

Model Experiments

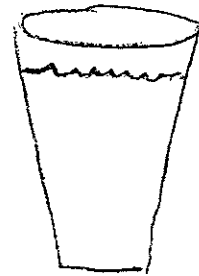
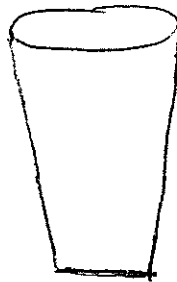
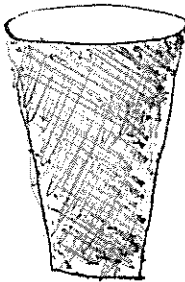
Name: _____

Read the experiment below and answer all the questions that follow in complete sentences.

Some students noticed that in the summertime, the blacktop always seemed to be much hotter than the sidewalk, even when both had been in the sun for the same amount of time. They thought that this might be due to the difference in color, so they designed an experiment to test their idea.

They took three glasses of water at room temperature (about 20 °C), wrapped one with black construction paper, one with white construction paper, and left the other unwrapped. They placed a thermometer in each glass and put them in front of a heat lamp for 10 minutes. The students predicted that the glass of water wrapped in black would be hotter than the other two glasses. At the end of their experiment, the temperatures of the three glasses were:

Final Temperatures



black: 24 °C

white: 22 °C

unwrapped: 24 °C

The students were surprised that the glass with black paper was not the hottest one, but since it was hotter than the glass with white paper, they concluded that their idea was essentially correct.

Model Experiments Worksheet

1. What was the question that the students were trying to answer?
2. What was the experimenters' hypothesis?
3. What is a control?
4. Which cup is the control?
5. Explain why a control is necessary (i.e. which alternative hypotheses will the control allow you to eliminate?)
6. How could the experiment as written be improved?