



Insulation

Grade Levels: 4-6

Background

Over half of the energy that we use in our houses is used for heating and for cooling. We can keep the warm or cool air inside by insulating our homes. Saving energy can also save a family money on their energy bills.

Question

Which materials make good insulators?

Possible Hypotheses

Foam is a good/poor insulator.

Cloth is a good/poor insulator.

Paper is a good/poor insulator.

Materials

- 2 Shoeboxes
- Scissors
- 2 Thermometers
- 1 Piece of Styrofoam about one inch thick
- Newspaper
- Towel
- Black construction paper
- Tape

Procedure

1. Tape black construction paper to the outside bottoms of the shoeboxes.
2. Place the box tops in a sunny place with the thermometers inside facing up. Record the temperatures.
3. Invert one box onto a top so the black bottom is toward the sun or lamp. This is your control.
4. Tape a piece of Styrofoam to the inside of the bottom of the second box, and then place it upside down over the second top.
5. Record the temperatures of both boxes after 15 minutes.
6. Remove the Styrofoam and tape thick pieces of newspaper in the bottom of the box. Repeat the procedure and record the temperatures.
7. Remove the newspaper and tape a towel into the bottom of the box. Repeat the procedure and record the temperatures.

Analysis and Conclusion

Which material was the best insulator? What other substances might make good insulators?

