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Transferring Heat by Convection

Sometimes matter transfers heat through currents. Currents of molecules occur when large numbers of warm molecules move together as a group. Liquids and gasses have this kind of heat transfer. Their molecules are more active than those in solids, so they can flow in currents ad they are heated.

When water is heated, the molecules at the bottom near the heat source are heated. They then begin to move more rapidly and spread out. As they spread out, they become less dense and, as a group, they rise. When they rise they lose some heat to the cooler molecules they come near, and the original molecules move closer and become more dense. Then they start to sink. This starts a current of warmer molecules rising and cooler ones sinking. This process of heat movement is called convection.

We can see convection with hot air balloons. The air in the huge balloon is heated. As the air molecules heat up, they expand the space between them and become less dense. They rise and the cooler air outside the balloon moves downward. The balloon will rise due to the less dense warm air inside of it. Convection currents of warm air inside the balloon keep it floating upward.

Describe what has to happen when matter is heated by convection. Use information and details from the article to support your answer. Be sure to explain what happens to the space between molecules and what type of movement occurs.

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Think about what happens when you touch something like a hamburger. The thermal energy from the hamburger is shared with your hand. Your hand feels warmer than before it touched the hamburger. The hamburger looses some of its thermal energy so it becomes cooler. The energy from the hamburger is transferred to your hand.

Thermal energy is always shared between objects that touch each other, like your hand and a hamburger. The thermal energy always travels from the item with the most thermal energy to the item with the least. This process is called conduction.

You took a can of soda out of the refrigerator. After holding the can for a minute, how does your hand feel? Explain what happened to cause this. Use what you know about heat, as well as details from the paragraphs above, to support your answer.

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Create a poem for your friend that explains the differences among the three ways of heat transfer, namely, conduction, convection, and radiation.

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You are heat. Write an autobiography describing what you are and how you were able to cook some eggs that were in a pot on the stove.