Kinetic Molecular Theory Name _____
POGIL Activity Date _____ Block _____

Type in the link below to open the simulation for this activity:
https://phet.colorado.edu/en/simulation/states-of-matter

Atoms/Molecules

There are 4 options (neon, argon, oxygen, water). Pick ONE of these molecules to use for all parts of this simulation. **Draw ONE molecule** of the substance you chose in the space below

SOLID

1. Make sure your state of matter is set on solid.
2. Write your observations in the box below. Please include the default temperature that the simulation is set on.

3. Move the temperature bar down to cool the solid by ~20K from the default temperature and write your observations in the box below:

4. Move the temperature bar up to heat the solid by ~20K from the default temperature and write your observations in the box below:

LIQUID

1. Change the state of matter to be set on liquid.
2. Write your observations in the box below. Please include the default temperature that the simulation is set on.

3. Move the temperature bar down to cool the liquid by ~20K from the default temperature and write your observations in the box below:

4. Move the temperature bar up to heat the liquid by ~20K from the default temperature and write your observations in the box below:

GAS

1. Change the state of matter to be set on gas.
2. Write your observations in the box below. Please include the default temperature that the simulation is set on.

3. Move the temperature bar down to cool the gas by ~20K from the default temperature and write your observations in the box below:

4. Move the temperature bar up to heat the gas by ~20K from the default temperature and write your observations in the box below:

Summary Questions

1. Temperature is a form of energy. When you cool down the system, you are removing the energy from the system. When you heat up the system, you are adding energy to the system. Write an explanation of **particle movement and distribution** when energy is removed and added to the system. Use evidence from the simulation to support your claim.

2. Phase changes refer to when matter changes between its solid, liquid, and gas forms. Which phase changes are exothermic (release heat) and which phase changes are endothermic (require heat). Please include energy in your explanation.

3. Look back to the drawing you made of the one molecule you chose in the beginning. Did the **molecular makeup** of your substance change as it changed from a solid to a liquid to a gas? Explain.