

Conduction, convection, and Radiation

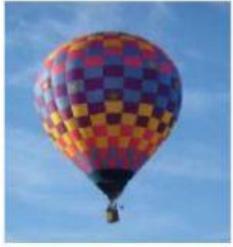
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Review

| | Transfer of heat by | Example |
|------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Conduction | Contact | <ul style="list-style-type: none"> • Touching a hot rod |
| Convection | Moving of air/liquid Hotter rises Less hot(colder) sinks | <ul style="list-style-type: none"> ❖ Boiling water ❖ Wind ❖ Magma inside the earth |
| Radiation | Transfer by waves No contact | <ul style="list-style-type: none"> ➢ Sun ➢ Radiator ➢ microwave |

Questions 1

Instructions: Label the picture as Conduction, Convection or Radiation

| | | |
|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Heat from camo fire  | Heat from your hand melts the ice  | Hotter air raises  |
| You touch a remote control  | Food gets cooked on the hot pavement  | Boiling H₂O  |

Warm food in a microwave



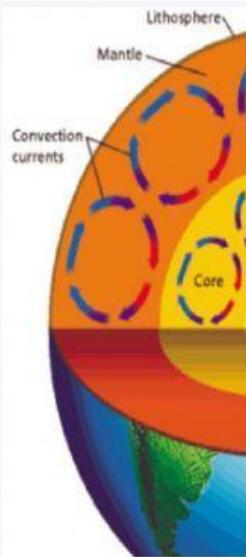
The hot air from the hairdryer rises and as it cool down sinks



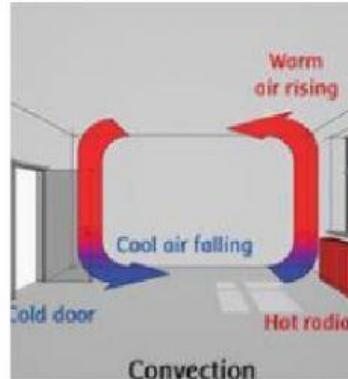
Pan on a stove



Hot magma rises and less hotter sinks



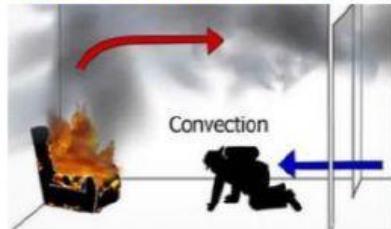
Heat rises – cold sinks



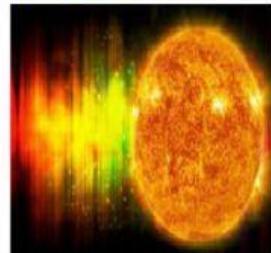
Hotter Magma rises and less hotter sinks



Circulation of air

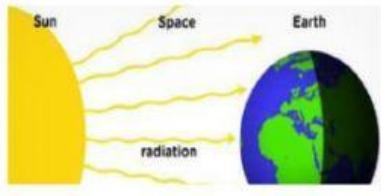
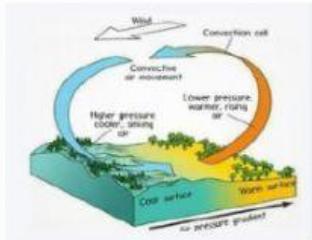
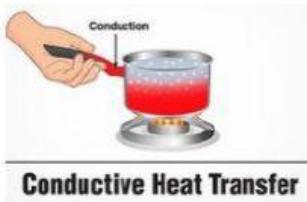


The sun



Electromagnetic radiation



| | | |
|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The sun heat</p>  | <p>The air movement is by Con....</p>  | <p>The wind moves because...</p> <p>WIND</p>  |
|  | <p>Spoon get hotter by contact</p>  <p>Conduction of Heat</p> | <p>Touching a hot handle</p>  <p>Conductive Heat Transfer</p> |

Questions 2

The first statement of the **2nd law of thermodynamics** - **heat flows** spontaneously from a **hot** to a **cold** body.

It tells us that an ice cube must melt on a **hot** day, rather than becoming colder. **In other words**, the ice cube **will not** give away energy to a hotter object and become colder (**this will not make any sense**)

Instructions: Use the above paragraph to complete the sentences

The first statement of the 2nd law of thermodynamics

- _____ spontaneously from
a _____ to a _____ body.

It tells us that an _____ cube must _____ on
a _____ day, rather than becoming colder. **In other
words**, the ice _____ will _____ give _____
energy to a _____ object and become _____ (**this
will** _____ **make any** _____)

Question 3

If you are present in class

**You need to bring a composition notebook
every day.**

**Make a drawing of a conduction,
convection, and radiation example.**