



High School Science Virtual Learning

**College Chemistry**  
**Enthalpy of Phase Changes**  
**and Phase Diagrams**

April 22nd, 2020



## College Chemistry

### Lesson: April 22nd 2020

#### **Objective/Learning Target:**

**The Learner will be able to describe the energy transfers as materials are heated and cooled and undergo phase changes. They will also understand and be able to answer questions regarding a phase diagram.**



Bell Ringer

Question 1

What is sublimation?

Question 2

What scientific unit is used for energy of heat (enthalpy)?



## Bell Ringer Answers:

1. Sublimation is a phase change in which a solid passes directly into the gas phase without transitioning through the liquid phase.
2. Joules or Kilojoules



Read [Section 10.3](#) and [Section 10.4](#) in your textbook, and watch the videos below:

[Chemistry 10.6 Enthalpy and Phase Changes- IsaacsTeach \(7:47\)](#)

[Phase Diagrams of Water & CO2 Explained - Chemistry - Melting, Boiling & Critical Point-Organic Chem Tutor\(10:27\)](#)



Questions:

1. On a graph of a heating curve, what is taking place when the line is horizontal, (when the temperature is constant)?
2. Why is the boiling point of water generally lower at a higher altitude, for Example Denver, CO?
3. What is the “triple point” on a Pressure-Temperature phase diagram?



## Answers:

1. When the line is horizontal the material is undergoing a phase change.
2. Boiling point is when the vapor pressure of a liquid is equal to the pressure of its surroundings. Higher altitudes generally have lower pressure hence the BP is lower. This is also why there is often different cooking instructions for high altitudes.



## Answers: (cont)

3. Triple point represents the exact Pressure and temperature at which all three phases of matter occur in equilibrium





You try:

Chapter review question at this link [Chapter 10 Exercises](#) and answer the following questions: 31, 35, 37, 41, 43, 53, 57

a,c,e

Click on the question # on the linked page for answers.

[quizizz Heat of Fusion Heat of Vaporization](#)

[Quizizz on Phase Diagrams](#)



Further explanations:

[Phase Diagrams: Triple Points, Critical Points and Supercritical Fluids- SciToons\(4:50\)](#)