

Rahiem Smalls, 01/11/2012

Lab 1: Controlled experiment

Journal Questions

1. What problem are you trying to solve?

I'm trying to see what type and color jacket will retain the most heat after a timed period of 5 minutes. Using Nylon Denim and Wool jackets and a 60 watt light bulb, the jackets will be placed in the experiment area with thermometers in the pockets recording the temperature.

2. Form a hypothesis: what is the prediction you want to test?

I want to test that the Denim material jackets would retain the most heat of the three types of jackets (Denim, Nylon, and Wool jackets); also I wanted to see if the Black colored jackets would retain more heat than jackets that are White. So I tested that as well.

3. What steps will you follow for this experiment?

I will test each material starting with the wool first the Nylon then Denim. I will arrange the two dark colors first and then the two light colors, then take down the average temperature of each. After the data is recorded, I will then test the Black colored jackets with the White color jackets to see which will retain more heat. These steps will be repeated to test each type of the materials.

4. What data will be recorded?

I will record the averages temperatures of each type of material and color jacket.

Jacket Colors	Wool Average Temperatures	Nylon Average Temperatures	Denim Average Temperatures
Black	30.7	29.1	29.5
Blue	29.0	28.0	28.5
Green	28.3	27.4	27.8
Yellow	28.8	27.8	28.3
White	25.0	24.6	24.9
Total :	28.36	27.38	27.8

During the experiment I observed a pattern that showed that in all of the materials tested the black jackets retain the most heat than any other jacket color. I think that the dark jackets retained the most heat because the dark colored jackets reflect less light than that of a light color jacket, therefore making the jacket retain more heat from the light.

5. Did the experiment support the hypothesis?

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The experiment proves that only half of the hypothesis is correct. During the experiment the results show that the Denim material does not retain the most heat of the three materials. In fact it is the Wool material that retains the most heat rather than the chosen material. The second part of the hypothesis tested the Black jackets and the white colored jackets to see which will retain more heat. The experiment shows that the dark colored jackets retained more heat than the lighter colored jackets in all materials.

I recorded the average Temperatures of each type of material using Black and White colored jackets.

Colors	Wool	Nylon	Denim	Totals
Black	30.7	29.1	29.5	29.7
White	25.0	24.6	24.9	24.8

The data recorded shows that the darker colored jackets retail more heat than lighter jackets proving part of my hypothesis partly correct.

With this information it's clear that the experiment did not fully support the hypothesis. The data recovered from the experiments also shows this information as well.

6. How does the material of the jacket affect the heat absorption?

I think the material of the jacket does have an affect of the heat absorption because of the way the material reflects light. For example the wool doesn't reflect light so then it would absorb the heat from the light bulb therefore making it retain the most heat. The nylon material would reflect light because of its shinny material it reflects the light away therefore the jacket did not retain much heat, but the light that did get absorbed did heat up the jacket.

7. Describe the strength and weaknesses of the computer model you used in the experiment. What other parameters could you use in such an experiment to determine the effect of color on heat absorption?

One of the strengths was the three different temperatures which gave a more accurate average of the three jackets and the material used in the experiment. The weakness to the experiment was the limited to explore more types of material to test.

8. How does the lab relate to the chapter topic?

This lab relates to the chapter on "What is science?" because it show some scientific way on how heat is absorbed by certain objects and materials. This experient also has a correspondent to real life because it shows what type of materials and colors you would be able to wear during season. Now that I have figured out what type of material retains the most heat I know what type of clothes to wear during the summer time to stay cool and as well as the winter time to stay warm.

Comment [WDH1]: Relate to the scientific method