Levitating Weight

M7-24 PHYSICS

Acknowledgements

For my experiment I would like to thank my dad for helping me come up with this idea and building the testing base and lid. I would also like to thank him again for spending around $80 on magnets, especially when i broke two of them.

Abstract

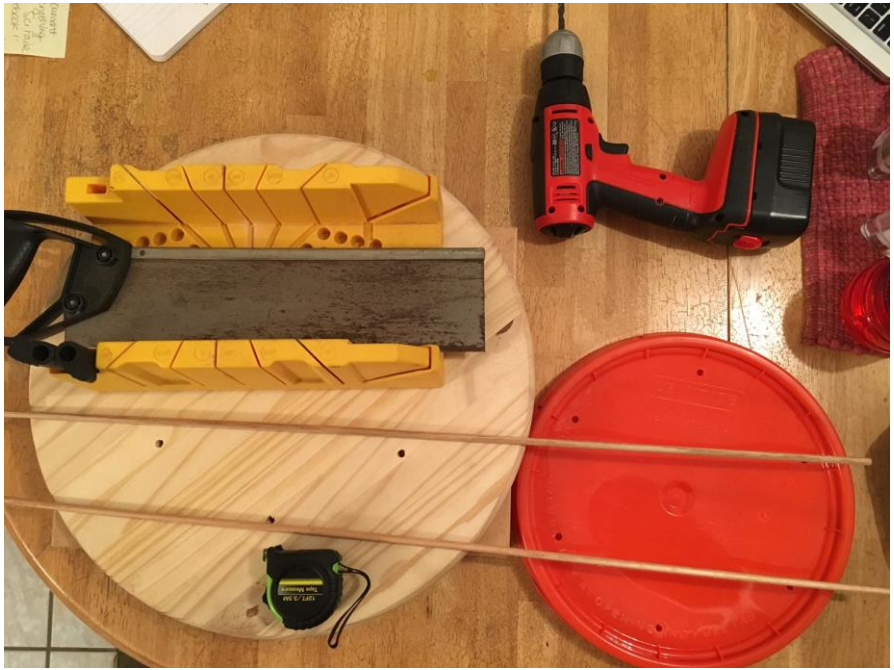
My project was to see how much weight permanent magnets could levitate. Based on how i used actual weights i saw that they could not levitate more than 13 pounds. My purpose of this experiment was to test if magnets could be used as a cheaper levitation device to levitate stuff using the magnets poles and not the earths magnetic field. For my hypothesis i think that the more magnets there are, the more weight it can levitate. To do this project i had to build the test base, put the magnets on, add the lid, and add weight until the lid touched the base. I found that 4 magnets held more than 2 magnets because the magnets spread out the weight a lot better because they could cover more area. I conclude that my hypothesis was correct because the more magnets held more weight.

Hypothesis

If more magnets are added to my testing base, then more weight will be able to be levitated because there is a greater pushing force and can spread the weight out very evenly.

Materials

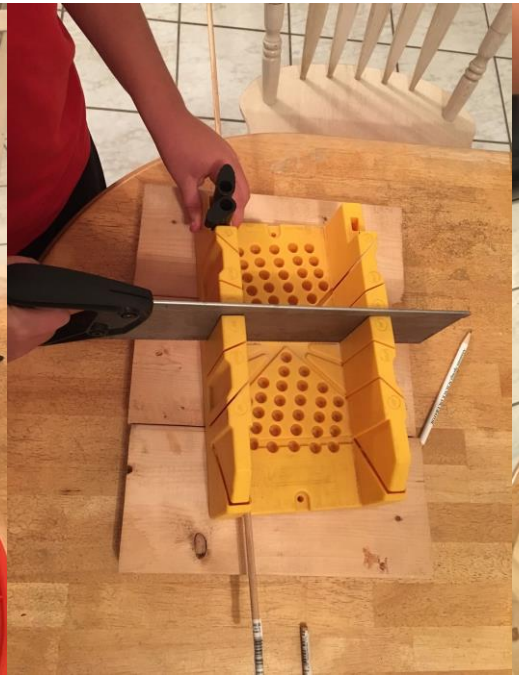
1. Wooden Base
2. Bucket Lid
3. Wooden Dowels
4. Magnets
5. Drill
6. Weights
7. Hammer



Procedure

1. Drill spaces for dowels in wood base
2. Put dowels in base
3. Start with sliding 2 magnets down 2 dowels
4.Slide 2 more magnets with the same pole facing so they repel
5. Drill hole all the way through lid piece and put on top of the top magnets
6. Put weight on suspending lid until magnets are touching
7. Repeat 20 times
8. Add 2 more magnets down 2 more dowel
9. Add 2 more on top with same pole so they repel
10. Add weight until magnets touch
11. Repeat 20 times
12. Add 2 more magnets on separate dowels so there are 6 on each side
13. Add weight until magnets touch
14 Repeat 20 times

Procedure Pictures

Variables

If the independent variable is the number of magnets then the dependent variable will be the weight
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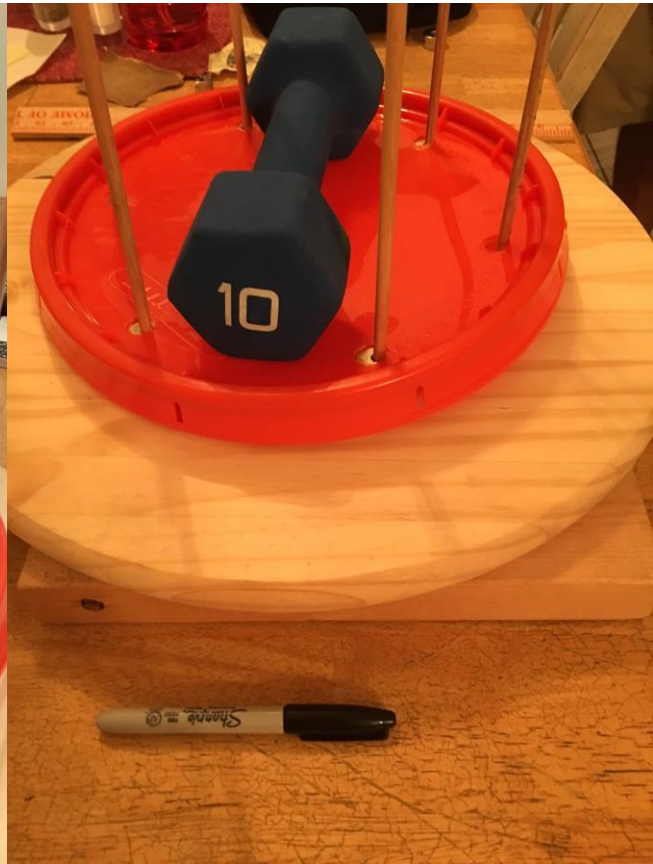
Results

In my experiment, the magnets could not hold more than 12 pounds. If the weight was 13 pounds or more the lid touched. If the weight was 12 pounds or less, the lid would still levitate just barely for the higher numbers.

Conclusion

I found out that my hypothesis was correct because the more weight there was, the lower the lid was. I found out that magnets repelling force was much weaker than i thought because i was expecting the magnets to be able to hold at least 15 pounds.

Results Pictures



Reference Page

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