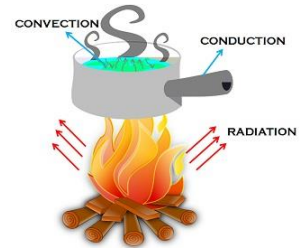


# Heat 1:

## Explaining Hot and Cold Kinetic Energy, Heat, Temp.



Watch the following YouTube videos;

<https://www.youtube.com/watch?v=4tx4sGVfSSw>

<https://www.youtube.com/watch?v=NVLDPHGYhg> and

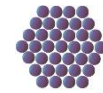
<https://www.youtube.com/watch?v=wDfeQTbmj94>

then look on pg. 185-189 in the textbook.

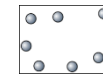
**Discuss and then answer the following questions as a partnership.**

1. Warmth and coldness can be explained using the **Particle Theory of Matter**, which states:

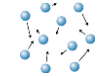
1. \_\_\_\_\_



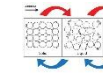
2. \_\_\_\_\_



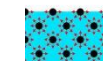
3. \_\_\_\_\_



4. \_\_\_\_\_



5. \_\_\_\_\_



2. When an **object is heated**, its particles \_\_\_\_\_.

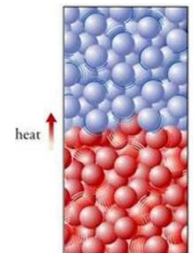
When an **object is cooled**, its particles \_\_\_\_\_.

3. **Heat is** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



4.



A substance cannot "absorb heat".

**When water is heated, it absorbs \_\_\_\_\_, not heat.**

5. **Kinetic Energy** is \_\_\_\_\_

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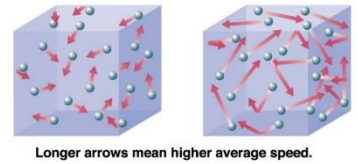
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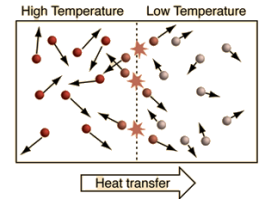


6. **Temperature** is \_\_\_\_\_

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**7. Particle Theory and the States of Matter**

	Solid	Liquid	Gas
Arrangement of particles	Close together Regular pattern	Close together Random arrangement	Far apart Random arrangement
Movement of particles	Vibrate on the spot	Move around each other	Move quickly in all directions
Diagram			

8. What is **Thermal Energy**?

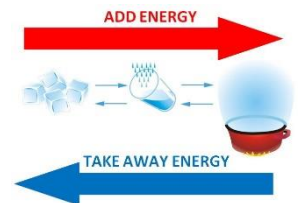
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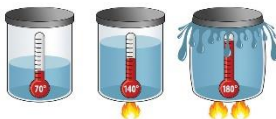
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9. **Thermal expansion** is \_\_\_\_\_




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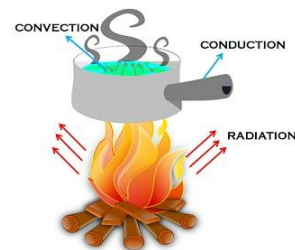
10. **Thermal contraction** is \_\_\_\_\_

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# Heat 2:

## Thermal Energy Transfer Conduction



Watch the following YouTube videos;  
[https://www.youtube.com/watch?v=h5\\_s\\_rOLPBM](https://www.youtube.com/watch?v=h5_s_rOLPBM)  
<https://www.youtube.com/watch?v=tPJLFDekxZA>  
<https://www.youtube.com/watch?v=Yitiw6Y7xZg>  
<https://www.youtube.com/watch?v=Yitiw6Y7xZg>

then look on pg. 203-209 in the textbook.

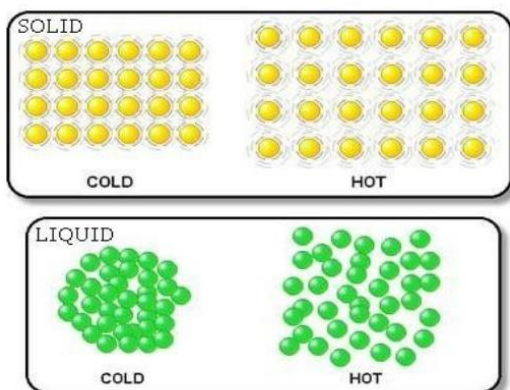
**Discuss and then answer the following questions as a partnership.**

1. Remember our last lesson?

**Heat** can cause substances to **expand**.

A **loss of heat** can cause substances to **contract** (shrink).

Effects Of Temperature On Molecular Motion



2. **Thermal energy** naturally **moves from** a substance with a \_\_\_\_\_  
**temperature** to a substance with a \_\_\_\_\_ **temperature**.

3. What is **conduction**?

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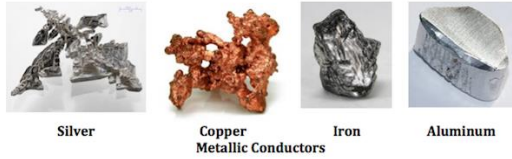
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4. **Metals**, such as copper and aluminum, are called **good conductors** because they



5. **Foam, fleece, or felt** in a winter boot are all **good insulators** because they

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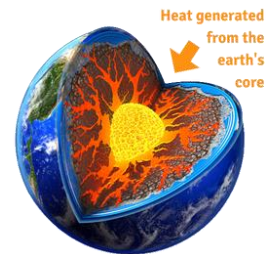


## Conduction can happen in geological processes too!

6. **Geothermal energy** is \_\_\_\_\_

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7. Name **two types of rocks** and **one mineral** formed by **conduction** of energy.

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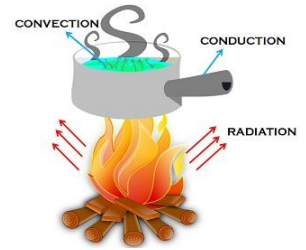
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# Heat 3:

## Convection in the Environment Radiation



Watch the following YouTube videos;

<https://www.youtube.com/watch?v=xq1Q5DwfVNU>

[https://www.youtube.com/watch?v=lfeRaOb\\_E-s](https://www.youtube.com/watch?v=lfeRaOb_E-s)

<https://www.youtube.com/watch?v=3nX2Lee5MwY>

<https://www.youtube.com/watch?v=2JZciWtK6vc>

then look on pg. 212 – 216 in the textbook.

**Discuss and then answer the following questions as a partnership.**

1. **Convection** is \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

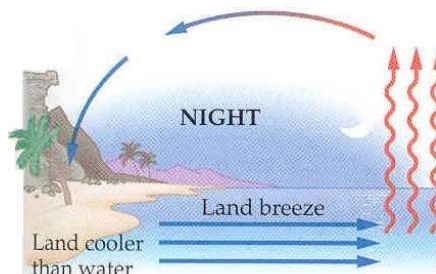
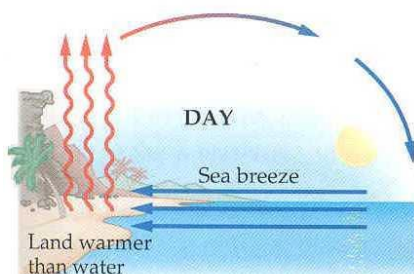


2. **Convection only** happens in a \_\_\_\_\_ or a \_\_\_\_\_.

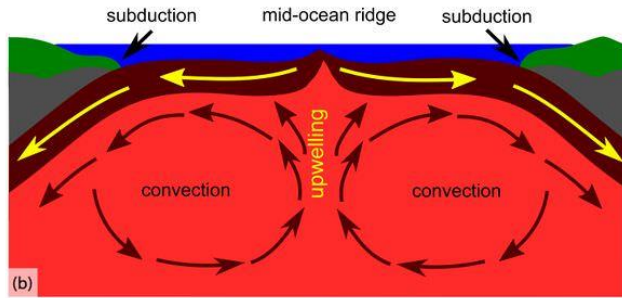
**Convection does not occur** in a **solid** because \_\_\_\_\_

\_\_\_\_\_

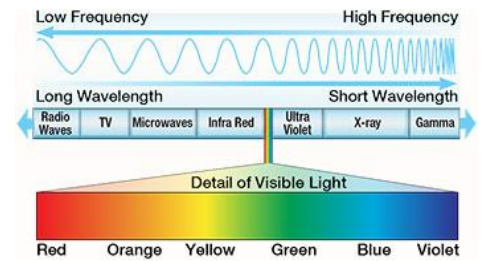
3. The **daytime/nighttime movement of air** near a body of **water** is caused by **convection**.



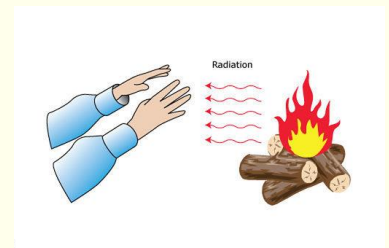
4. Very **slow convection** currents happen **deep below the Earth's crust**.



5. **Radiant energy** is \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



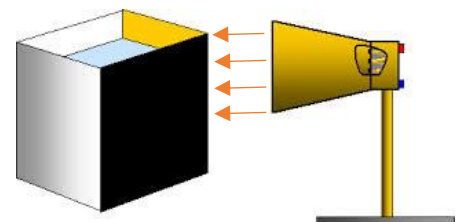
6. **Radiation** is \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



7. Most of the **radiant energy** from the **sun** reaches **Earth** in the form of \_\_\_\_\_ and \_\_\_\_\_.

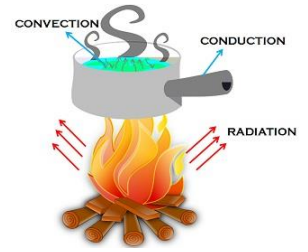
8. When **radiant energy** hits an **object**, it can either be \_\_\_\_\_  
 or \_\_\_\_\_.

\* Darker colours tend to absorb radiant energy better than lighter colours or shiny surfaces.





# Heat 4: Managing Heat Transfer



Watch the following YouTube videos;  
<https://www.youtube.com/watch?v=-KOqKEgwgZA>  
<https://www.youtube.com/watch?v=TN8S-V9BxLc>  
then look on pg. 217 – 220 in the textbook.

Discuss and then answer the following questions as a partnership.

A major way to conserve energy is to manage the transfer of energy into and out of buildings.

1. \_\_\_\_\_ are materials designed to **reduce** the flow of energy by limiting **conduction, convection**, or both.



2. \_\_\_\_\_ **reduce** the loss of energy by **radiation**.



3. In the following chart, **list things you learned** from the videos, or the textbook, about **preventing conduction, convection, and radiative** heat transfer (**loss**).

PREVENTING CONDUCTION	REDUCING ENERGY TRANSFER BY CONVECTION	REDUCING ENERGY TRANSFER BY RADIATION
