Pg 18 Bellwork

Scientific Method Name _____
Controls and Variables – Part 2

SpongeBob and his Bikini Bottom pals have continued doing a little research to solve some problems. Read the description for each experiment and answer the questions.

Krusty Krabs Breath Mints
Mr. Krabs created a secret ingredient for a breath mint that he thinks will "cure" the bad breath people get from eating crabby patties at the Krusty Krab. He asked 100 customers with a history of bad breath to try his new breath mint. He had fifty customers (Group A) eat a breath mint after they finished eating a crabby patty. The other fifty (Group B) also received a breath mint after they finished the sandwich, however, it was just a regular breath mint and did not have the secret ingredient. Both groups were told that they were getting the breath mint that would cure their bad breath. Two hours after eating the crabby patties, thirty customers in Group A and ten customers in Group B reported having better breath than they normally had after eating crabby patties.

1. Which people are in the control group?

2. What is the independent variable?

3. What is the dependent variable?

4. What should Mr. Krabs' conclusion be?

5. Why do you think 10 people in group B reported fresher breath?

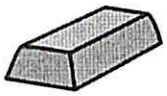
BrainPOP ACTIVITY

Name: .....

Date: .....

SCIENCE > MATTER AND CHEMISTRY > MEASURING MATTER

USE THE FORMULA Calculate the missing value using the two given values!

	MASS	VOLUME	DENSITY
 TEXTBOOK	2,000 g	4,000 cm^3	.....
 APPLE	100 g	.....	0.8 g/mL
 FOOTBALL	.....	625 mL	0.64 g/mL
 GOLD BAR	16,000 g	800 cm^3	.....
 CAN OF SOUP	150 g	.....	0.75 g/cm^3

THINK ABOUT IT

What's more likely: an object whose mass is 0, or an object whose weight is 0?

.....

.....

.....

BrainPOP ACTIVITY

Name: .....

Date: .....

SCIENCE > MOTIONS, FORCES, AND TIME > BUOYANCY

ORDER IT

Number the items in order from least to most buoyant. Explain how you made your decision.

..... Ice cube ..... Beach ball ..... Wet sponge

..... Tennis ball ..... Hockey puck ..... Helium balloon

Explanation:

.....

.....

.....

.....

DESCRIBE IT

Discuss the buoyancy of a rubber ducky. Include each term listed in the word bank.

BUOYANT FORCE DENSITY DISPLACEMENT GRAVITY
POSITIVELY BUOYANT VOLUME WEIGHT

.....

.....

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.....

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.....

.....

.....

BrainPOP ACTIVITY

Name: .....

Date: .....

SCIENCE > MATTER AND CHEMISTRY > MATTER CHANGING STATES

WORD SCRAMBLE

Unscramble the words to complete each sentence.

1. **MRATET** is anything that has mass and takes up space.

   .....

2. The three basic states of matter are **ILSOD**, **UDLIIQ**, and **ASG**.

   ....

3. A state change is a **PCLYHASI** change.

   .....

4. Matter changes state because of **UEREPRSS** and **RTEEAUEMTRP**; **LECMCIHA** properties do not change.

   ....

5. Bonded water molecules form a crystal **TIACTLE** structure.

   .....

6. **EGAINHT** gives molecules energy that causes them to vibrate faster, breaking their bonds and melting.

   .....

7. The temperature at which a solid melts into a liquid is its **LMITEGN** point.

   .....

8. Heat energy that helps break the molecular bonds of a solid is heat of **FOSUNI**.

   .....

9. Gas molecules have more energy than liquid molecules and bounce around **RYADONML**.

   .....

10. Heat energy required to break the attraction of liquid molecules is heat of **TPAAIOIORZVN**.

    .....

11. The temperature at which a liquid turns into a gas is the **OBNGLII** point.

    .....

12. **TMOILASINBU** is when a solid turns straight into a gas.

    .....

FURTHER RESEARCH

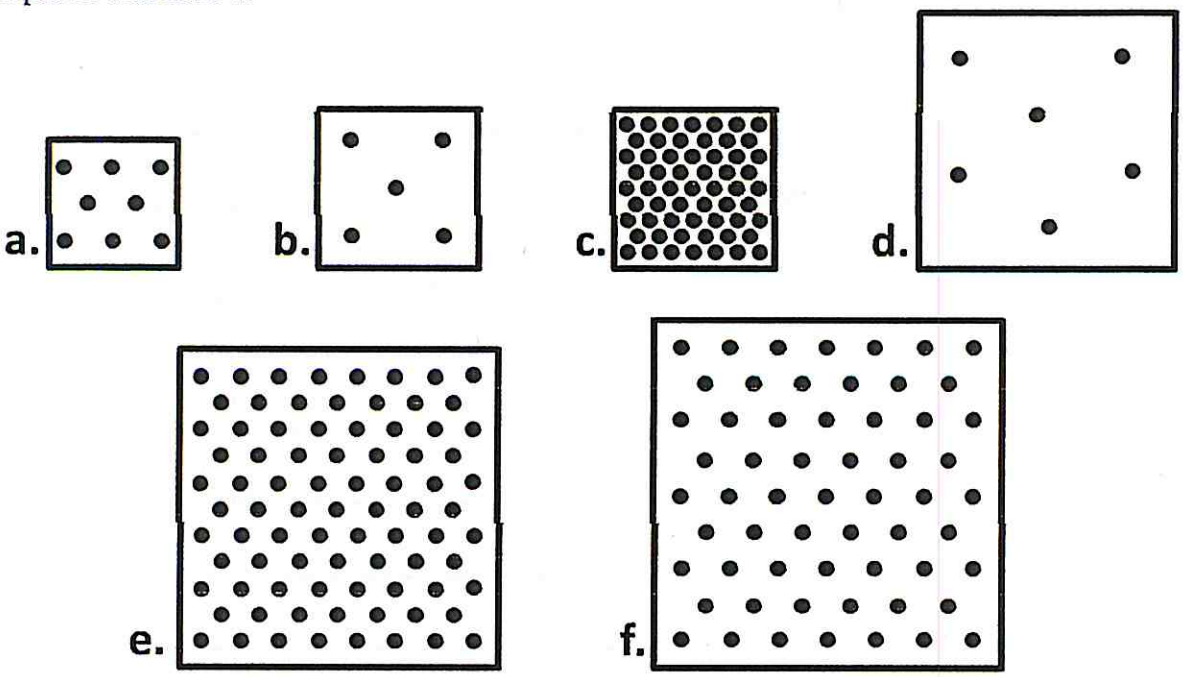
What is the process of a gas changing back into a liquid called?

.....

Name: _____ Date: _____

Mass, Volume and Density without Numbers

We have recently talked about the relationship between mass, volume and density. In this worksheet we will continue to explore this relationship. Below are several squares of various sizes which represent their volume. The number of dots inside the squares represents the mass of the object. Answer the questions about the squares that follow.



1. Which object has the greatest mass? Explain. _____

_____

2. Which object has the smallest mass? Explain. _____

_____

3. Which object has the largest volume? Explain. _____

_____

4. Which object has the smallest volume? Explain. _____

_____

5. Which two objects have the same volume? Explain. _____

_____

6. Which two objects have the same mass? Explain. _____

_____

7. If two objects have the same volume do they have to have the same mass? Explain. _____

_____

_____

8. Which object has the greatest density? Explain. _____

_____

_____

9. Which object has the smallest density? Explain. _____

_____

_____

10. Which two objects have the same density? Explain. _____

_____

_____

_____

11. Which two objects would you expect to be made of the same material? Explain. _____

_____

_____

12. Why does the object with the largest volume not have the largest mass also? _____

_____

_____

13. Using squares and dots draw two pictures of objects with different volumes and densities in the space below. The object with smaller volume must have a smaller mass but greater density than the object with greater volume.