

Evaporation is when a liquid changes to a gas. This is like boiling water turning into steam, or a puddle disappearing in the sun. When enough energy is added to the molecules in a liquid, they break free from each other and the substance turns into a gas¹.



Condensation is when a gas changes to a liquid, like water droplets on a cold beverage. The air is full of water vapor which cools down as it hits the cold glass, and it turns into little droplets of water.

Water droplets on a cold cup is an example of condensation.



Deposition is when a gas changes to a solid, like frost on a leaf in the winter. If the temperature outside is freezing, the water vapor in the air will turn into a layer of ice on the leaf².

Frost on a leaf is an example of deposition.

Sublimation is when a solid changes to gas, like dry ice turning into carbon dioxide. When dry ice warms up, it changes directly to a gas.

Reversing the Changes

Ice can become water again, but a fried egg can't go back to being raw. Some phase changes can be reversed, but others can't.

When something can be changed back to how it was originally, it's a **reversible change**. The substance stays the same, but in a different state. An ice cube is still water, but in a solid state. That's why you can melt an ice cube and it will go back to being a liquid. Melted wax can harden back into a candle. Melting and freezing can be reversed.



When something can't be changed back, it's an **irreversible change**. It becomes a completely new substance. An example of this is putting some cake batter (a liquid) in the oven. Once it's been baked into a cake (a solid), it can't be changed back into the batter. Heating something is usually irreversible.

Baking a cake creates an irreversible change.