



Change in State

What is Matter?

Matter exists in three states:

- Solid
- Liquid
- Gas

Matter can change from one state to another when it is heated or cooled.

Fun Fact: The amount of water on Earth today is the same as it was when Earth was formed. You might be drinking the same water that dinosaurs once drank!

Phase Changes of Water

Melting: When ice (solid) is heated, it turns into water (liquid). This process is called melting.

Example:

- Ice cubes melting into water.

Boiling: When water (liquid) is heated, it changes into steam (gas). This process is called boiling.

Example:

- Water boiling in a kettle.

Evaporation: When a liquid turns into a gas at a temperature below its boiling point. It happens slowly and continuously in nature.

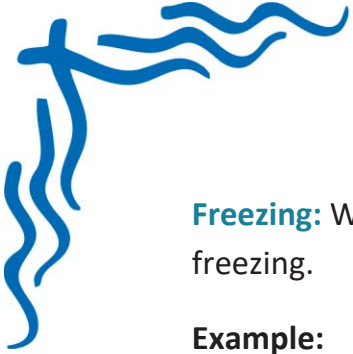
Example:

- Wet clothes drying under the sun due to evaporation.
- Water in ponds or lakes slowly evaporating.

Condensation: When gas (water vapor) cools down and turns into liquid.

Example:

- Dewdrops forming on leaves early in the morning.
- Water droplets forming on the outside of a cold glass.



Freezing: When liquid (water) is cooled, it turns into solid (ice). This process is called freezing.

Example:

- Water turning into ice cubes in the freezer.

The Water Cycle – Natural Change of State

Water naturally changes its state through the water cycle:

Evaporation: The sun heats the water in rivers, lakes, and oceans, turning it into water vapor.

Condensation: The water vapor cools down and forms clouds.

Precipitation: When clouds become heavy, water falls as rain, snow, or hail.

Collection: Rainwater collects in rivers, lakes, and oceans, and the cycle continues.

Activity: Observing Phase Changes

Materials Needed:

- Ice cubes
- Glass of water
- Kettle or saucepan
- Stove or heating source

Instructions:

Melting:

- Place ice cubes in a glass.
- Watch them melt into liquid water.

Boiling:

- Heat the water in a kettle or saucepan.
- Watch the water boil and turn into steam.

Condensation:

- Hold a lid over the steam.
- Notice water droplets forming on the lid due to condensation.



Freezing:

- Pour water into an ice tray.
- Place it in the freezer.
- After a few hours, observe how the water turns into ice.

Observation:

You will see water changing states:

- From solid to liquid (melting)
- From liquid to gas (boiling)
- From gas to liquid (condensation)
- From liquid to solid (freezing)

Conclusion

Matter changes state when heated or cooled. Evaporation and condensation play a major role in the water cycle. Fun Fact: Water evaporates even without boiling – that's how wet clothes dry!