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HEAT TRANSFER WEBQUEST

Part 1: Heat Transfer: Conduction, Convection, and Radiation

http://alkisites.vansd.org/dgray/Assignments/conduction_convection_radiation_reading.pdf

Conduction

1. Molecules with more heat energy move _____, and molecules with less heat energy move _____.
2. What is thermal expansion?

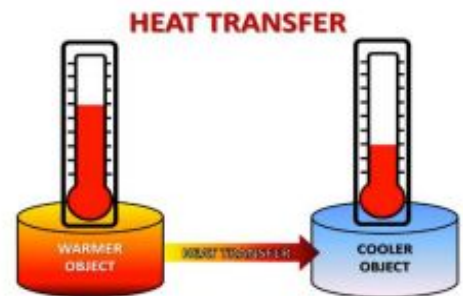
3. Heat will ALWAYS move OUT of the _____ and INTO the _____ substance.

4. How long will the heat transfer go on before stopping?

5. Conduction is how heat transfers through _____ with objects that are touching.

6. Why do your feet feel hot after touching them to hot sand or pavement?

7. How is heat conduction like dominoes?



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8. List two examples of good conductors and two examples of poor conductors

Good Conductors _____

Poor Conductors _____

9. What is conductivity?

10. Give three examples of heat conduction and explain what is happening:

1. _____

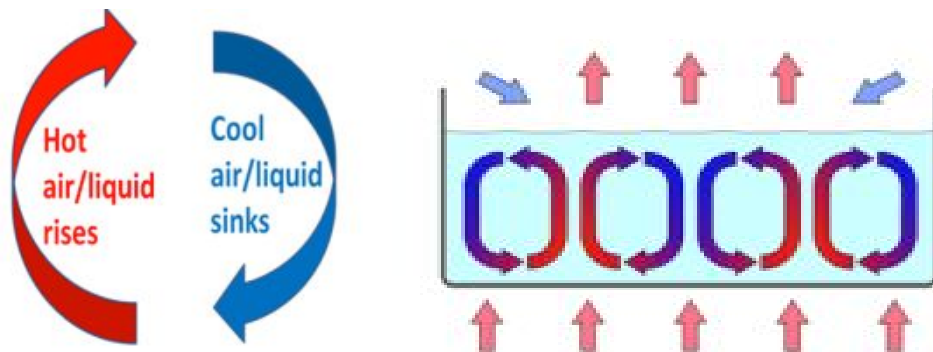
2. _____

3. _____

Convection

11. Convection is how heat passes through _____. A fluid is anything that has loosely moving molecules that can move easily from one place to another.

Liquids and gases are _____.



12. Why do fluids rise when heated? (Hint: What happens on a molecular level?) _____

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13. How does convection work when heating up soup on the stove? (Hint: explain how the molecules move)

14. Using your knowledge of convection currents, explain why rooms upstairs in a house get warmer than rooms in the basement of a house.

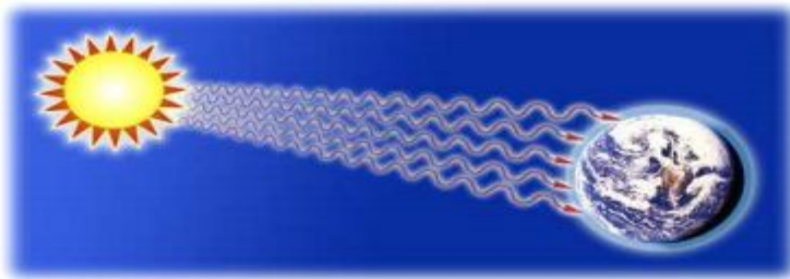
Radiation

15. Radiation is how heat moves through places where there are _____ molecules.

Radiation is actually a form of _____ energy.

16. Radiation is heat moving in waves. Radiation does _____ need molecules to pass the energy along.

17. What is the biggest heat source of radiation? _____



18. Explain how the sun heats the earth.

19. A good way to remember radiation is that it is how you can feel heat without _____ it.

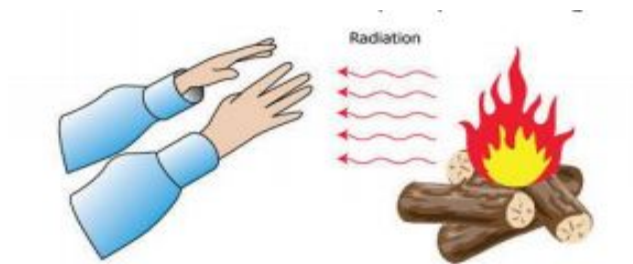
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20. Why does the classroom get warm when there are a lot of people sitting in the room? (specify a type of heat transfer in your explanation)

21. Explain how you get warm sitting next to a campfire without touching the fire.



Part 2: Energy Likes to move

http://www.physics4kids.com/files/thermo_transfer.html

1. Heat will naturally move from _____ to _____ temperatures.

2. Explain what the temperature gradient is. How do you find it?

3. What will happen if the gradient is higher?

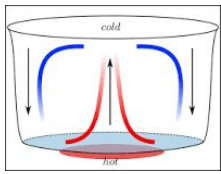
4. One way that energy likes to move is when heat is transferred from one area to another in a "bulk movement of matter." This is known as

5. Convection occurs when hot water rises to the _____ and gives off energy.

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6. To the left is a diagram in which convection is taking place. Warm water rises to the _____ while the cold water sinks to the _____.

7. What is one example of convection that you can find when cooking in the kitchen?

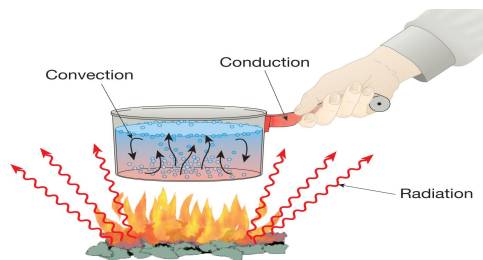
8. This kind of heat transfer does not travel through any medium. _____

9. That lack of medium means there is no _____ there for the heat to pass through.

_____ is the energy carried by electromagnetic waves (light).

10. _____ is a situation where the heat source and heat sink are connected by matter.

11. Conduction is heat transfer through touch. When you touch an ice cream cone, the ice cream heats up because _____



12. The picture above gives an example of each of the type of heat transfer. Describe similarities and differences between each type.

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