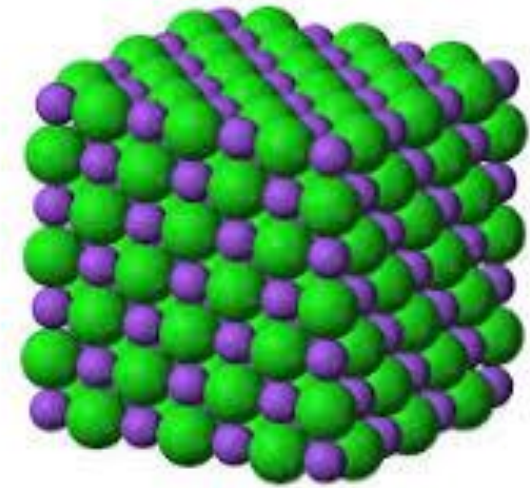


October 1, 2018

Mastery Objective: Students will explain how a change in state occurs by **analyzing molecule movement in solids, liquids, and gases.**



Intermolecular structure of solid

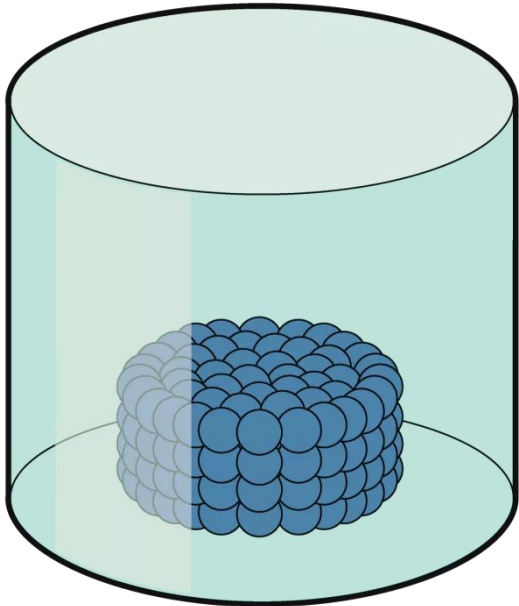
Drill Warm-Up:

Identify the state of matter (solid, liquid, or gas) that is described for each statement:

1. These particles have the strongest force holding them together.
2. These particles move the fastest.
3. These particles slide past each other to take the shape of their container because a medium amount of force acts between them.
4. This phase of matter has a definite shape and volume.
5. This phase of matter has no definite shape and volume.

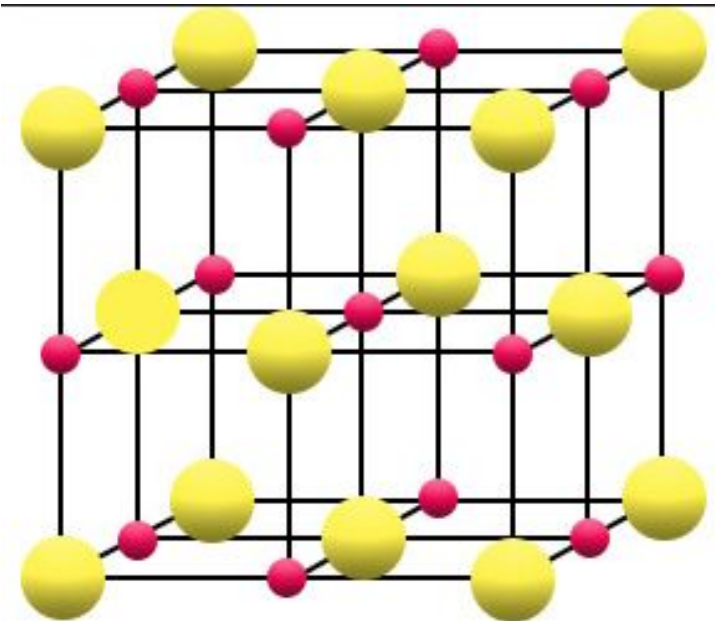
Solids

- **Solids have a definite shape and volume.**
- **Strong forces hold particles of a solid together**
- **Each particle vibrates in place**

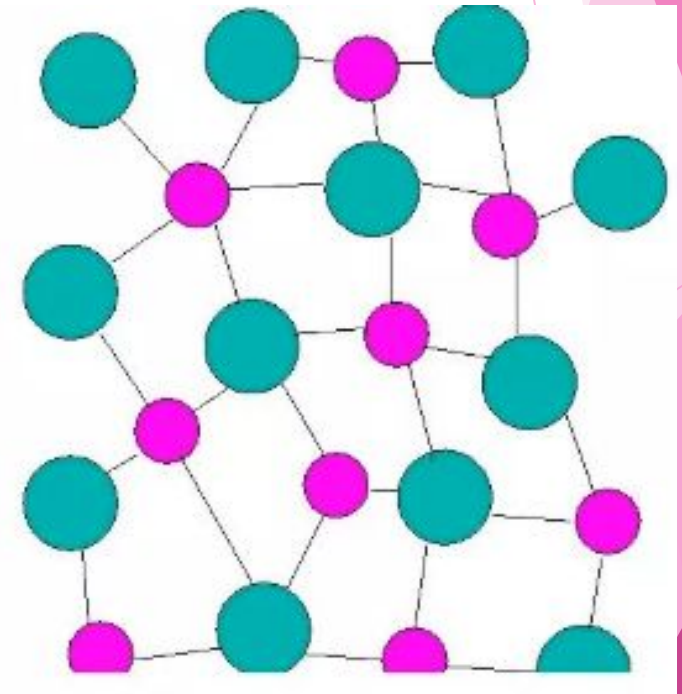


Two Types of Solids

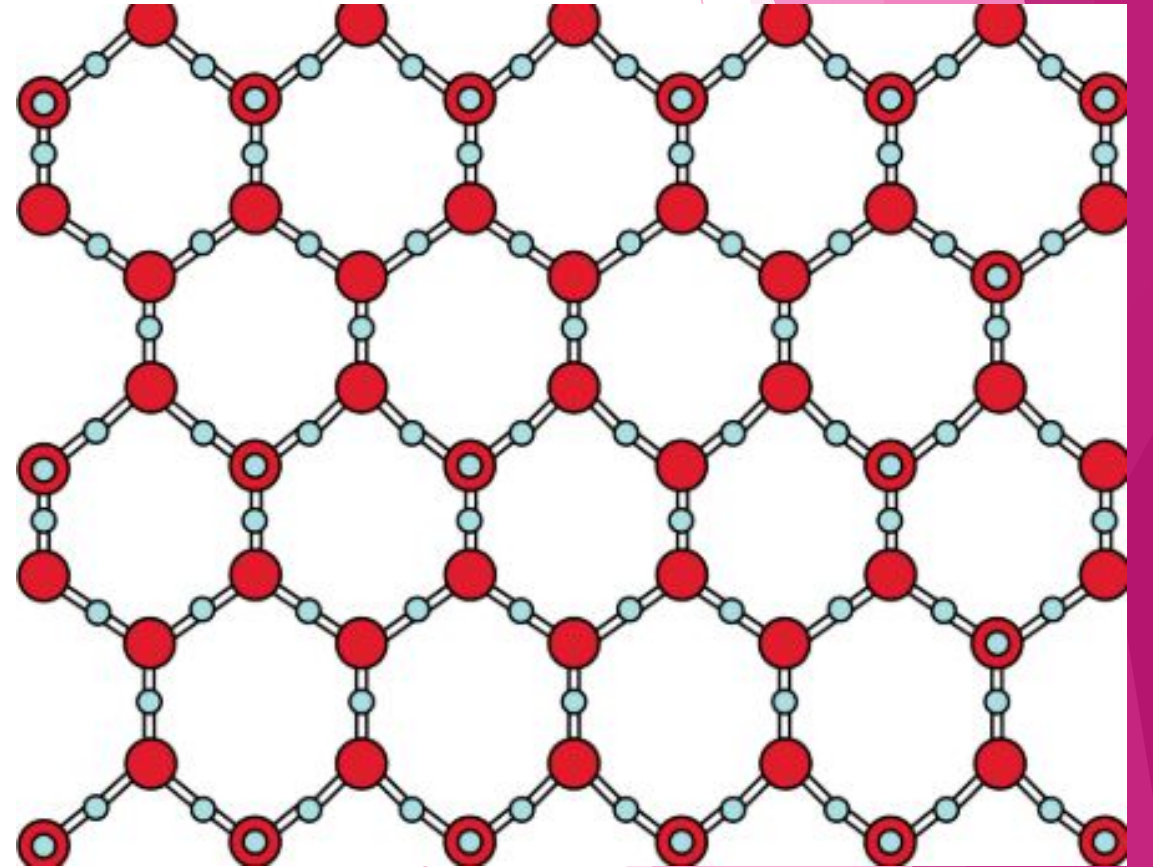
- **Crystalline solids** have an orderly arrangement of particles



- **Amorphous solids** do not have a special arrangement of particles



Crystalline or Amorphous?



Liquids

- **Liquids have a definite volume but take the shape of their container**
- **Particles slide past each other**
- **weak bonds hold particle together**



Surface Tension:
force that acts on the particles at the surface of a liquid. Causes liquids to form spherical drops.

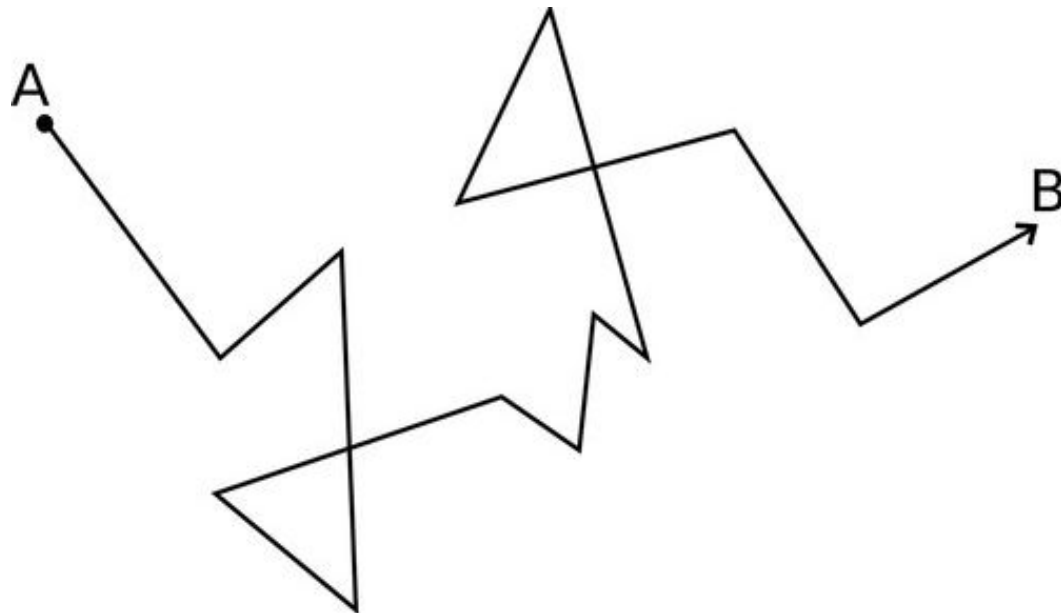
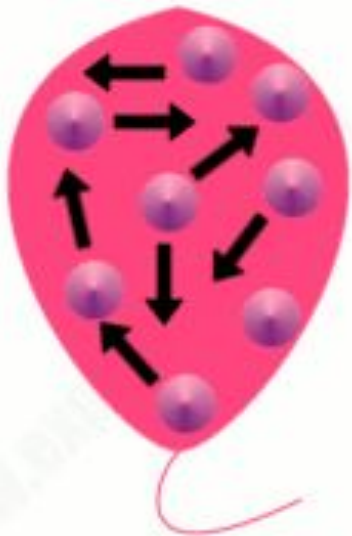


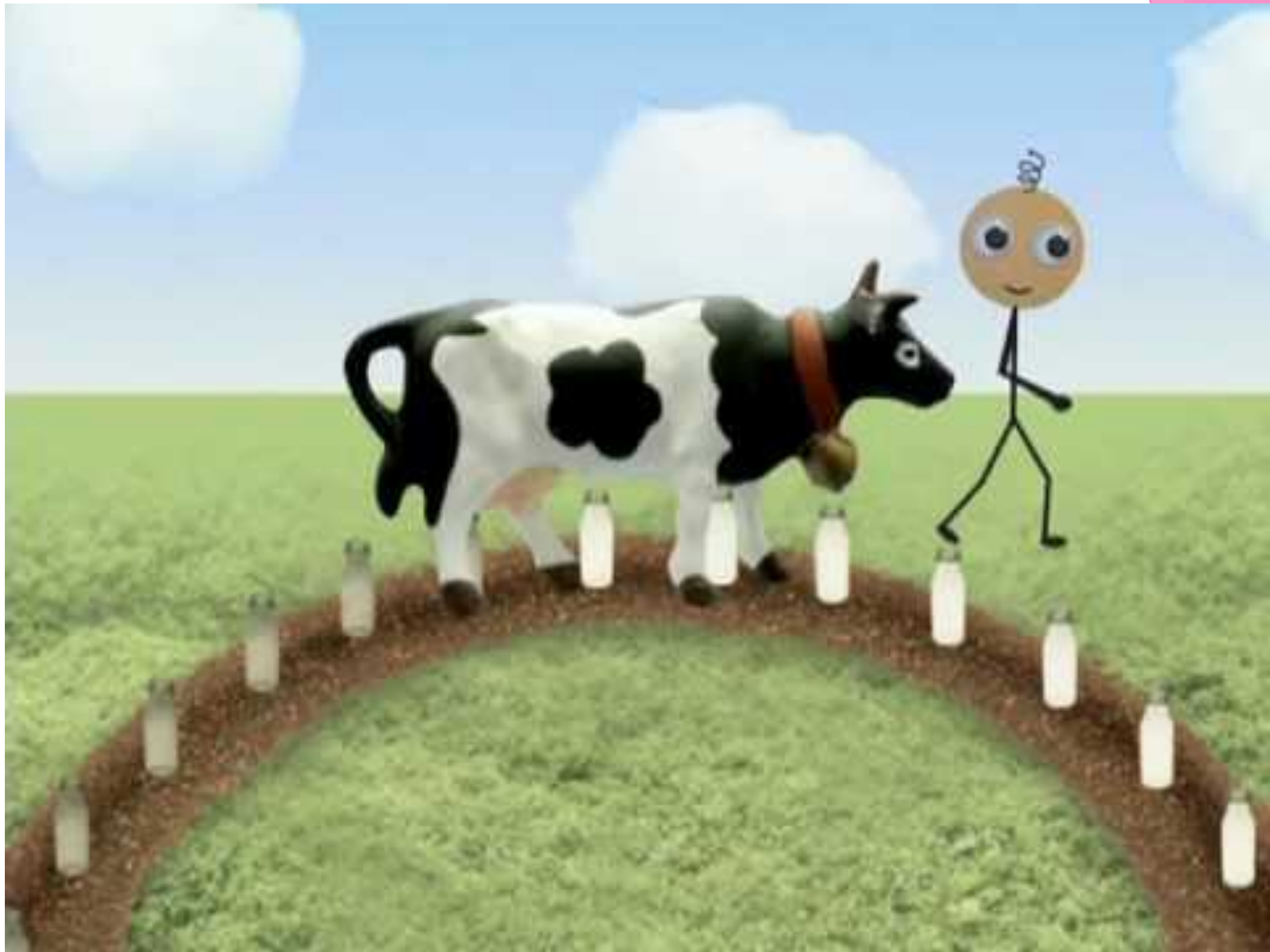
Viscosity: a liquid's resistance to flow. Usually, the stronger the force b/w particles, the more viscous it is.



Gases

- **Gases have no definite shape or volume**
- **particles move quickly**
- **least attraction b/w particles**
- **Amount of space b/w gas particles can change**





States of Matter Activity

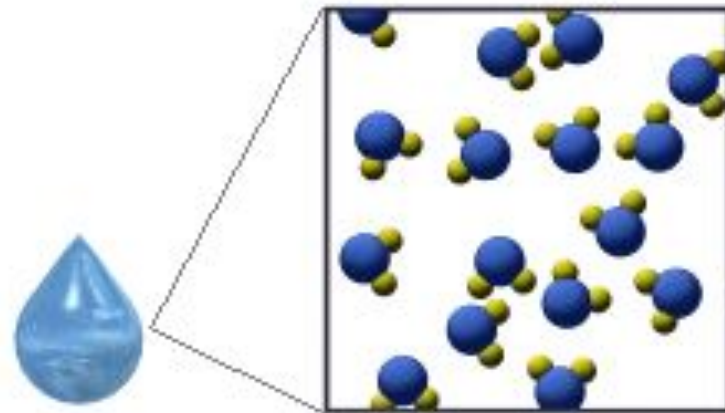
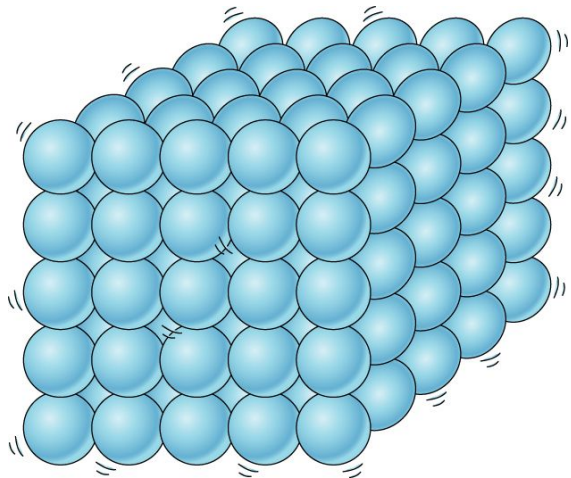
1. Gather a flask, funnel, and one balloon.
2. Using the funnel, scoop two spoonfuls of baking soda into the balloon.
3. Pour vinegar into the flask to the half-way point.
4. Place the mouth of the balloon over the top of the flask. Make sure it's secure!
5. Hold up the balloon to allow baking soda to fall into the flask. Swirl to combine.

October 2, 2018

Mastery Objective: Students will explain how a change in state occurs by analyzing a baking soda/vinegar reaction to write a conclusion statement.

Drill Warm-Up:

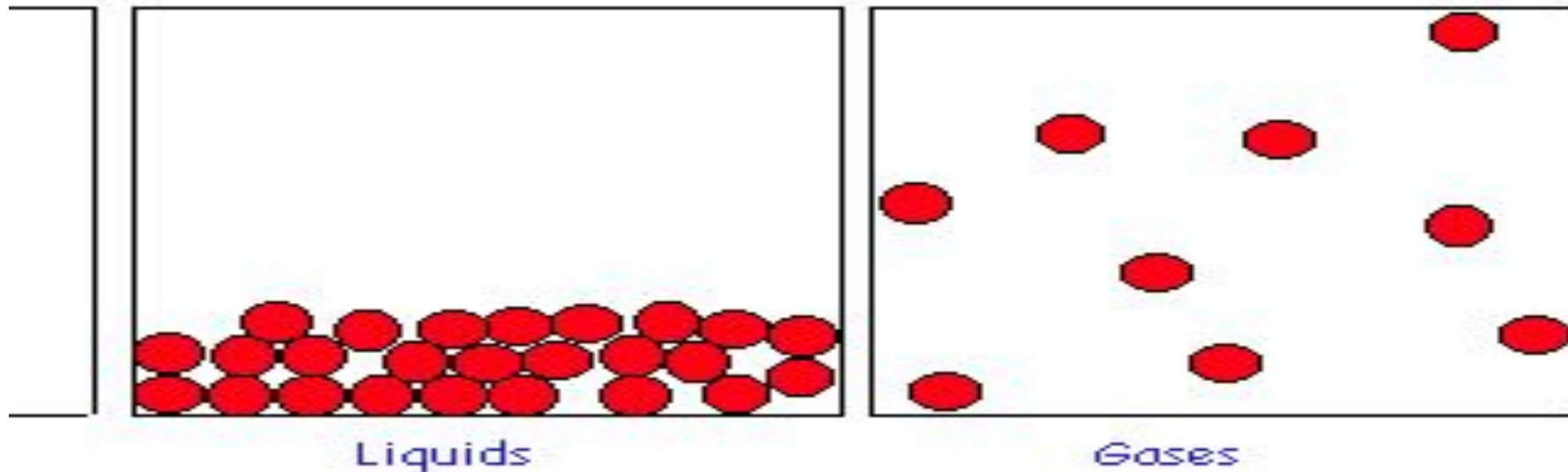
1. Think about the activity from yesterday. Which two states of matter did you start with? Which did you end up with?
2. Compare the contrast the solid and liquid diagram below:



Observations

1. Draw and label a flask and a balloon.
2. Use colored-in circles to represent particles in the liquid (flask) and gas (balloon). Make sure to space the particles correctly.

DISTANCE BETWEEN THE PARTICLES

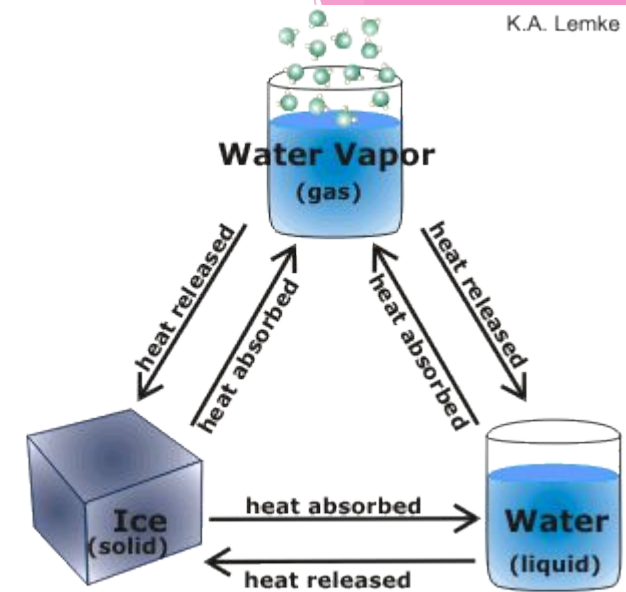


Phases of Matter Conclusion Statement

1. Summarize the procedure for the activity.
2. Describe what happened when you combined the baking soda and vinegar.
3. For which state of matter are the forces between the particles the strongest? The weakest?
4. What would have happened if a balloon wasn't used?
5. Suppose you wanted the balloon to increase in size. What would you change in the activity?

February 5, 2015

Mastery Objective: Students will explain how a change in state occurs by **writing Cornell Notes about phase changes.**



Drill Warm-Up:

1. During endothermic changes, heat is absorbed by the substance. During exothermic changes, heat is released. Identify each phase change as endothermic or exothermic:
 - a. freezing liquid into ice
 - b. water evaporating into water vapor
 - c. ice cream melting on a hot day
 - d. water freezing on the roads during a cold night
 - e. gas condensing into liquid (dew)

February 9, 2015

Mastery Objective: Students will describe particle movement during phase changes by **writing a BCR (brief constructed response).**

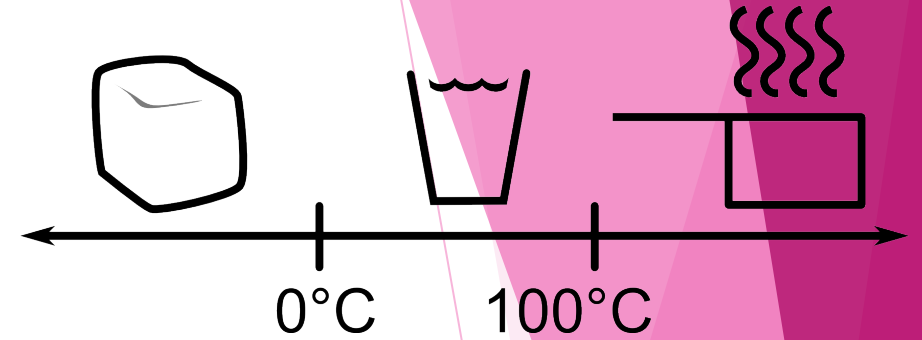


Drill Warm-Up:

1. During an endothermic change, an ice cube will melt into water. What effect does this have on the speed of the water molecules?
2. During an exothermic change, water will freeze into a solid. What effect does this have on the speed of the water molecules?
3. What is the relationship between temperature and the amount of space between particles of a substance?

February 11, 2015

Mastery Objective: Students will describe particle movement during phase changes by writing a BCR.



Drill Warm-Up:

1. Read about sublimation on page 78 of your textbook. Would using dry ice in your holiday punch cause it to become watery after several hours? Why or why not?
2. Suppose you place a piece of magnesium in water and the temperature of the water increases. It gets warmer. Is this an endothermic or exothermic change?

1. Adding salt to water raises the boiling point. Instead of boiling at 100°C , it may boil at 102°C . Think about the information presented in the video.

Why does adding salt to water raise the boiling point?



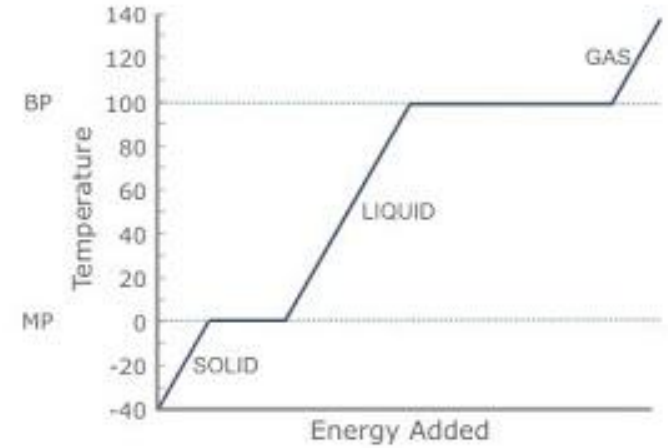
2. Adding salt to water lowers the freezing point. Think about how water molecules arrange themselves while becoming a solid.

Why does adding salt to water lower the freezing point?



February 9, 2015

Mastery Objective: Students will describe particle movement during phase changes by collecting data from phase change activity.



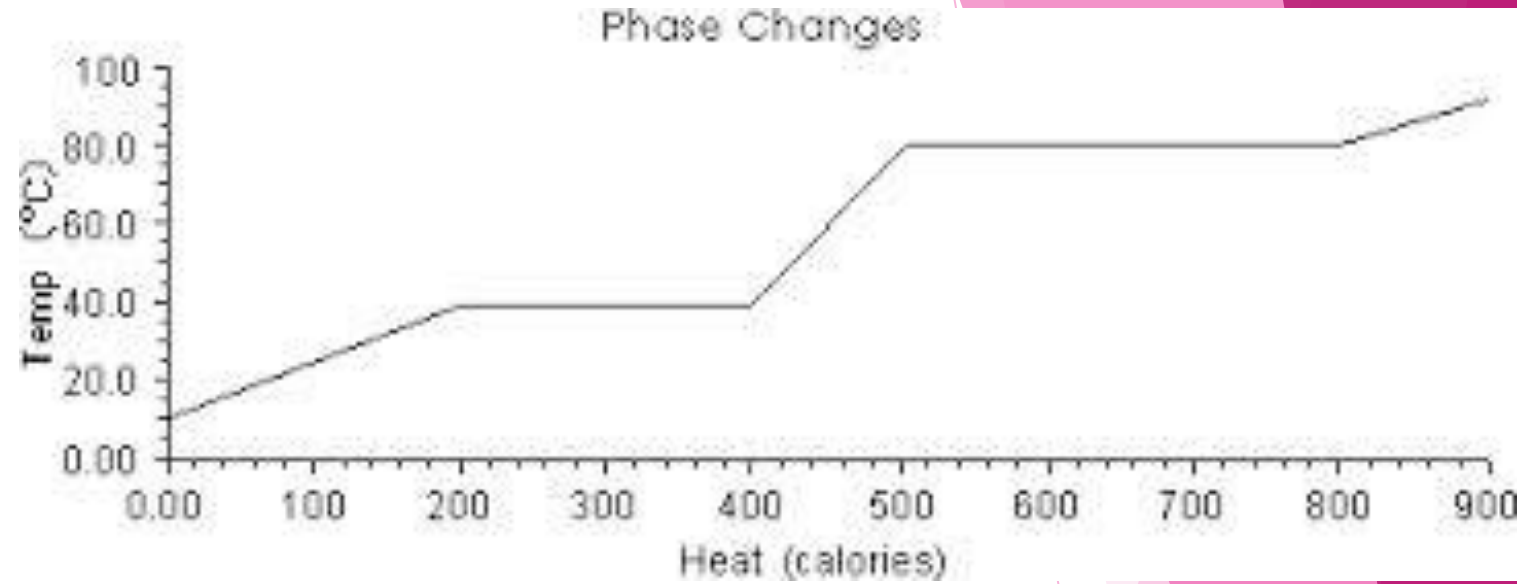
Drill Warm-Up:

1. What is the difference between evaporation and boiling (page 76)?
2. The volume of a substance in the gaseous state is about 1,000 times the volume of the same substance in the liquid state. How much space would 5 mL of water take up if evaporated?

February 10, 2015

Mastery Objective:

Students will describe particle movement during phase changes by writing a BCR.



Drill Warm-Up: Analyze the graph to answer the following questions:

1. At what temperature does the substance melt/freeze?
2. At what temperature does the substance boil/condense?
3. Look at the plateaus in the graph. What must happen before temperature can start increasing again?

February 11, 2015

Mastery Objective: Students will prepare for the States of Matter Test by **going over the review guide.**

Drill Warm-Up:

1. Observe the glass of water. Suppose the glass of water is left out overnight. Some evaporation will take place. List some differences between the water that has evaporated and the water that is still in the glass.
2. When we took the plastic bottles out of the freezer and placed balloons over the opening, the balloon inflated a little bit. Why?

