Name: Lito J. Libradilla	**Yr. & Sec.:** Grade 12 – STEM Asclepius
Subject Code: STEM08	**Subject Title**: General Chemistry 2
Module No: 3	**Topic**: Intermolecular Forces and Properties of Liquids

IV. WE'RE ON OUR WAY

Quiz 3.1

IDENTIFICATION Directions: Identify the concept that is described in each statement below. Choose the correct answer from the list below.

Surface tension
Vapor pressure
Molar heat of vaporization
Vapor
Viscosity
Capillary action
Boiling point
Fluid
Liquid flow
Vaporization

1. The measure of the elastic force on the surface of a liquid.
   Answer: Surface tension
2. A gas or a liquid; a substance that can flow.
   Answer: Fluid
3. The tendency of a liquid to rise in narrow tubes or to be drawn into small openings.
   Answer: Capillary action
4. The measure of a fluid's resistance to flow.
   Answer: Viscosity
5. A gaseous substance that exists naturally as a liquid or solid at normal temperature.
   Answer: Vapor
6. The change of phase from liquid to vapor (gaseous phase).
   Answer: Vaporization
7. The equilibrium pressure of a vapor above its liquid; that is, the the pressure exerted by the vapor above the surface of the liquid in a closed container.
   Answer: Vapor pressure
8. The temperature at which a liquid boils.
   Answer: Boiling point
9. The energy (usually in kilojoules) required to vaporize 1 mole of a liquid at a given temperature.
   Answer: Molar heat of vaporization
10. The movement of liquids and gases; describes how fluids behave and how they interact with their surrounding environment.
    Answer: Liquid flow

V. HOW FAR HAVE WE GONE?

Quiz 3.2 TRUE OR FALSE

Directions: Read each statement carefully. Write TRUE if the statement is correct and

FALSE if it is incorrect.
TRUE 1) Molar heat of vaporization is the amount of heat required to vaporize one mole of a substance at its boiling point.

TRUE 2) At room temperature, pure water is a colorless, odorless, and tasteless liquid.
FALSE 3) Cohesion of a liquid is the temperature at which its vapor pressure is equal to the external or atmospheric pressure.
TRUE 4) Liquids do have a simple or regular structure, but many of their properties can be explained qualitatively by viewing them at the particulate level.
FALSE 5) Two types of forces that are involved in capillary action are cohesion and viscosity.
TRUE 6) Viscosity is the resistance of a liquid to flow.
TRUE 7) The vapor pressure of a substance is the pressure exerted by its vapor when in equilibrium with its liquid or solid.
FALSE 8) Vapor pressure is the property of a liquid to resist an external force and thus assume a lesser surface area.
TRUE 9) The vapor pressure of a substance is the pressure exerted by its vapor when in equilibrium with its liquid or solid.
TRUE 10) The boiling point of substance argon is -164.0.

VI. WALKING THE EXTRA MILES (PERFORMANCE CHECK)
Directions: Describe what is happening to the water molecules in the two flasks shown in the picture.
Questions:

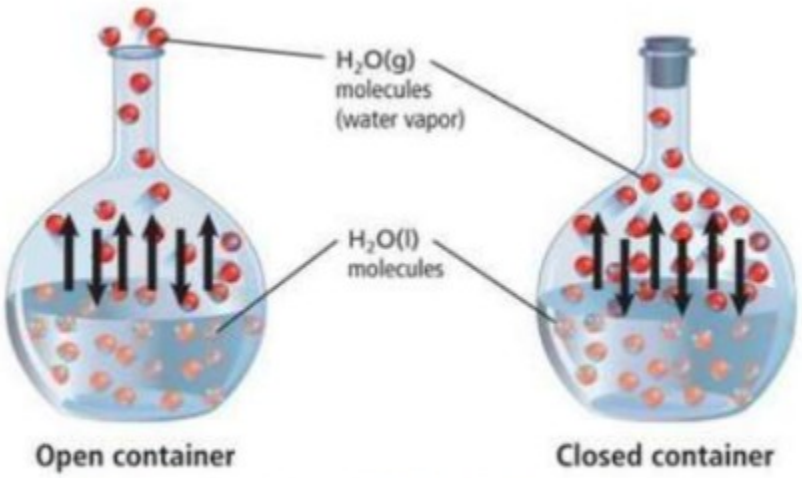

Image Source: https://slideplayer.com/slide/10887756/

ANSWER:

It seems like the context is describing a situation involving water molecules (H2O) in two different containers, one open and one closed, and there is a mention of equilibrium in Container B. Let's discuss the behavior of water molecules in each scenario:

Open Container:

- In an open container, water molecules in the liquid ($H_2O(l)$) can gain energy from an increase in temperature. As the temperature increases, the average kinetic energy of the water molecules also increases.
- Some of the water molecules at the surface gain enough energy to overcome the intermolecular forces (like hydrogen bonding) holding them in the liquid phase and transition to the gaseous phase ($H_2O(g)$). This process is called evaporation.

- Evaporation continues as long as there is an energy input (increased temperature), and the system doesn't reach equilibrium because water vapor molecules can escape into the surroundings.

Closed Container:

- In a closed container, as the temperature increases, the rate of evaporation also increases. Similarly, water molecules gain energy and transition from the liquid to the gaseous phase.
- However, in a closed container, the evaporated water vapor molecules do not escape into the surroundings. Instead, they accumulate in the closed space above the liquid.
- Eventually, the rate of condensation (water vapor molecules returning to the liquid phase) becomes equal to the rate of evaporation. At this point, the system reaches a dynamic equilibrium.
- In equilibrium, there is a continuous exchange of water molecules between the liquid and gaseous phases, but the overall amounts of liquid and vapor remain constant.

In summary, an open container allows water vapor molecules to escape into the surroundings, while a closed container results in dynamic equilibrium, where the rates of evaporation and condensation are balanced, leading to a stable coexistence of liquid and vapor phases.