

## The Effect of Fabric Color on Retaining Heat

Items needed: 3 to 5 glass or plastic jars with lids; red, yellow, blue, green, purple, orange swatches of material to cover the lids; a thermometer; a note pad and graph paper.

- Get several different colors of the same type of fabric. You should use the same type of fabric so you know that each piece of fabric has the same insulation properties and, the only difference between the fabric pieces is the color.
- Get one glass or plastic jar for each of the colored fabrics. Glass or plastic jars can be bought at a drug or hardware store. Or, use 2 liter plastic soda pop bottles. The jars should be the same size and should have a screw on lid.
- Fill each jar with water and completely wrap each jar in a different colored fabric. Keep the lid on the jars. The water in the jar is like the human body and the fabric is like clothing.
- Place the jars in the sun, so each jar receives direct sunlight. If the outdoor temperature is cold, you might be able to find a room in you house which gets direct sun. But, it's important that the jars remain in the sun during the experiment.
- Every half-hour measure the temperature of the water in each jar. Remove the lid just enough to insert a thermometer, let the temperature stabilize, record the reading, close the lid and wrap the jar. Write down the time and the water temperature. Also record the air temperature.
- Continue taking readings every half-hour while the sun is up, but at least between about 10:00 AM and 3:00 PM, which is the hottest part of the day.
- When you are done, graph the data you collected. On the vertical axis have the measured temperature of the water, and on the horizontal axis have the time of the day. You will have one plot for each color. From this you will be able to clearly show the results of how the water temperature varied throughout the day.
- The color fabric that kept the water temperature lowest will also keep you cooler during hot weather

Adapted from the site: <http://www.fabriclink.com/Sciencecolor.html>