TRANSFERRING THERMAL ENERGY

1. **Review from Lesson 1**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is the measure of the total kinetic and potential energy in an object – a number value, use thermometer to measure this.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of thermal energy from a \_\_\_\_\_\_\_\_\_\_ object to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_object.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- all substances expand with heated and contract when cooled. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the one exception.
  + Different materials contract and expand at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_rates.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: states that energy cannot be created or destroyed, only transferred or changed from one form to another.

1. Heat transfer is:
   * Not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   * Transfers in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ direction
   * The energy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ moves from a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ area to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ area.
2. Thermal energy is transferred from place to place by:

|  |  |  |
| --- | --- | --- |
| CONDUCTION | CONVECTION | RADIATION |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of thermal | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of  energy by |
| thermal energy | energy in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ particles | of warmer and |  |
| in matter | cooler fluid from |  |
|  | place to place. |  |
|  | | |

1. Conduction
   * occurs in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , and gases.

Examples:   

1. Convection
   * occurs in **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.
   * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fluid and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of

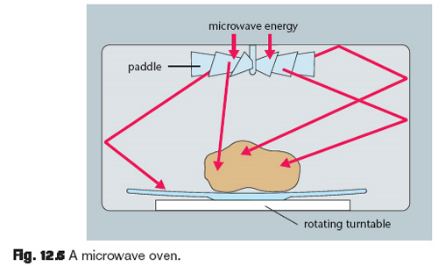
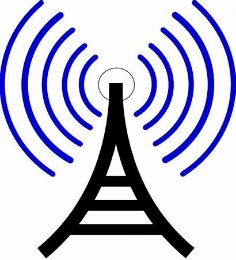
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_fluid forms a convection current



[](https://pixabay.com/en/kettle-glass-water-blow-geraert-357178/)Examples:

1. Radiation

* **Transfer of energy by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Does not require matter (can move through the air)



1. Energy Transformation examples
   * Sometimes, it is necessary to transform one form of energy into another for work. Write 4 examples
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_