

Science friction lab report

Science



**ASSIGN
BUSTER**

I. Purpose/Problem/Question Which type of friction is the largest force – static, sliding, or rolling? Which is the smallest? II. Background Information

From our previous activities that we did in class, I know that static friction is a very large force. The force is larger than rolling, sliding, and fluid friction. I also learned that rolling friction is the smallest type of force. This information may connect to my final analysis. III. Hypothesis If static friction is the largest force, then either sliding or rolling friction have to be the smallest force. IV.

Experiment Materials * Scissors String * Textbook (covered) * Spring scale (force meter) * 3 to 4 wooden or metal rods Procedure Cut a piece of string, and tie it in a loop that fits in the textbook. Hook the string to the spring scale. Practice the three steps several times before you collect data. To measure next the static friction between the book and the table, pull the spring scale very slowly. Record the largest force on the scale before the book starts to move. After the book begins to move, you can determine the sliding friction. Record the force required to keep the book sliding at a slow, constant speed.

Place two or three rods under the book to act as rollers. Make sure the rollers are evenly spaced. Place another roller in front of the book so that the book will roll onto it. Pull the spring scale slowly, Measure the force needed to keep the book rolling at a constant speed. V. Data/Results | Trial 1| Trial 2| Trial 3| Average| Static Friction | 4 N| 7 N| 6 N| 5. 67 N| Rolling Friction| 1 N| 2 N| 1 N| 1. 33 N| Sliding Friction| 4 N| 4 N| 5 N| 4. 33 N| Experimental Error: No cover on textbook. VI. Analysis I found out that static friction has the most amount of force than the others.

The smallest amount of force was the rolling friction. It was by far a smaller force than static friction. Static friction had an average of 5.67 N of force while rolling friction only had an average of 1.33 N of force. Just for the record, sliding friction had an average of 4.33 N of force. In this experiment, I learned that static friction has more force than I thought it did. In the beginning, I thought it was a very small force because I connected the word “static” to the static we watch on television when there is no connection.

That is why I thought that it was a weak force. It turned out to be the other way around. I did do one experimental error which was that there was no cover on the textbook I was using. Some other experimental errors could have been that the wooden planks were defected or the spring scale was defected. Some human errors might have been that I read the spring scale wrong. Another error would be that when I calculated static friction, the book might’ve slid without me noticing. The results I came up with at the end turned out to be the way I predicted.

My results did in fact support my hypothesis. VII. Conclusion After all the experimentation, I figured out that static friction is the largest force of rolling and sliding friction, and that rolling friction is the smallest of the forces. VIII. Post Lab Questions Q: Which type of friction was the largest? Which was the smallest? A: The largest type of friction was static friction. The smallest was rolling friction. Q: Do the results support your hypothesis? If not, how would you revise or retest your hypothesis?

A: The results do support my hypothesis. Q: Compare your results with those of another group. Are there any differences? By working together, design a way to improve the experiment and resolve possible differences. A: In the

group that I compared with, the results were not that different. The results were infact very similar. The only thing that had a big jump was the average of the static friction. My average was 5. 67 N and his was 7. 33 N. I think this is because I did not have a cover on the textbook, but he did.