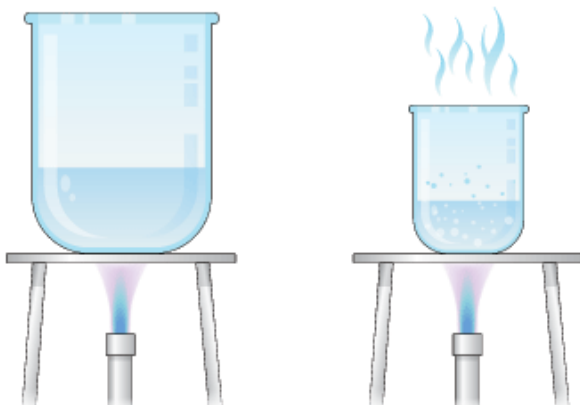
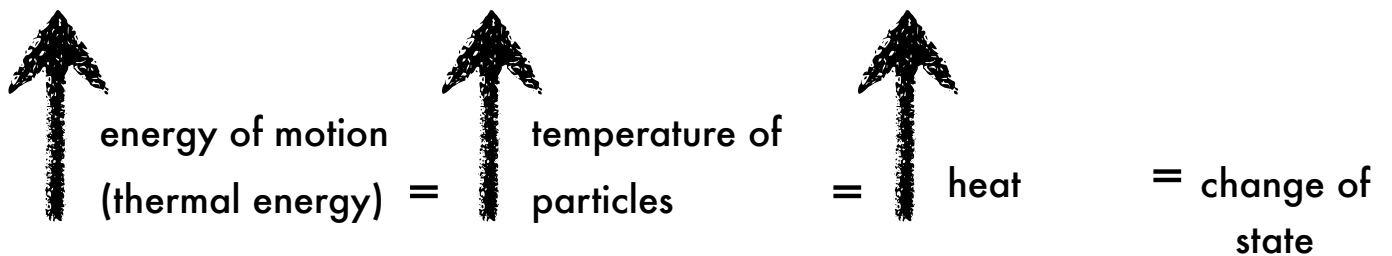


Lesson 5: Heat and its Effect on State

- We know that thermal energy is related to heat
- In scientific terms, **thermal energy** is the total energy of all the moving particles in a solid, liquid or gas. *The more moving particles, the greater the thermal energy*

Think About It: *Considering the definition of thermal energy, what state of matter do you think has the most thermal energy?*

- As energy is transferred to a particle, its thermal energy increases and it moves faster
- For example, if we boil a pot of water, we transfer energy to all the particles of water, increasing their energy and speeding them up
- As the energy of motion increases (thermal energy), the temperature increases. Heat has been transferred.
- As heat is transferred, particles can change state



Think About It: *Why would it take less time to heat the smaller beaker?*

Name: _____

Date: _____

Particle Theory Skits

Last time we discussed particle theory, we used drama to show the ways in which particles move. This time, we're going to act out the 7 key ideas we need to know about heat and its effects on state. In your group, make a plan for how you will show the 7 key ideas. Make sure to indicate how your dramatic interpretation shows the science behind heat, especially the particle theory. The back of this handout has more information about each key idea.

Key Idea	Our dramatic interpretation will look like...	The science behind it:
1) Solids		
2) Heating a Solid		
3) Melting a Solid		
4) Liquid		
5) Heating a Liquid		
6) Boiling a Liquid		
7) Gas		

Science Journal: On a separate piece of paper, explain what happens to the particles of a gas as it cools down and becomes a solid. Make sure to use diagrams.