BALANCING HEX NUT CHALLENGE

This teeter-tottering tower of hex nuts can balance on the edge of a glass, but you’ll need help from magnets.

Materials
- 4 soda cans
- 2 ceramic magnets
- Ruler
- 5 hex nuts
- Tall drinking glass (empty)

EXPERIMENT
1. Stack the soda cans, two on each side, at ruler’s length apart.
2. Place the magnets on either side of the ruler’s midpoint so they stay in place.
3. Set the ruler on top of the soda can towers and place the drinking glass between the towers.
4. Attach hex nuts, one at a time, to the magnet underneath the ruler. Continue attaching hex nuts until all 5 hang from the magnet.
5. Slowly, and carefully, detach the hex nut chain and balance it on the edge of the glass. Make sure the edge is directly below the magnet.
HOW DOES IT WORK?
Balancing the hex nuts on the edge of the glass seems like an impossible task. In fact, we doubt you can do it without the help of magnets.
It’s easy to tell, as you attach hex nut after hex nut, that the magnets are causing the hex nuts to attract each other. While the hex nuts are in contact with the magnet, they actually develop their own magnetic field. Their magnetic fields even last after you detach them from the magnet, but the field is much weaker.
When you balance the hex nuts on the edge of the drinking glass, they still have a little bit of magnetism left. This weak magnetic field is just enough to attract the hex nuts to the magnet, and the magnet’s much stronger magnetic field, overhead. The attraction is enough to allow you to complete the Balancing Hex Nut Challenge… just don’t move that magnet.
HERE IS WHAT YOU NEED

4 SODA CANS
2 CERAMIC MAGNETS
RULER
5 HEX NUTS
EMPTY GLASS
1. Arrange the soda cans into two towers a rulers length apart.

2. Connect the magnets together on either side of the ruler.
3. Place the ruler back on top of the towers and add the empty glass in between.

4. Attach each hex nut together under the bottom magnet.
5
SLOWLY LOWER THE HEX NUT CHAIN AND BALANCE ON THE EDGE OF THE GLASS
WHAT CAUSES THE HEX NUTS TO STAY BALANCED