

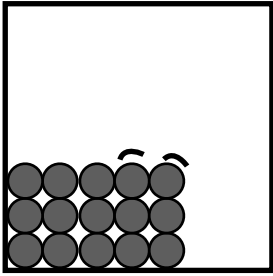
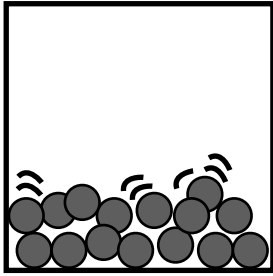
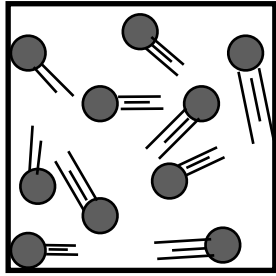
Chemists classify and describe matter in a variety of ways:

- One method is to classify by what physical state of matter the substance
- Another method would be to categorize by whether the substance is a pure substance or a mixture. (See page 2 of this sheet.)
- A third way might be to classify an element as metal or nonmetal.
- There are other ways as well.

Matter can be grouped according to its physical state of matter

When temperature increased there is a kinetic energy increase. Higher temperature means faster motion of molecules. This faster motion will cause the solid molecules to “unattach” and turn into liquid. Further increase in temperature will cause the molecules to increase their kinetic energy even more which eventually causes a complete severance all inter-particle interactions and the particles will convert to the gaseous state.

Consider the mathematic relationship: $T \propto KE = \frac{1}{2}mv^2$

Explaining the MACROscopic by describing the NANOscopic			
	Solid	Liquid	Gas
Macroscopic Property: Compressible or Not ?	NOT compressible (squishable)		compressible (squishable)
Nanoscope Explanation	The particles are touching each other.		The particles are far apart NOT touching
Macroscopic Property: Fluid or Rigid ?	Rigid Hold their own shape	Fluid, takes the shape of its container. Liquids at the bottom of container, gases all over the container.	
Nanoscope Explanation	The Particles are stuck together		The particles are NOT stuck together, moving freely.
Diagram of the Nanoscopic: It would be useful to put in some “wobble” lines and “speed” lines to indicate the motion of the particles.	   <p><i>It is important to accurately sketch the particles as they would situate themselves inside the box as the container. Imagine you are looking in from a side view.</i></p>		

All matter can be grouped as a pure substance or a mixture.

Note that there are two types of mixtures: homogeneous and heterogeneous.

In this course, we will define a homogeneous mixture as one in which we can not see the separate components of the mixture with our eyes. We will define a heterogeneous mixture as one in which we can see the separate components with our eyes.

Use this flow chart to help you compare and contrast a compound with a mixture. Pay particular attention to the 3 components of a compound in contrast to the three componenet of a mixture.

