



High School Science Virtual Learning

Chemistry

Liquids, Vapor Pressure, and Boiling

May 5, 2020



High School Chemistry

Lesson: May 5, 2020

Objective/Learning Target:

Students will be able to explain how a liquid behaves and explain the relationship between vapor pressure and boiling point.



Let's Get Started:

1. What are the four ways to measure a gas?
2. How do the particles behave in a liquid, and how do they behave in a gas?



Let's Get Started: **Answer Key**

1. What are the four ways to measure a gas?
Pressure, Volume, Temperature, Amount (moles)

2. How do the particles behave in a liquid, and how do they behave in a gas? **In a liquid, the particles move past each other but don't separate. In a gas, the particles travel by themselves in a straight line throughout the container.**



Lesson Activity:

Directions:

1. Watch this [video](#).
2. Answer the questions on the next slide.

Video Questions

1. How does temperature affect the rate of evaporation?
2. When a lid is put on the container, a point will be reached when the number of gas particles stay the same. This is because a molecule condenses back to a liquid for every molecule that evaporates. What do we call the pressure from these gas particles?
3. What happens to the vapor pressure when a liquid starts boiling?

Video Questions

1. A higher temperature causes a higher (faster) rate of evaporation.
2. Vapor pressure.
3. The vapor pressure is equal to the external pressure (usually the atmospheric pressure)



Practice

Complete the following questions using the information you learned during the lesson activity.



Questions:

1. As the temperature of a liquid increases, what happens to the rate of evaporation?
2. From that change in evaporation rate, what happens to the vapor pressure?
3. If the external pressure increases, the vapor pressure must increase for the liquid to boil. How could you increase the vapor pressure.



Once you have completed the practice questions check with the **answer** key.

1. Increased temperature → Increased evaporation rate
2. Increased evaporation rate → Increased vapor pressure
3. Increase the temperature would increase the vapor pressure. So at higher external pressures, you have to heat liquids more for them to boil.

More Practice:

Follow the links below to do more practice.

“Normal” boiling point is the when external pressure is atmospheric pressure: 101 kPa, 760 mm Hg, or 1 atm.

1. Answer all parts (a-i) for Question 1 on this [worksheet](#). Answers are on the next slide.
2. Complete the first page of this [worksheet](#). The answer key is at the bottom.

Worksheet 1 Answer Key

(Answers are approximate)

- | | |
|------------------------|-----------|
| a. 26.7 kPa | f. 73 °C |
| b. Approximately 8 kPa | g. 115 °C |
| c. 76 °C | h. 70 °C |
| d. 26.7 kPa | i. 22 kPa |
| e. 118 °C | |



Additional Practice:
Click on the link below for additional practice.

[Quizizz Practice](#)