Chemistry is the study of matter and how matter changes.

Matter has mass and takes up space.

Assignment: As a team, classify each of these as matter or not matter. Be prepared to justify your team’s answer to the class.

Goals: The primary goal is for every team member to understand what matter is. A secondary goal is to answer all the questions.

Time: Your team has 3 minutes to work on this exercise.

1. a chair  
2. silver  
3. light  
4. the sun  
5. air  
6. heat  
7. a cat  
8. a theory
The Kinetic Theory is a theory that explains the behavior of matter that we see in terms of the behavior of atoms – extremely tiny particles of matter.

Molecular Workbench is a computer model that simulates the behavior of atoms. For simplicity, most of the simulations we will use are two dimensional. Of course, real atoms move in three dimensions.

This simulation is of an extremely small sample of an element such as helium (He) or neon (Ne) or argon (Ar) or krypton (Kr) or xenon (Xe) or radon (Rn). Each blue circle represents one atom. (Extra: Find these elements on a periodic table.)

**Assignment:** As a team, watch the Kinetic Theory Molecular Workbench simulation. Work with the other team members to record in your class notes as many detailed observations as you can. Do not record any observations that you have not personally observed. If another team member says something happened, you should watch for it yourself.

**Goals:** The primary goal is for every team member to personally observe and record the behavior of atoms as displayed by the simulation.

Part A (3 minutes): Record your observations of the simulated atoms when the temperature is not changing.

Part B (2 minutes): The instructor will change the temperature of the simulation very dramatically every 10 to 15 seconds. Record your observations of how the simulated atoms change and do not change when the temperature changes.