

# Bell Work, Nov 4 - 8, 2013

Gasses, Pressure, Kinetic Theory,  
Temperature, Pressure, Heating Curve

## 1. What is a phase?

**Same as a state of matter: solid, liquid, gas, plasma.**

## 2. What is a phase change?

**A phase change is a change from one state to another.**

## 3. Explain the following phase changes:

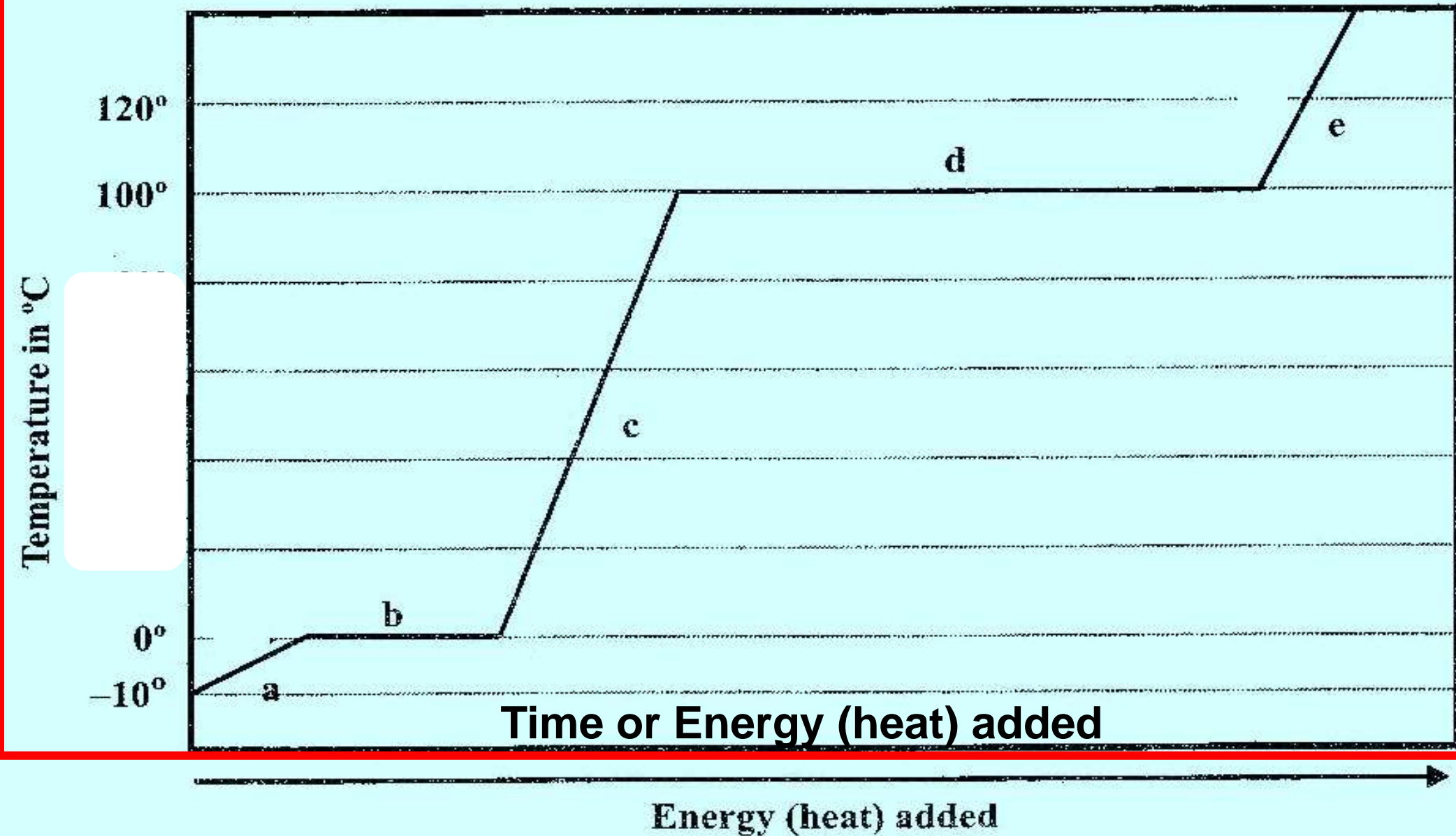
**condensing (condensation): gas → liquid**

**boiling liquid → gas**

**melting solid → liquid**

**freezing liquid → solid**

## Changing the States of Water



4. What phase is a?

**solid**

5. What phases exist together at b?

**Solid & liquid**

6. What phase is c?

**liquid**

7. What phases exist together at d?

**Liquid and gas**

8. What phase is e?

**gas**

9. What section of the graph above represents melting?

**B**

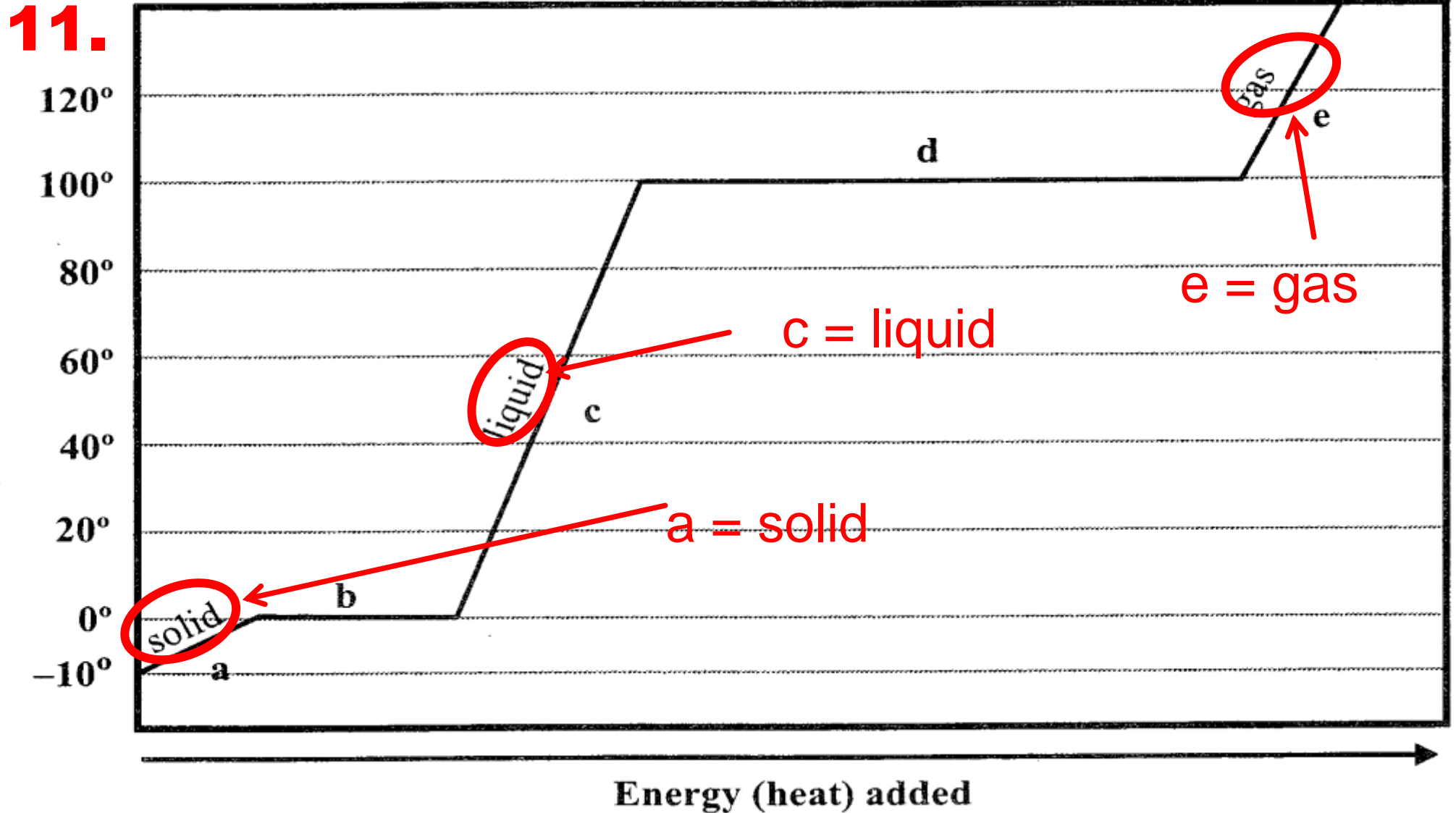
10. What section of the graph above represents boiling?

**D**

11. Label the sections of the graph: solid, liquid, gas.

# Bell Work Answers, Mon, Nov, 4

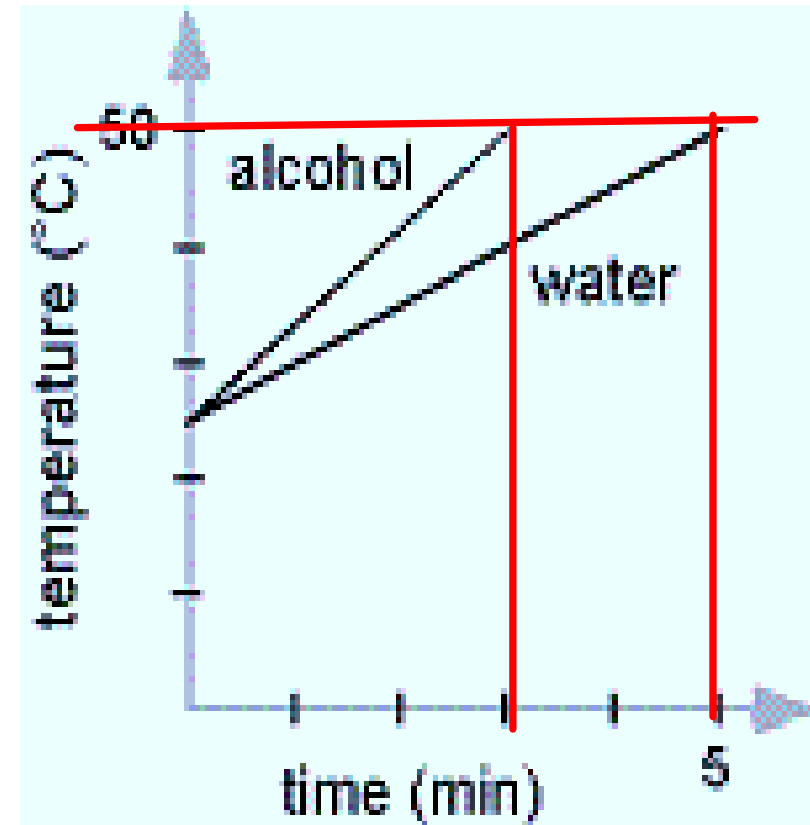
## Changing the States of Water



# Bell Work, Tuesday, Nov 5, 2013

**1. Equal masses of water and alcohol, at  $25^{\circ}\text{C}$ , are heated at the same rate. After 3 minutes the temperature of the alcohol is  $50^{\circ}\text{C}$ . It took 5 minutes for the water to reach  $50^{\circ}\text{C}$ . Which of the following is true once the water and alcohol have both reached  $50^{\circ}\text{C}$ ?**

- a. The water received more energy than the alcohol.
- b. The alcohol received more energy than the water.
- c. Both received the same amount



**2. A sample of water is brought to a boil. Inside a bubble are(is)**

- a. particles of hydrogen gas and oxygen
- b. gas
- c. just empty space.
- d. particles of air.
- e. particles of water.

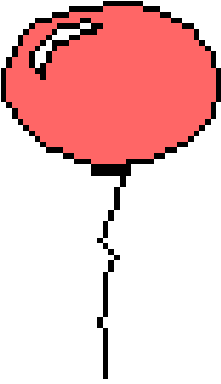
Amount of Energy  $\Rightarrow$

# Bell Work, Tuesday, Nov 5, 2013

**3. The evening before a birthday party, you fill several balloons with helium gas.**

**The birthday party occurs on a hot summer day.**

**A guest at the party dives into the swimming pool holding inflated balloon. The balloon gets smaller when she dives bottom of the pool. Which of the following explains this observation?**



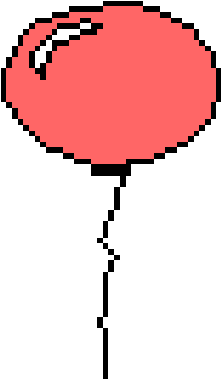
- a. Some of the helium particles escaped through pores in the latex.
- b. The helium particles became smaller than before.
- c. The helium particles lost their strength.
- d. The particles moved closer to each other.

## Bell Work, Tuesday, Nov 5, 2013

**4. The evening before a birthday party, you fill several balloons with helium gas.**

**The birthday party occurs on a hot summer day.**

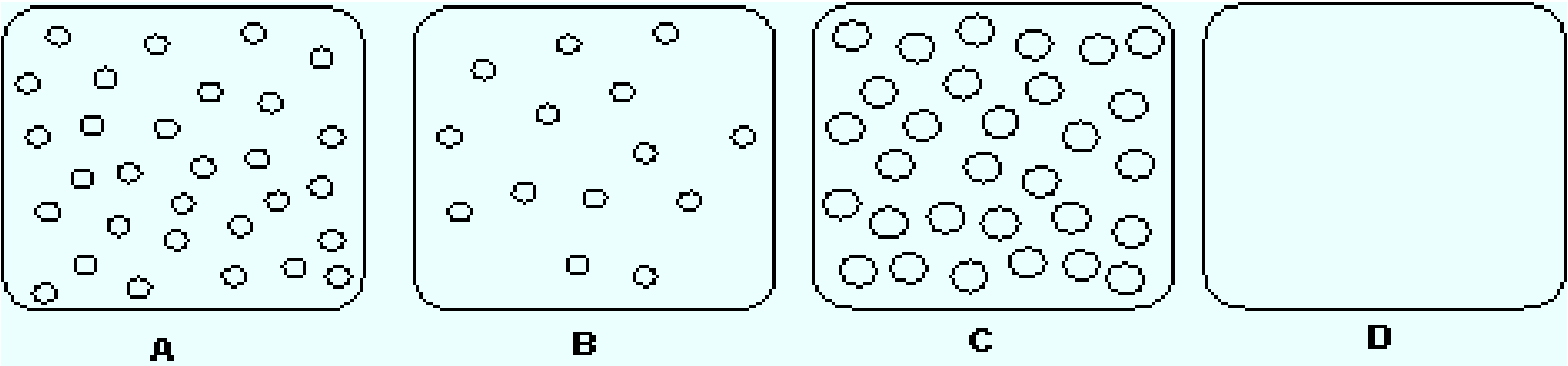
**The next day (the same hot temperature) the latex balloons are noticeably smaller. Which of the follow explains this observation?**



- ☒ a. Some of the helium particles escaped through pores in the latex.
- b. The helium particles became smaller than before.
- c. The helium particles lost their strength.
- d. The particles moved closer to each other.



**5. A substance was allowed to evaporate completely to a gas in a sealed container. Which of the diagrams below best represents the contents of the sealed container?**



a. A

d. D

b. B

c. C

e. None of the above answers are correct

# Bell Work, Wednesday, Nov 6, 2013

## 1. Define Potential Energy (PE)

Stored energy due energy of position or the arrangement of particles.

## 2. Define Kinetic Energy (KE)

Energy due to motion.

## 3. What is Thermal Energy –

Energy due to the motion of the particles.

## 4. What is Phase Energy –

Energy due to the arrangement of the particles in solid, liquid and gaseous phases.

## 5. Matching: PE or KE

a) Thermal Energy KE

a) Phase Energy PE

# Bell Work, Wednesday, Nov 6, 2013

6. Explain why temperature does not increase or decrease during a phase change even though the sample is being heated?

When energy is transferred to a sample of matter during a phase change all the energy (heat) is being used to pull the particles apart (phase change) instead of speeding up the molecules.

7. What would happen to these particles if we removed the heat?

The particles would move back together again.



8. What new feature have we added to our particle model of matter?

*Our featureless spheres of matter exert attractions on one another. In their lowest energy state, our particles want to be together.*

# Bell Work, Thursday, Nov 7, 2013

homogeneous

pure substance

Solution

heterogeneous

mixture

1. Matter that is not mixed uniformly and is not evenly distributed is heterogeneous matter.
2. Matter that is evenly distributed, and is the same throughout is homogeneous matter.
3. Homogeneous matter can be classified as a mixture or pure substance.
4. A mixture is made of two or more substances.
5. Mixtures can be heterogeneous or homogeneous.

# Bell Work, Thursday, Nov 7, 2013

6. Substances aren't mixed uniformly and are not evenly distributed are heterogeneous mixtures.
7. Substances are evenly distributed, and the mixture is uniform (the same throughout are homogeneous mixtures.
8. Another term for a homogeneous mixture is a solution.

# Bell Work, Thursday, Nov 7, 2013

Atom, pure substance, elements , compounds

9. A pure substance can be classified as an element or a compound.

10. An atom is the smallest unit of matter that maintains its chemical properties and physical properties.

11. Elements are the particles that make up compounds and are composed of only one kind of atom. Elements can not be broken in to simpler substances

12. Compounds are composed of two or more different types of elements and cab be broken down to elements