1. a) The *less* the particles of an object move, the colder it is.
   b) If an object cools down, the movement of its atoms and molecules becomes *less*. Therefore they need *less* room and the object *contracts*.
   c) If an object warms up, it *expands*, because the particles' motion *increases* and they need *more* room.

2. The atoms and molecules are too small to be observed unter a microscope. They are moving constantly, shoving and pushing the grains of pollen around. However, the motion of the grains of pollen can be observed. The motion of those larger observable objects is called *Brownian motion.*

3. a) The atoms and molecules of a **solid** object move about *fixed positons*. The distances between particles are *small*. There are *strong* attractive forces acting between the particles.
   b) The atoms and molecules of a **liquid** move about *randomly without fixed position*. The distances between particles are *small*. There are *weak* attractive forces acting between the particles. A surface is formed.
   c) The atoms and molecules of a **gas** move about *randomly without fixed position*. The distances between particles are *large*. There are *no* attractive forces acting between the particles. No surface is formed, they spread out in the container.

4. Gases are easily compressed for the distances between particles are large.

5. Liquids can hardly be compressed for the distances between particles are small.

6. a) The mass is the same, because the number of atoms doesn't change.

   b) Density is $\rho = \frac{m}{V}$. An increase in volume at equal mass results in a lower density.

7.