

### Hair Lab Report

Aim: To investigate the force needed to break down a hair and to investigate if characteristics found in different hairs make a change in the strength these have.

Hypothesis: There will be hairs which would be more resistant; therefore they will resist more weight. I think that hairs which weren't chemically treated will be stronger than the ones which were. Also I think the type of colour will be reflected on the strength of these hairs.

Materials:

- 12 hairs, 3 per person
- Ruler
- Weights (100g)
- Clamp stand
- Force meter

Diagram:

Method:

1. Cut three hairs from four different girls
2. Measure each, take note of these measurements.

3. Choose a hair, and tight it to the force meter apparatus. You should already have the first weight (100g) hanging from this apparatus.
4. Be aware that the hair is correctly tightened up, if it does, start adding more weight. First the cylinder weighing 100 g and afterwards the 10g weights.
5. When the hair breaks, record the amount of weight that it was put.
6. Repeat steps 3, 4 and 5 with all of the other hairs.

#### Results:

Name	Color and type	Treatment	Length (cm)	Weight (N)
Julieta hair n° 1	Blond- straight	Chemically treated	50	130
Julieta hair n° 2	Blond-straight	Chemically treated	40	130
Julieta hair n° 3	Blond-straight	Chemically treated	44	120
Celina hair n° 1	Ginger- curly	Chemically treated	59	220
Celina hair n° 2	Ginger- curly	Chemically treated	44	220
Celina hair n° 3	Ginger- curly	Chemically treated	60	150
Sabrina hair n° 1	Brunette- straight	No treated	76	140
Sabrina hair n° 2	Brunette- straight	No treated	75	190
Sabrina hair n° 3	Brunette- straight	No treated	76	200
Victoria hair n° 1	Brunette- wavy	Chemically treated	50	100
Victoria hair n° 2	Brunette- wavy	Chemically treated	50	150
Victoria hair n° 3	Brunette- wavy	Chemically treated	50	100

#### Conclusion:

Our aim was to investigate the force needed to break down a hair and to investigate if characteristics found in different hairs make a change in the strength these have. We carry the steps mentioned in the method to accomplish the aim. In this experiment, the dependant variable is the strength of the hair, and the independent variable was the different hairs.

▲After looking to the results presented on the bar chart, we can deduce that strong colors such as brunette and ginger present strength in the hairs. Compared to this deduction, the color blond showed itself as the lowest

resistant. Although I mentioned that brunette hair was strong, the two types of hair we used with this color have one difference between each other. One was chemically treated and the other wasn't. The hair which wasn't treated was stronger than the one which was chemically treated. By making this comparison, it can be deduced that characteristics of hair do change with the use of chemicals.

There are some reasons which can explain why some hairs are more resistant than others. One of these reasons can be that the cysteine bonds are too weak; therefore they couldn't resist much weight. Another reason, it's the lack of keratin. Keratin is an example of a fibrous protein. Keratin is linked with cysteine by covalent bonds to form disulphide bonds. The more disulphide bonds produced, the stronger the fibrous protein is.

By looking back to my hypothesis, I realize that what I thought before doing the experiment wasn't very different to the results presented. However, the experiment proved with results for example, that certain colors represent more strength than other colors.

The experiment was done correctly, however I believe there could have been improvements to reduce errors in results. For example, dividing chemically treated hairs from non treated hairs and also dividing hairs in terms of colors. This would have allowed to obtain more precise results.