



Levitating Magnets

Supplies:

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|---------------------|---------------------------------|
| 1 pencil | 20+ metal paper clips |
| 2 oz. modeling clay | 1 ruler |
| 4 disk magnets | Data recording sheet |
| 2"X2" square foam | 2"X2" square of a manila folder |

Directions:

Try each of the experiments below. For each experiment, use a ruler to measure the distance between the magnets. Record your data in the "Results" column.

Stand the pencil upright in the clay base. Slide a doughnut magnet onto the pencil, red side up. Slide a second doughnut magnet onto the pencil (red side down) so that its opposite pole is facing the magnet on the bottom. Opposite poles will repel causing the top magnet to levitate above the bottom magnet.

	Directions	Results
A.	Levitate one magnet over a single magnet on the bottom	
B.	Add twenty metal paper clips to the top magnet to make it heavier.	
C.	Leave the bottom magnet on the pencil. Stick two magnets together using their opposite magnetic poles. Levitate these two magnets above the single magnet	
D.	Switch the magnets to the two stuck together magnets are on the bottom. Levitate one magnet above these two.	
E.	Remove all magnets. Levitate one magnet over a single magnet as in the first test, but place the foam square between the levitating magnets.	
F.	Repeat test E. using the 2: square of manila folder.	

If the pencil was removed would the magnets continue to levitate? Why?

Try some of the same experiments after wrapping the magnets in masking tape (leaving the center hole for the pencil).