

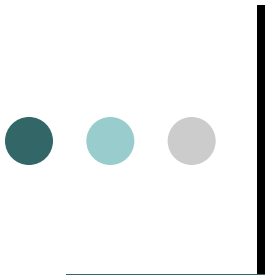


Phases of Matter

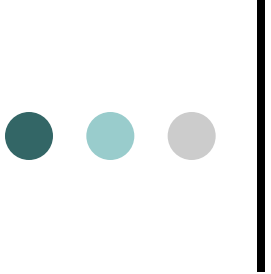
Objective: To observe and record the phase change of water.

• • • | Phases of Matter


- Question - What change of phase do you see?
- Phases of Matter - Gas, Liquid and Solid



State	Volume	Shape	Movement of particles
Solid	Definite	Definite	Move very slowly
Liquid	Definite	Indefinite	Slide past each other
Gas	Indefinite	Indefinite	Quick in all directions



Phase changes
are caused by
adding or
subtracting
energy.



Phase
change

Particles
gaining or
losing energy

What change
of state
occurs

Particles
speeding up or
slowing down

Melting

Gaining
energy

Solid-Liquid

Speed up

Freezing

Losing energy

Liquid-Solid

Slow down

Evaporation

Gaining
energy

Liquid-Gas

Speed up

Boiling

Gaining
energy

Liquid-Gas

Speed up

Condensing

Losing energy

Gas-Liquid

Slow down



Hypothesis

- Heat will speed up/slow down/not affect evaporation.
- All liquids evaporate at the same/different rates.



Procedure

- Measure and place 60 ml of water in beakers A & B.
- Find the mass of A & B and record under "initial mass" in the data table.
- Place beaker A aside for 5 minutes, place beaker B over the burner.
- After 1 1/2 minutes, reweigh, and record mass of beaker B (save the hot water).
- Reweigh beaker A and record the mass.



Procedure

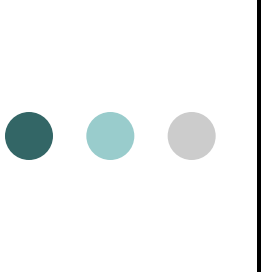
- Add more water to the hot water beaker to make approximately 100 ml.
- Heat the water until little bubbles form on the bottom and sides of the beaker.
- Place an ice cube in the water.
- Cover the beaker with the watch glass.
- Place an ice cube on the watch glass.
- Record your observations.



Substance	Initial Mass	Final Mass
Water Beaker A		
Water Beaker B		



Place	Change in State	Activity
At surface of water in beaker	to	
Underside of watch glass	to	
In the ice cubes	to	



Substance	Initial Mass grams	Final Mass grams
Water (A)		
Water (B)		
Alcohol (C)		
Alcohol (D)		



Procedure

- Measure and place 10 ml of alcohol in beakers C & D.
- Find the mass of C & D and record under "initial mass" for alcohol in the data table.
- Place beaker C aside for 1 minute, place beaker D over the burner.
- After 1 1/2 minutes, reweigh, and record the mass of beaker D.
- Reweigh beaker C and record the mass.