

CONVECTION

Convection:

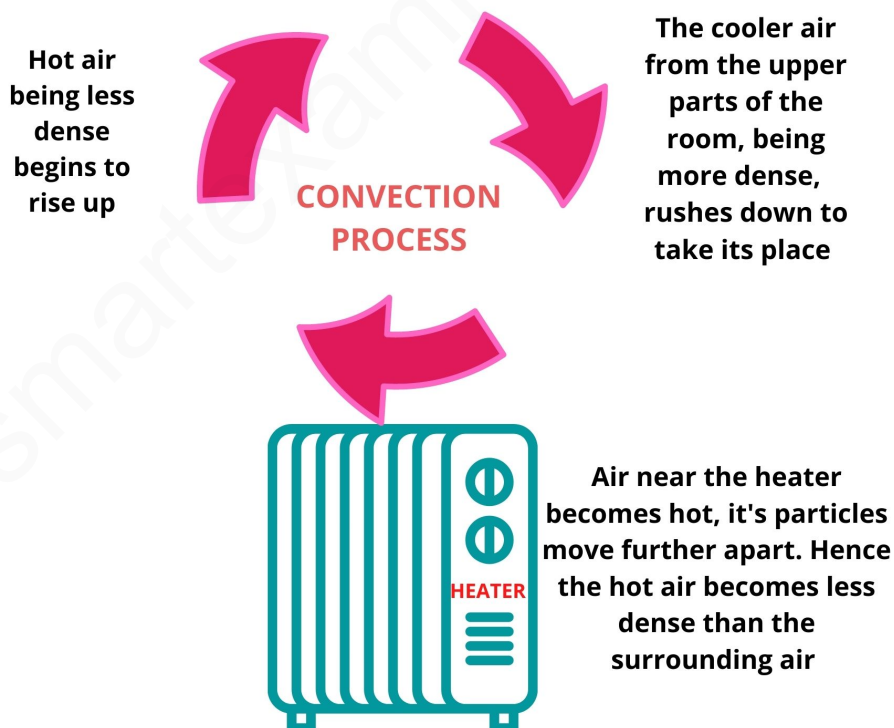
- Convection takes place when a liquid is heated due to circulation currents
- Convection can take place only in liquids and gases.
- Convection currents transfer heat energy from the hotter parts to the cooler parts of the fluid

Explaining convection in terms of density changes

When a fluid is heated, its particles move further apart and occupy a larger volume. Since the mass stays the same, the overall density of the fluid decreases and it rises up.

Process of convection:

When a fluid is heated, it expands and becomes less dense. Hence it rises up. The fluid at the top is cooler and more dense. Hence it moves down. There is a continuous flow of dense and less dense fluid. This gives rise to a convection current.



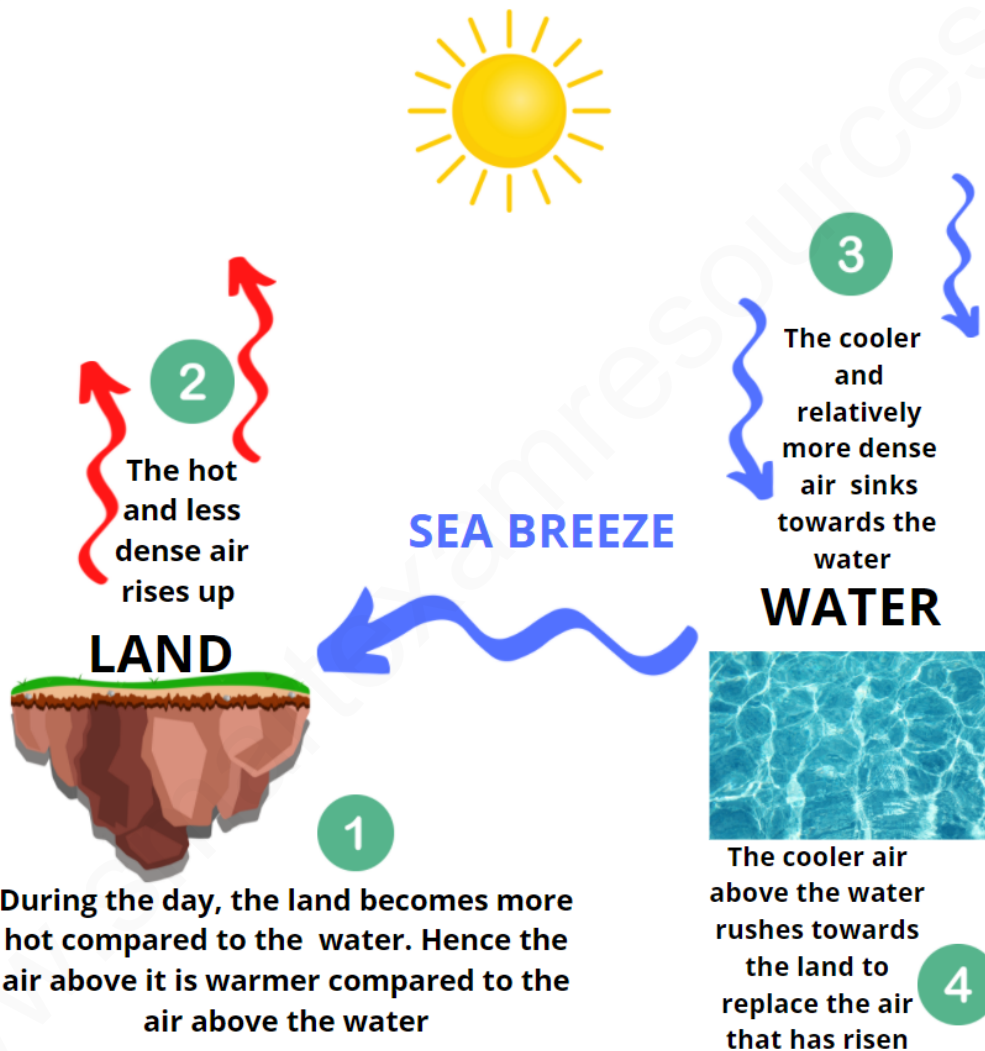
Note:

1. Convection is an important method of thermal energy transfer in liquids and gases

Example of convection current are land and sea breezes.

Sea breeze: During the day, the land is hotter. Hence the air above it is hotter and less dense. Hence the hot air from the land rises up and rushes towards the water and the cooler air from above the water rushes to take its place.

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Land breeze: During the night, the water is warmer. Hence the air above it is hotter and less dense. Hence the hot air from the water rises up and rushes towards the land and the cooler air from above the land rushes to take its place.