Types of Vaporization: Evaporation and Boiling

Name: _____ Date: _____ Period: _____

LT: I can compare and contrast the processes of vaporization.

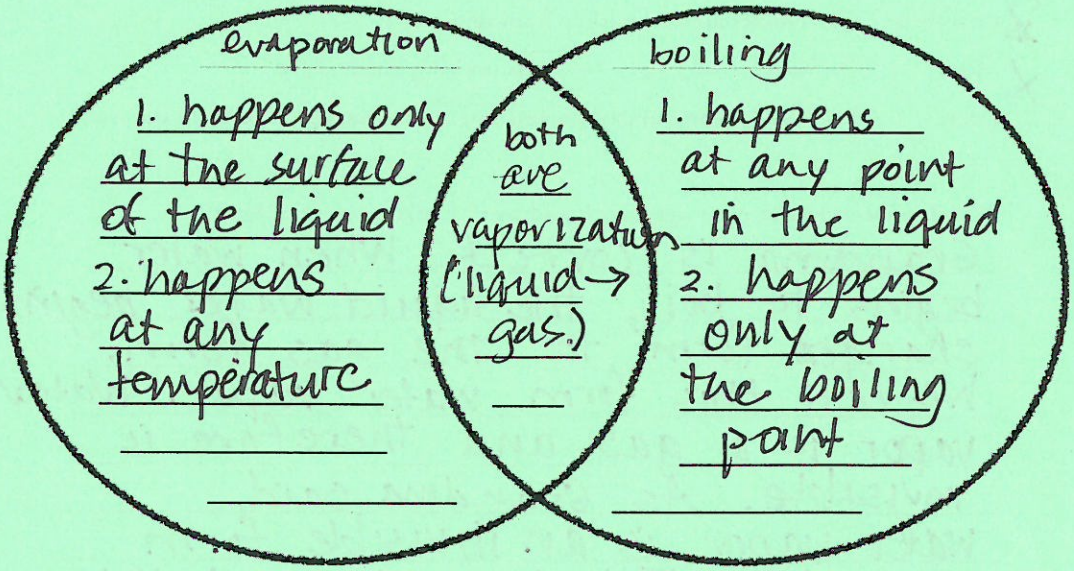
Evaporation is not the only process by which a substance can change from a liquid to a gaseous state. The same change can occur through boiling. As a liquid is heated, its molecules absorb heat energy and move faster, just like in evaporation. In boiling, however, bubbles of vapor form within the liquid and rise to the surface. The temperature at which this occurs is known as the boiling point of the liquid.

liquid → gas (vapor)

There are two key differences between evaporation and boiling. The first difference is where the change of state occurs. Evaporation takes place only at the surface of a liquid, whereas boiling may occur throughout the liquid. In boiling, the change of state takes place at any point in the liquid where bubbles form; the bubbles then rise and break at the surface of the liquid.

The second difference between evaporation and boiling concerns temperature. Evaporation can take place at any temperature. For example, a puddle of water will evaporate on a cold day, though the rate of evaporation will be slower than it would be on a warm day. In contrast, boiling only occurs at the boiling point of the liquid.

Compare and Contrast



1. When might you see an example of evaporation? An example of evaporation is water evaporating from a cup left out overnight.
2. When might you see an example of boiling? An example of boiling is when you boil water for pasta.
3. Why do you think both processes are called **vapor**ization? Both processes are called vaporization because in both cases a liquid turns into a gas (also called vapor.)