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Perform activity and answer the following questions:

1. Describe the change of state at freezing point. What was the affect on the molecules?
2. Which substance had the lowest boiling point? The lowest freezing point?
3. What was the change of state at boiling point? How did the molecules react?
4. List 10 ways we witness substances change in state everyday. Remember that condensation and melting points are also changes of state. Condensation is the point of change from a gas to a liquid. Melting point is the point of change from a solid to liquid. Evaporation is also a way that liquids change to gases.
5. Is a change of state and physical or chemical property?

Go to

States and Properties of matter

This is an interactive video that summarizes what we have been studying. If you roll your cursor over the images, you may find additional information about what you are viewing. Be sure to roll your cursor over the liquid flask to see “shocking results” and over the gas state to see “gas reaction”. List a single sentence summary of what you learned for each one.

Go to Read

The Quest for cold

Answer the following questions:

1. What happens to molecules of matter at absolute zero?
2. What is the lowest natural temperature?
3. Describe some of the variables that must be controlled in order to study atoms at super cooled temperatures.
4. List 3 ways that research into absolute zero has had an impact on daily life.

Read one other article available in this list, of your choice and write 3 things that you learned from reading it. Be sure to record the article that you choose to read.

1. Describe the change of state at freezing point. What was the affect on the molecules? **Answer**: liquid to solid. The molecules moved more slowly and formed a lattice.

2. Which substance had the lowest boiling point? **Answer**: methanol or methyl alcohol

3. What was the change of state at boiling point? How did the molecules react? **Answe**r: liquid to vapor/gas. The molecules’ movement increased and they dispersed.

**Divide the class into groups and assign the groups the task of thinking of ten ways we witness substances change in state everyday. Have the groups present their findings to the class. Remind them that condensation and melting points are also changes of state. Condensation is the point of change from a gas to a liquid. Melting point is the point of change from a solid to liquid. Evaporation is also a way that liquids change to gases.**

Possible answers • Freezing water to make ice cubes for drinks • Melting chocolate for baking brownies • Steam from the teakettle • Condensation trails from jets • Clothes drying outside by evaporation • Clouds producing rain • Rain turning to sleet or snow

• Condensation on the outside of a glass containing a cold drink

• Fans cooling you by evaporating the sweat from your skin

• Watching the water in the bird bath evaporate on sunny day

The Quest for cold

Answer the following questions:

1. What happens to molecules of matter at absolute zero? They do not move
2. What is the lowest natural temperature? About 3 degrees higher than absolute zero
3. Describe some of the variables that must be controlled in order to study atoms at super cooled temperatures. Sound, laser, temperature, time electromagnetic fields
4. List 3 ways that research into absolute zero has had an impact on daily life. Atomic clock, MRI and levitating magnetic high speed rail.