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