

Magnetic Pendulum

On SCOPE's Magnetic Mayhem episode, Julia made a magnetic pendulum.
Here's how you can do it at home:



What you need:

Small magnets (from toy shops or electronic stores)
Books
Wooden Spoon
String
Scissors
Plasticine

What to do:

1. Make a pile of heavy books.
2. Place the wooden spoon on top of the pile. Make sure the handle of the spoon extends out from the pile.
3. Hold the wooden spoon in place by adding extra books to the pile.
4. Cut a piece of string so it is slightly longer than the height of your pile of books.
5. Tie one end of the piece of string to a magnet.
6. Tie the other end of the string to the wooden spoon handle.
7. Test your pendulum. Make sure it swings freely.
8. Using plasticine, stick three magnets to the table, underneath the pendulum. You may need to adjust the length of the string so the magnets are close enough to attract and repel each other.
9. Test your pendulum again.
How is the pendulum swinging now?



What's happening?

A pendulum is basically a weight at the end of a string or rod. It's attached to a stationary point called a pivot, and it swings freely, usually in an arc shape.

Magnets are objects that can attract or repel each other and certain other objects. They can produce a magnetic field and apply a magnetic force to objects which are sensitive to magnetism. The way magnets behave is often due to the properties of electrons, which are small part of atoms, which make up a magnet!

When you added the magnets, the pendulum stopped swinging in an arc shape and became a lot more erratic! That is because the force of gravity, as well as the attraction and repulsion forces of the magnets, influenced the swinging and produced a chaotic motion.