



FLORENCE INTERNATIONAL SCHOOL  
CLASS- IX  
WORKSHEET NO: 9  
SCIENCE

NAME:

DATE: 09/04/2020

**TOPIC: MATTER IN OUR SURROUNDING**

Please follow the previous link and the given link before attempting the worksheet.

<https://www.youtube.com/watch?v=WHeKpbVuUYv>

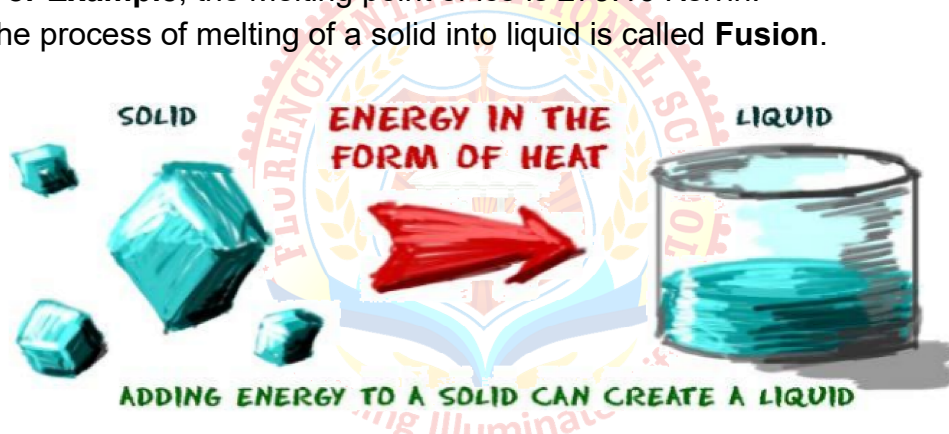
<https://www.youtube.com/watch?v=Gp2KMdoUGwc>

**KEYWORDS**

**Effect of Change of Temperature**

**Solids:**

- As we heat solids, the kinetic energy between the particles of solids increases which decreases the force of attraction between them.
- They start vibrating and changing their positions. Slowly, due to heat the particles become free and a solid converts into liquid.
- **Melting Point** – The temperature at which solid melts to become a liquid at atmospheric pressure. **For Example**, the melting point of ice is 273.16 Kelvin.
- **Fusion** – The process of melting of a solid into liquid is called **Fusion**.



- In the melting process, once a solid reaches its melting point, its temperature does not increase further. So where does all the heat go? The heat present in the solid at time of melting is used by the particles to diminish the force of attraction between each other. The heat energy is therefore considered as hidden.
- **Latent Heat** – The heat energy which is used to break the force of attraction between the particles of matter is known as latent heat. Since the heat is hidden therefore it is called as **Latent Heat**.
- **Latent Heat of Fusion** – The amount of heat energy required to change 1 kg of a solid into liquid at atmospheric pressure at its melting point is known as the **Latent Heat of Fusion**.
- **Atmospheric Pressure** – Pressure exerted by the weight of the atmosphere.

**Liquids:**

- Just like in solids, the kinetic energy of particles of liquid increases, the force of attraction among them decreases and they start moving freely.
- As we keep on supplying the heat, a point comes when the particles overcome the forces of attraction completely.
- This is when a liquid starts changing into gas.

- **Boiling Point** - The temperature at which a liquid starts boiling at the atmospheric pressure is known as its **Boiling Point**. **For Example**, The boiling point of water is 373 Kelvin.
- **Latent Heat of Vaporization** – The amount of heat energy required to change 1 kg of a liquid into a gas at atmospheric pressure at its boiling point is known as **Latent Heat of Vaporization**.

**When we decrease the temperature:**

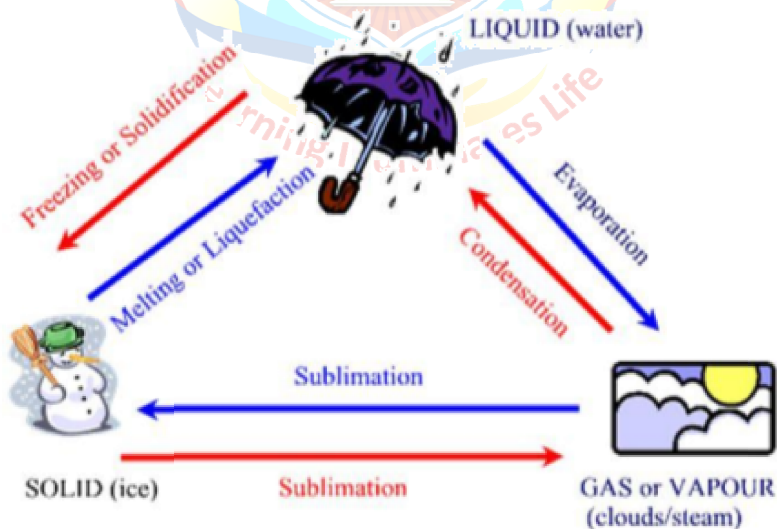
**Gases:**

- The kinetic energy between the particles decreases and they turn into a liquid state.
- **Condensation / Liquefaction** – The process of converting a gas into a liquid by cooling down its temperature. **For Example**, The formation of clouds is due to condensation of water vapor from Earth.

**Liquids:**

- The kinetic energy between the particles decreases and they turn into a solid state. **For Example**, The formation of ice.
- **Sublimation** – change of state of a gas directly into solid and vice-versa is known as sublimation. **For Example**, Camphor is a solid that directly evaporates into the air without changing to a liquid state.
- Camphor is a solid that directly evaporates into the air without changing to a liquid state.
- Therefore, by increasing or decreasing the temperature we can change the states of matter into one another. Here is a diagram that sums this up.

## State of matter change triangle



## Important Measurement Units

SI Unit of Mass	Kg (Kilogram)
SI unit of Volume	m <sup>3</sup> (cubic meters)
Common unit of Volume	L (Liters)
SI unit of temperature	Kelvin 00 C = 273.16 K or 273 K (approximately) Kelvin = Celsius + 273
Si unit of Pressure	Pa (Pascal)
For measuring pressure exerted by Gas	Atmosphere (atm) 1 atm = 1.01 X 10 <sup>5</sup> Pa Normal Atmospheric Pressure = 1 atm (at sea level)





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**Q1. Fill in the blanks:**

- a) Forces of attraction in liquids are \_\_\_\_\_ in solids.
- b) As the kinetic energy of the particles increases the rate of evaporation \_\_\_\_\_.
- c) As the surface area of the body increases the rate of evaporation \_\_\_\_\_.
- d) At room temperature the forces of attraction between the particles of solid substances are \_\_\_\_\_ than those exist in the gaseous state.

**Q2. Match the physical quantities given in column A to their S I units given in column B:**

- A**
- (a) Pressure
  - (b) Temperature
  - (c) Density
  - (d) Mass
  - (e) Volume

- B**
- i) cubic meter
  - ii) kilogram
  - iii) pascal
  - iv) kelvin
  - v) kilogram per cubic metre

**Q3. What do you mean by melting point and boiling point?**

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**Q4. What do you mean by latent heat of fusion?**

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**Q5. What is latent heat of vaporization?**

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