1. The word _kinetic_ comes from a Greek word that means “to move.” The **kinetic molecular theory** is based upon the assumption that particles of matter (atoms or molecules) are in constant **random motion**.

2. Of the three states of matter, which one has the most kinetic energy? **Gas**

3. Which state of matter has particles that are separated by the largest distance? **Gas**

4. **A scientific theory is an explanation of some type of natural phenomena. Theories are normally developed from careful study of the way the world behaves.** Let’s look at how gases behave and see if the kinetic molecular theory makes sense.

5. Compared to liquids and solids, gases tend to have **lower** densities. This can be explained because the particles of gas are **in constant motion**.

6. If you apply pressure to a sample of gas, it is fairly easy to **compress** its volume (think about what would happen to a balloon if you squeeze it gently). This can be explained because there is a lot of **empty space** between gas particles.

7. If someone sprays perfume in one corner of the room, eventually a person on the other side of the room can smell it. This can be explained because gas particles move **quick** and **random**. In general, we would expect lighter gas particles to travel **faster** than heavier gas particles.

8. When two gases mix together or move through each other, this process is known as **diffusion**. When gas particles escape out of a tiny hole in a container, this process is known as **effusion**. You should know the difference between these two words so you can avoid any confusion!

9. Kinetic molecular theory can be summarized as follows:

   a. Gas particles are in constant **motion**.
   b. Gas particles are separated by relatively **large** distances.
   c. When gas particles collide, they **do not transfer** kinetic energy.
   d. Gas particles have **no** attractive or repulsive forces between them.
   e. The kinetic energy of a gas is dependent on the **temperature** of the gas.