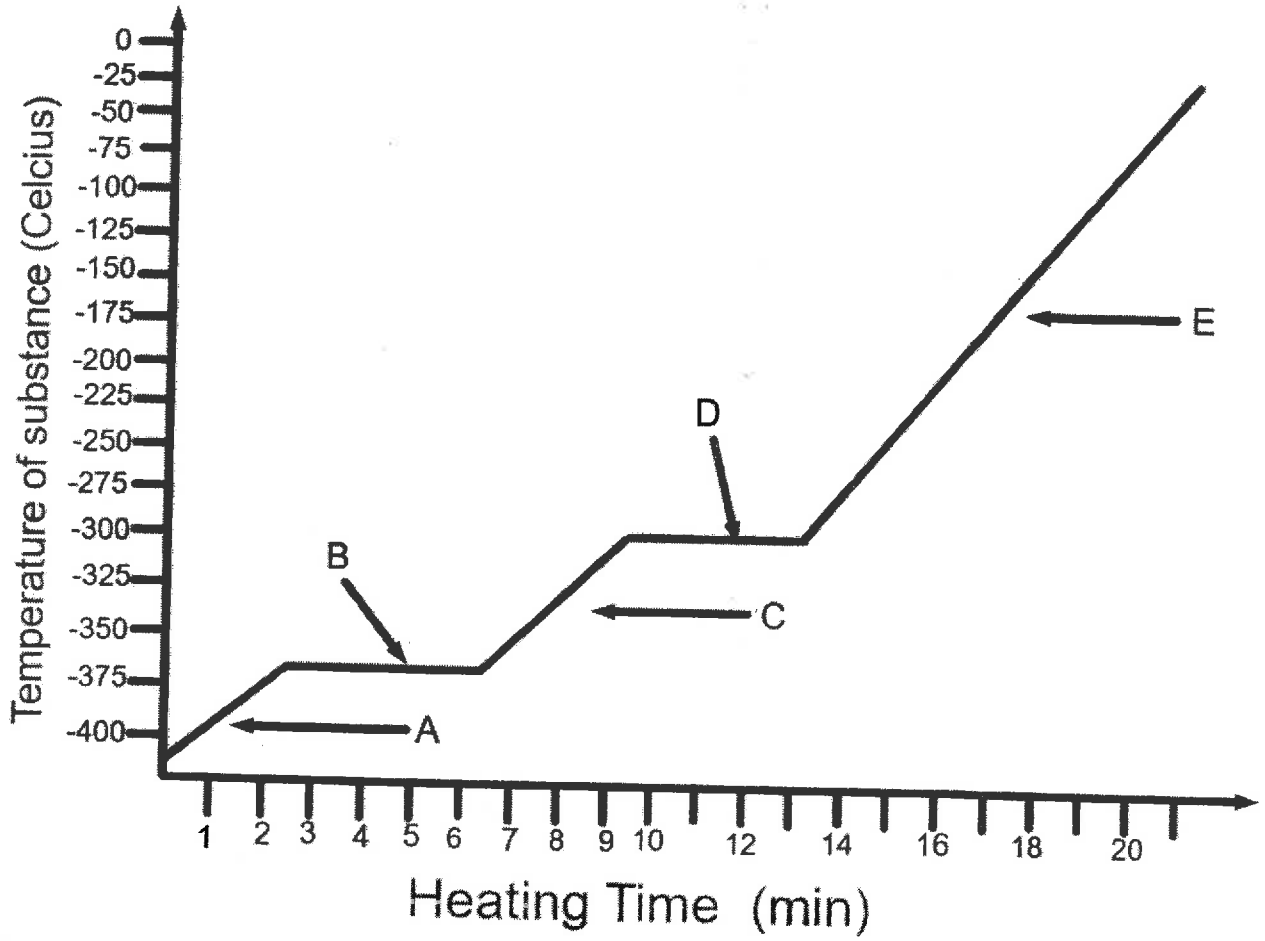
-
-
-

12. What do you call it when a substance changes from a liquid to a solid?

13. What do you call it when a substance changes from a gas to a liquid?

14. The melting point of any substance is the same as it's freezing point. Explain how a substance can melt and freeze at the same temperature.

Use the following diagram to answer questions 15-20.



15. Which letter(s) on the graph show where a phase change is occurring?

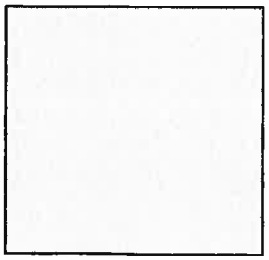
16. Letter D on the graph shows the boiling point of this substance when heat is being added. What would we call this point if we were cooling the substance from a gas to a liquid?

17. Is this substance water? How can you tell?

18. Draw the particle model for evaporating in the box below. Be sure to include proper spacing and movement.

This particle model represents letter _____ on the graph.

19. Draw the particle model for melting in the box below.



Draw or describe how you might make this model look different if we were trying to represent "freezing" instead of "melting."

20. What is the **proper** title for the graph? (Remember the format that we discussed during labs?)

LT 3: I can explain the relationship between pressure, volume and temperature of a gas.

21. You fully inflate a new giant flamingo pool float. After an unseasonably cold night, you find that your flamingo needs more air the next day. Which gas law explains what happened? Name and state the law.

22. Mrs. Stone left a 12 pack of Diet Pepsi in the back of her car on a very hot day. Later, she opened the back of the car to put her golf clubs in and one of the cans of Diet Pepsi suddenly started spraying all over her car. Which gas law best explains what happened? (It has to do with what happened to the carbon dioxide gas in the pop.) Name and state the law.

23. You are trying to study for your science test, but you are having a hard time concentrating because your little brother found some bubble wrap and he keeps popping the bubbles. Which gas law best explains what happens when you pop bubble wrap? Name and state the law.

24. Mr. French has high tech equipment which allows him to collect very reliable data. He conducts a lab where he begins heating an ice cube and records the temperature every minute for 18 minutes. His data table is below:

Time (minutes)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Temperature (C)	-14	-8	-3	0	-1	-1	-1	-1	7	15	24	39	51	67	79	93	93	93	93

What is the melting point of water according to Mr. French's data?

How do you know?

What is the boiling point according to his data?

We know that water boils at 100 C and melts at 0 C. What do we know about gases that can help explain why Mr. French's data does not show these exact numbers?