Can magnets lift a dowel off the ground?

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In my science fair project, I am trying to make a dowel float by using magnets. The problem is, I am unsure if magnets can make something float. If I put magnets on the dowel, then the dowel will float upwards because the magnets are strong enough to lift the dowel. This is important because it can be used to move large objects, such as trains, and eliminate friction, which would prevent materials from wearing out, and in turn would be better for the environment.

Method

This section outlines the specific materials and equipment used to carry out the experiment and gather reliable results. I used cardboard to make my sides to use as a barrier to line up the dowel, a small piece of cardboard was used to protect the foam from the magnets on the dowel, and a larger piece of cardboard was used to make a platform to line up my wooden boxes. Two wooden boxes were used; one had a piece of foam. I cut the foam to fit inside the box to hold 2 circular and 1 rectangular magnets on each side of the box. On the outside of the box, I placed the cardboard barriers on each side, holding them in place with a rubber band. The other wooden box was used to push the dowel to line up with the magnets. Finally, I used a wooden dowel and glued 2 circular magnets on each end.

This section outlines the specific procedures used to carry out the experiment and gather reliable results. The first step I took was cutting out the cardboard and foam to fit the box. Then I cut a tiny piece of the foam to hold the magnets. After that, I put the magnets in and put magnets on the dowel. Add the borders and hot-glue everything together, and use a rubber band to hold the side, so it is free-standing. Use another wooden box upright to brace the dowel on one side. Made a platefoam to better line up the wooden boxes. Painted it yellow and added contact paper

to remember where to place the standing wooden box. Finally, place the dowel into the cardboard side holes and hold it over like a magnet for the final results.

The findings of this investigation revealed important differences that explain how the independent variable affected the outcome. After completing my build, I found out that the magnets did make the dowel float. This told me that my experiment holds. This tells me that magnets(when they are next to each other) can levitate an object.

Results

This section presents the results of the experiment, which helped me understand that even though gravity is always pulling objects toward the earth, other forces like magnetism can overcome it. When properly aligned, magnets can lift objects against gravity. I learned that larger magnets have a stronger pull than smaller magnets. Finally, I learned that you need very precise placements for it to work.

Conclusion & Future Study

If this experiment were repeated in the future, I could improve this project by testing different sizes or types of magnets to see how strength affects the results. I could replace the cardboard structure with wood to make the structure more stable. Adding to the experiment could be making the object move in one direction. I could analyze how far and fast the object can go.

References

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