Science Fair Project

Group Members:MS Student

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Assigned: October 27th ___/200
Due: Nov 5th

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Due: Nov 17th

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Assigned: Nov 20th ___/100
Due: Dec 2nd

Experiment, Results and Conclusion
Assigned: Dec.8th ___/200
Due: Dec 17 (Trial 1)
Jan 7th (Trial 2 & 3)

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Assigned: Jan.12th ___/100
Due: Jan.27th

Final Project - Display Board Report
Assigned: Jan.12th ___/100
Due: Jan 27th

Science Fair topics template

TITLE A

Step-: 2 Project Ideas Proposal

Name, Last Name:weirich _____

Assigned: 10/27

Deadline: 11/05

1st Idea: elephant toothpaste rocket

(Please circle one: engineering/science)

2nd Idea: Topic grand effects vehicle _____

(Please circle one: engineering/science)

My Final idea: stren tensile strength_____

Question: which is stronger Artificial or natural_____

Resource(s): Brad bucket waet measure _____

Science Fair Topics - Draft

Write down the topic you chose:

What made you want to pick this topic?

It is easily available to me In very complicated in the right area.

Do you find these topics interesting? Why?

For information what should be used in manufacturing objects at Lowe's or bridges.

Science Fair Topic and Question - Final

Which topic did you choose?

tensile strength

What question(s) are you testing?

Is natural or artificial stronger

How are you going to test your hypothesis?

Driving a bucket putting weight and wait until the string breaks measuring the bucket see how heavy it is and then recording the data.

Background Summary

Find information and record the sources you use that help you make an educated guess to your testable question.

Write a 1 paragraph summary for each of your sources.

Tip: Make your hypothesis after this is done

artificial is strong but it is real about you. natrol is biodegradable, and Does better on the prolonged tension and is a miracle on how it is constructed. Natural Twisted Rope vs Synthetic Rope Strength Comparison

Step 3 Background Research Source 1

TITLE B

Source 1

Title: Natural Twisted Rope vs Synthetic Rope Strength Comparison

Summary:

What's the big idea about the article?

There are many advantage is artificial natural has its own advantages and drawbacks

In complete sentences, describe a few details (who, what, where, when, why, and how)

Artificial stronger it does not explain.

Source 1 Bibliography

If the source is a book, Title of the book:		
Author's Name:		
Date Published:		
Place Published:	Publisher:	Date Published:
Edition: (if applicable)		
Page Number(s):		

Background Research Source 2

If this source is a: _____ Magazine _____ Newspaper _____ Other **Title of the publication:**
Title of Article:
Author's Name:
Date Published:
Edition: Volume Number: Page Number(s): (if applicable) (periodicals or encyclopedias)

This source is a: _____ Website _____ Other **The URL is http://** **https://pmc.ncbi.nlm.nih.gov/articles/PMC9077356/** **Last Date of Access:**
Title of Article: **A review on the limitations of natural fibres and natural fibre composites with emphasis on tensile strength using coir as a case study**
Author's Name: [= guvermint nih
Date of Article: May 7 2022

Background Research Source 3

If this source is a: _____ Magazine _____ Newspaper _____ Other **Title of the publication:**
Title of Article:
Author's Name:
Date Published:
Edition: Volume Number: Page Number(s): (if applicable) (periodicals or encyclopedias)

This source is: _____ Website _____ Other **The URL is http://https://chem.libretexts.org/Bookshelves/General_Chemistry/Map%3A_A_Molecular_Approach_(Tro)/12%3A_Solids_and_Modern_Materials/12.09%3A_Polymers_and_Plastics**
Title of Article: **A review on the limitations of natural fibres and natural fibre composites with emphasis on tensile strength using coir as a case study**
Author's Name: idk
Date of Article: idk

Science Fair Hypothesis

TITLE B

Hypothesis: Use your background research to help you create a HYPOTHESIS that predicts the outcome of your experiment

What is your Hypothesis?

Tip: Make your Hypothesis after the background research

If the artificial is stronger it's because there's less Defects, but if the natural is stronger then that means that there's more impurities in the artificial so the natural can stronger.

I think that the artificial is stronger because of manufacturing makes it very consistent so I imagine there would be very few defects. There are also a lot of defects in the natural because pact material isn't very precise and often changes based on environmental factors which often helps the plant but just not help whenever Making rope.

Materials

Make a list of all the Materials you used for this experiment

1. Bucket
2. 1-pound rock
3. Two 2-pound dumbbells
4. Two 5-pound dumbbells
5. Cotton string
6. Wool string
7. Acrylic string
8. Polyester string

Make a list of all the Materials you used for this experiment

Procedure

What are the steps you followed during this experiment?

Write all of them down. Make sure they are exactly what you followed while doing the experiment.

1. Cut a piece of string that is the same length for each trial.
2. Tie one end of the string securely to the handle of a bucket.
3. Tie the other end of the string tightly to a sturdy PVC pipe.
4. Make sure the string is pulled tight and there is no slack.
5. Place a small amount of weight (such as 1 pound) into the bucket.
6. Carefully lift the bucket so the string holds the full weight.
7. Observe the string for a few moments to see if it breaks.
8. If the string does not break, gently lower the bucket and add more weight.
9. Lift the bucket again and observe.
10. Repeat this process, adding more weight each time, until the string breaks.
11. Record the total amount of weight the string held before breaking.
12. Repeat the same steps for each type of string, making sure to keep the length and testing method the same for a fair comparison.

Variables

What are the Variables of your experiment?

Dependent Variable? Weight of the Rocks

Independent Variable? Material of different strings

Control Variable? The bucket / Length of string

Testing the Hypothesis - Experiment

EXPERIMENT Collect and record data. Take pictures. Write everything in your science fair notebook, even mistakes and problems! Conduct your experiment multiple times to see if anything changes.

Perform the experiment twice the first time we went overboard but the other two we didn't we aren't going to repeat the experiment because we got the same result on the 2 and 3 strings.

While the acrylic is very strong there is an outlier which instead of 15 being the amount of pounds it takes to break the string it was 12 so it's most likely just an outlier

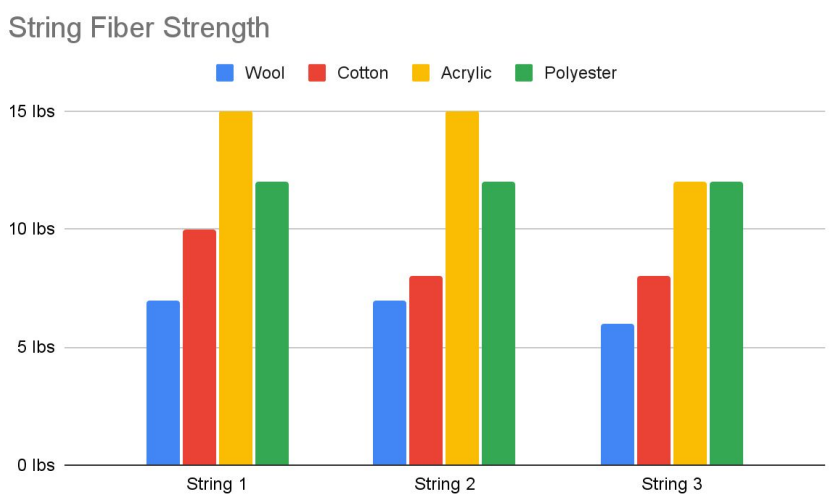
I noticed that whenever IThe wait do I suspended an air tied to the strain there would be clinkly Sound i thought this might have been the fibers breaking so I tested it with just 12 lb to see if there was yield a different result but yet it didn't

TITLE D

Results

Put your data into graph form and study you graph to see what kinds of trends you notice.

The artificials were significantly stronger the strongest of the natural was 10 lbs but this weakest of the artificial was 12 LBS Showing that the artificial was significance really stronger due to the add formation reasons.



Conclusion

Based on your results, what was the outcome? My hypothesis was correct and henceforth I know that the artificial are stronger.

Does your data show that your hypothesis was correct? Indeed it was.

What kinds of problems did you have? Figuring out how much The Rocks weigh we wanted the rocks to be equivalent to 1 lb because we want to in between step of two.

What would you do differently next time?

I would have done nothing different because this was an amazing success with little to no issues. Only issue Was tying the string.

Rough Draft Report

You will use all the information from above to put together a rough draft report.

I wanted to know the strongest type of string to use for suspension bridges, clothing, and other applications like hand brakes. I predicted that synthetic fibers would be stronger because modern manufacturing has created incredibly strong chain molecules that don't have many defects in the structure formation. The result was that synthetic fibers were stronger by at least 5 lbs.

The independent variable would be the string, and the control variable would be the diameter of this string. This is to ensure that cohesiveness is obtained, despite slight incoherence. What's important is that he, as I do not create it, and the company is likely trying to make it as cheaply as possible, which did lead to an outlier.

I put weight in the bucket and suspended the various fiber strings to see when each breaks. If a string didn't, I would add more weight in the form of dumbbells and three rocks that added up to the weight of 1 lb, until it broke, then I would narrow it down until it would break at a particular weight.

The material of synthetic fibers is stronger because they are more consistent and have fewer mistakes. The natural fibers cannot be manufactured more pure or use a different kind of material with stronger molecular bonds to produce a stronger product. The natural fiber's inconsistencies, such as structure and diameter, can result in different tensile strengths because the unrefined distribution of cells in the fiber. Inconsistencies also cause the strings to be weaker. Another reason why synthetic fibers are stronger is that there are fewer connections for them to break. During my experiment, I observed the natural fiber strings breaking in several places along the natural fiber.

TITLE

Final Draft Report

Go back to your Rough Draft Report and fix any mistakes.

Ask a teacher for their opinion.

Make final changes.

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To change anything, I would do almost nothing different. Because all the materials I used were from household resources, this was the simplest and easiest way that I could do conduct the experiment. If I had to change anything, I would have most likely recorded other data, such as humidity and temperature. While those do create slight changes to the experiment, it only midly impacts the results.

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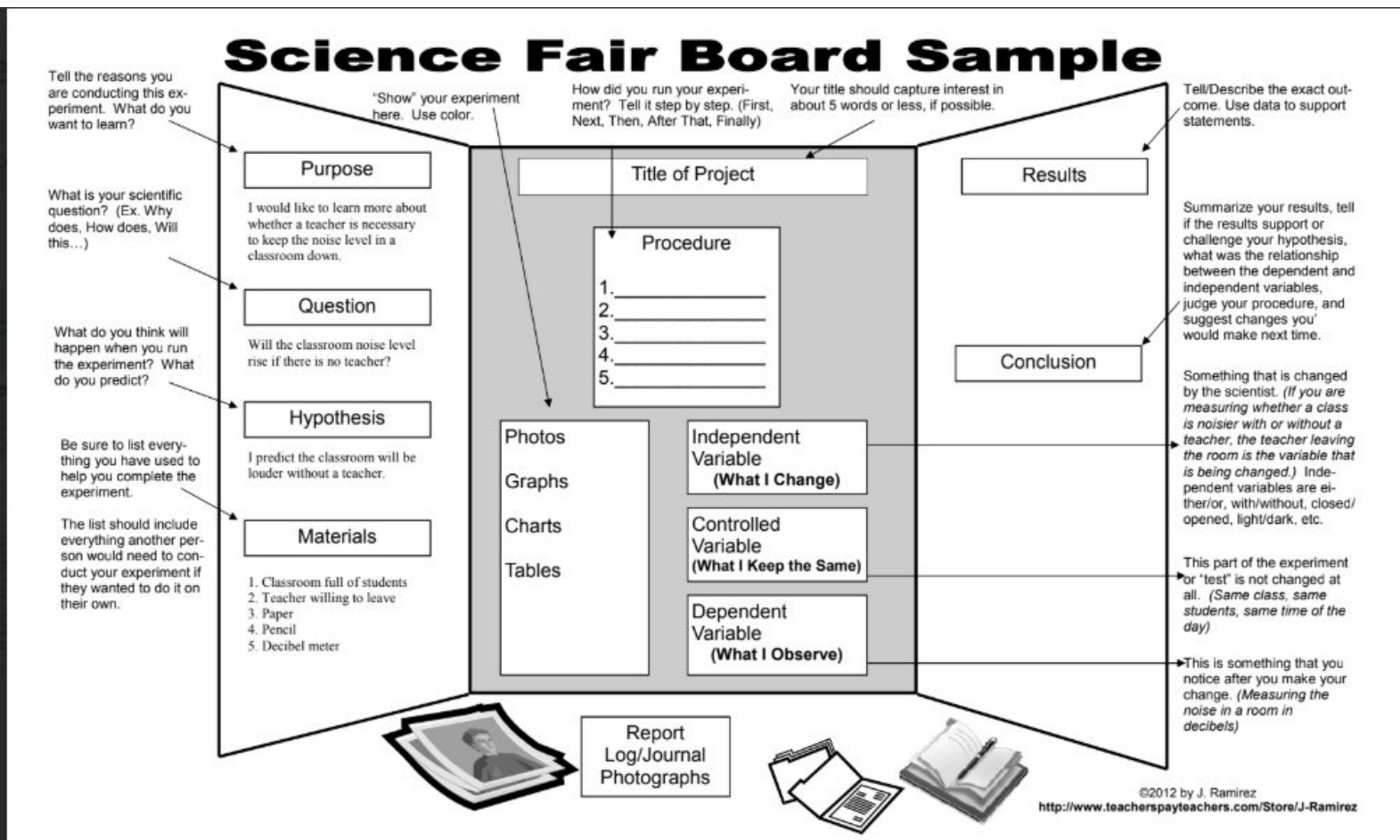
Final Project - Display Board Report

Make a Trifold Poster Board

Have it include all the components you have included in this Binder so far.

Your Finished Poster Board should look something like this: