Student Handout #2: Air as an Insulator



Otters' fur uses air as its insulator. Test the insulating capabilities of air with this experiment.

Materials

- √ 2 cups, paper or plastic
- √ 2 balloons
- ✓ water
- ✓ ice

Procedure:

- 1. Put some ice in each of the cups and fill both with water to about half way.
- 2. Work with your teammate to place a balloon about half-way onto each of your index fingers. One balloon should fit tightly to your finger. Blow a little air into the other before putting on your finger.
- 3. Place the fingers protected by the balloons in the ice water. Which finger feels warmer?

Questions:

- ? Did the finger with the balloon that had air in it feel warmer? Why do you think that happened?
- ? Can you think of other ways in which air is used as an insulator? Interview your parents and teachers to find examples of the use of air as insulation.

Source: Millie's Insulation Investigation on the 2nd page of http://portal.acs.org/portal/fileFetch/C/CTP_006814/pdf/CTP_006814.pdf

Learn More

Read more about heat insulation and how it works using the following Internet resources:

- Energy: Heat: Conduction, Convection, Radiation http://www.emints.org/ethemes/resources/S00001582.shtml?prnfriendly
- How Heat Exchangers Work http://www.industry-animated.org/heat-ex.htm
- Insulating Materials http://www.techlib.com/reference/insulation.html
- Info Please: Insulation http://www.infoplease.com/ce6/sci/A0825297.html
- Thermal Insulation www.school-for-champions.com/science/thermal_insulation.htm