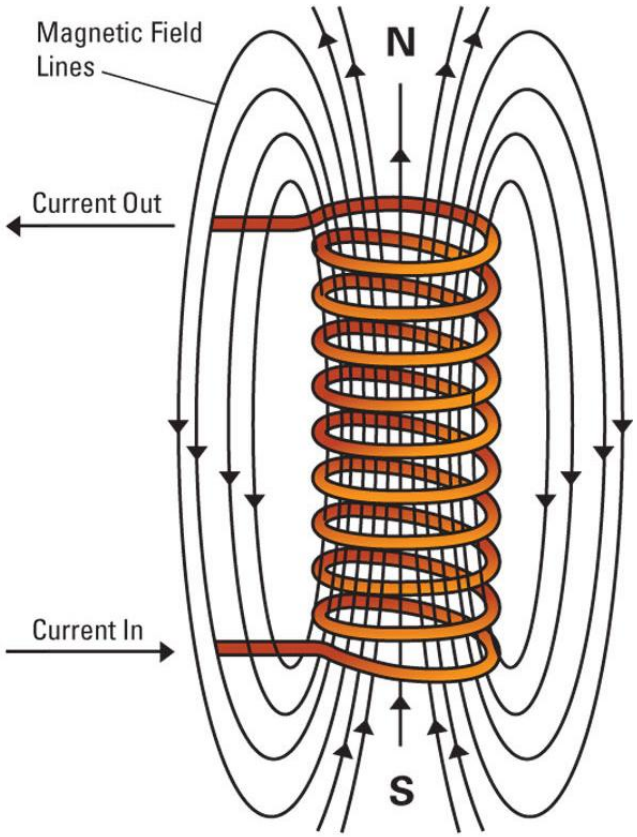
Electromagnetism

Try It Out

Take one of the materials out of the container, and place it right next to the end of the wire coil. Press and hold the button to turn the circuit on. What happens? Try another material. Try placing the material closer or farther from the wire coil.

What's going on?

Electromagnetism is an interaction that occurs between particles with electric charge via electromagnetic fields. The electromagnetic force is one of the four fundamental forces of nature. A few months ago, our exhibit explored this force by using magnets turned by a crank to create electric current. This exhibit explores the opposite side of electromagnetism: electric current creates a magnetic field.



Relationship between current through a coil of wire and the magnetic field it generates (Image: northeastern.edu)

What's the big deal?

Speakers are one of the most common applications of electromagnets. A speaker generates sound by sending a signal through an electromagnet, which makes the speaker cone vibrate to produce noise, voices, music. MRI (magnetic resonance imaging) machines are a very important application of electromagnets. MRI machines generate a magnetic field that interacts with the atoms in our bodies, and it allows doctors to generate very detailed pictures of what is happening inside our bodies. MRI machines have been crucial for diagnosing a number of conditions.

Wonder While You Walk...

What other electromagnets might you find around your house?