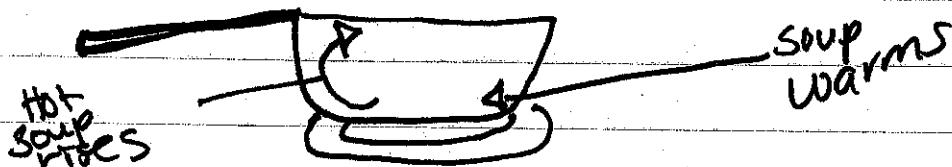


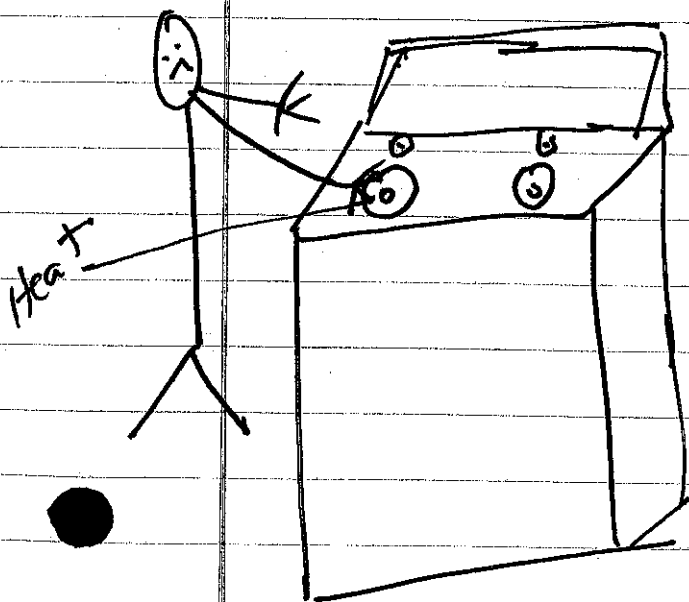
# Heat Transfer

Convection - transfer of heat through liquid or gas. Air is heated  $\rightarrow$  rises. It then cools  $\rightarrow$  sinks. It cycles



## Conduction

- Heat is transferred from one object to another by touch



## Radiation

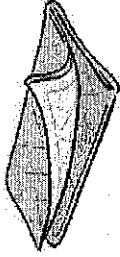
- transfer of heat through waves that move through space (DO NOT TOUCH IT)



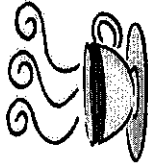
# Heat transfer examples

## Conduction

An electric blanket will make my bed cozy and warm on long winter nights.



Be careful when picking up that cup of coffee. It's hot!



I left a metal spoon in a pot of boiling water and now the spoon is too hot to touch.



Ouch! I got burned when I touched the stove.

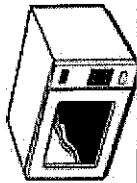


## Radiation

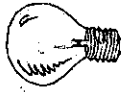
On a chilly night, we gather around a campfire to warm our hands and feet.



I am going to heat up my leftovers in the microwave.



That lamp has been on for a while because it feels warm when I put my hand near the light bulb.



You should use sunscreen lotion at the beach to avoid getting a nasty sunburn.

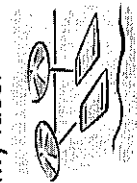


## Convection

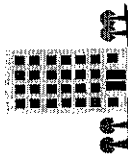
Fire heats the air inside a hot air balloon. Then the balloon rises high into the sky.



While visiting the beach, the sea breeze blows across my face.



Brrr! The first floor of the apartment building feels cooler than the upper floors.



The water in the lake felt warm, but as I swam deeper, it felt cold.

