

TRB 6:6 - Activity 3 - Too Hot to Handle

Summary

This lesson has students explore both conduction and insulation.

Materials

- two corks
- two six inch lengths of stiff wire
- candle
- journal

Additional Resources:

A Chilling Story: How Things Cool Down by Eve & Albert Stwertka; illustrated by Mena Dolobowsky Jilian Messner/Simon & Schuster, New York 1991. Grades 4-8
Catch the Wind: All About Kites by Gail Gibbons Little, Brown & Co., Boston. 1989. 4-8
Einstein Anderson Lights Up the Sky by Seymour Simon; illustrated by Fred Winkowski Viking Press, New York. 1982. Grades 4-7
Einstein Anderson Shocks His Friends by Seymour Simon; illustrated by Fred Winkowski Viking Press, New York. 1980. Grades 4-7
Einstein Anderson Tells a Comet's Tale by Seymour Simon; illustrated by Fred Winkowski Viking Press, New York. 1980. Grades 4-7
June 29, 1999 by David Wiesner Clarion Books, Houghton Mifflin, New York. 1992. Grades 2-6
Have Spacesuit, Will Travel by Robert A. Heinlein Charles Scribner's Sons, New York. 1958.

Background for Teachers

In this demonstration, students will get their first look at both conduction and insulation. Conduction is the passing of heat from one molecule to the other, while insulation is a material that slows or stops the heat from moving. In this activity, use caution to be sure students remove wire as it gets warm.

Intended Learning Outcomes

- 1-Use science process and thinking skills
- 2-Manifest scientific attitudes and interests
- 3-Understand science concepts and principles

Instructional Procedures

Before starting, have the materials prepared.

One length of wire should be pushed all the way through one of the corks.

One length of wire should be cut in half. Push half into the cork from each end making sure they do not touch. Do not tell the students about this wire. They should think both wires are the same. (You, the teacher, need to know which cork is which.)

Choose two students to help with the demonstration.

Give the cork that has the wire pushed all the way through to one of the students.

Give the other cork, wires not touching, to the other student.

Light the candle. **Be sure students have safety goggles on and are safety concious with the open flame.**

Ask the students to hold one end of their wires over the flame.

Have students tell when their wires begin to get warm.

When the wires begin to get warm, have them remove the wires from the flame.

Have students write in their journals and explain the results.

Discuss conduction and insulation, then let the students modify their journals. (It is up to you, the teacher, to decide how much information to give about this demonstration.)

Extensions

Have students list as many conductors as they can. Circle the best conductors.

Have students list as many insulators as they can. Circle the best insulators.

Assessment Plan

The following rubric could be used or adapted for grading this activity.

Description						Total
Number of conductors listed	5	4	3	2	1	
Number of insulators listed	5	4	3	2	1	
Student's journal showed understanding with pictures/drawings.	5	4	3	2	1	
Student used complete sentences/correct spelling/neatness	5	4	3	2	1	
Oral interview of activity.	5	4	3	2	1	

Bibliography

This lesson is part of the Sixth Grade Science Teacher Resource Book (TRB3)

<http://www.usoe.org/curr/science/core/6th/TRB6/>. The TRB3 is designed to be your textbook in teaching science curriculum to your students. This book covers all the objectives of each standard and benchmark. If taught efficiently, a student should do well on the End-of-Level (CRT) tests. The TRB3 is designed for teachers who know very little about science, as well as for teachers who have a broad understanding of science.

Authors

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