CURIOSITY AT HOME

BEAT THE HEAT

Heat flows from warm to cool. Insulators slow this transfer of heat energy. Try this experiment to learn which materials make the best insulators.

Insulators

MATERIALS

- 3 small glass jars with lids
- hot tap water
- 1 tbsp measuring spoon
- cardboard
- 3 Ziploc sandwich bags
- aluminum foil
- wool sock or scarf
- thermometer (one that you can dip in water)

PROCEDURE

Line the inside of each Ziploc bag (using one type of material per bag) with either cardboard, aluminum foil or wool. Leave enough room to put a jar inside each bag and seal the top.

Carefully measure the temperature of hot water coming from your tap until it reaches about 100°F (37.8°C). Measure 5 tbsp (tablespoon) of 100°F water into each glass jar. Quickly put on lids and place jars into prepared plastic bags. Place sealed bags into refrigerator.

Use a thermometer to measure the temperature of each water jar every 15 minutes for 1 hour. Record your results. After an hour, which material kept the water the warmest? Which water sample lost the most heat?

TRY THIS

Explore with other materials, like cotton, foam, feathers or paper, to find the best insulator. Can you find an insulator that will keep your water closer to 100°F? What material will keep your water the warmest after a whole day? Will those same materials keep cold water coldest?

Use a thermometer to measure the temperature of each water jar every 15 minutes for 1 hour. Record your results. After an hour, which material kept the water the warmest? Which water sample lost the most heat?

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Show us how you're being curious! Share your results with us.

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