

PhET: States of Matter

Name _____

Period _____

Introduction: There are more states of matter than just three. One such example is plasma, present in your plasma TV, or in the stars, and it is the most common state of matter in the universe. In Chemistry, however, we are mainly concerned with the most common states of matter on planet Earth: Solids (s), Liquids (l), and Gases (g).

Directions: *Click on "States", and Answer the questions below.*

States

1. The program should start with solid Neon. Describe the spacing **and** the motion of the particles in a solid.
2. What happens to the particle movement as you cool the solid (look below the particles to cool it and hold it at cold for 10 seconds)?
3. What happens to the particles as you heat the solid?
4. Next, select the **liquid** phase. Describe the spacing **and** motion of the particles in a liquid.
5. What happens as you cool the liquid? (look below the particles to cool it and hold it at cold for 10 seconds)?
6. What happens to the particles as you heat the liquid?
7. Next, **select the gas phase**. Describe the spacing **and** motion of the particles in a gas.
8. What happens as you cool the gas? (look below the particles to cool it and hold it at cold for 10 seconds)?
9. What happens to the particles as you heat the gas?

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Directions: Click on the box at the bottom of the page marked “Phase Changes”

Phase Changes

1. What happens/what do the particles do when you pump some new particles in? (Look to the left for the red pump)
2. *Reset*. Heat up the solid, and describe what happens.
3. *Reset*. Heat up the solid until it goes past a liquid (Look at the phase diagram at the bottom right). Now, cool it back down until it comes back to a solid. Describe what the particles did.
3. At what degree K does it change to a liquid? Repeat if necessary. ***Look at the phase diagram to the right and the K scale at top***
4. If we continue to heat it, what happens to the pressure? (top left-pressure gauge){does it go up or down?}
6. *Reset* What happens to the Pressure as you use the finger to push down on the container? Why do you think this happens?
7. What eventually happens if you push down too much heat up the container too much?
8. Summarize what you've learned about phase changes and states of matter below. Include the terms: pressure, temperature, speed of particles, heat, cool, etc. This should be at least 5 sentences long.