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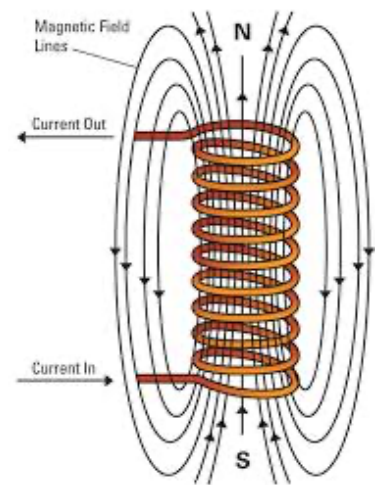
What Is Electromagnetism?

Electromagnetism is a type of force that involves both **electricity** and **magnetism**. It helps explain how electric currents can create magnetic fields, and how magnets can create electricity. This is one of the four main forces in nature and is responsible for many of the things we use every day—like motors, headphones, and even power plants!

How Does It Work?

When electricity flows through a wire, it creates an **invisible magnetic field** around the wire. This field can attract or repel certain materials, like iron. If you wrap the wire into a coil and pass electricity through it, the magnetic field becomes stronger. This is called an **electromagnet**.

You can make an electromagnet by wrapping copper wire around a nail and connecting it to a battery. When the electricity flows, the nail becomes magnetic and can pick up small metal objects like paper clips. When you disconnect the battery, the magnetism disappears. That's what makes an electromagnet different from a regular magnet—it only works when the electricity is on.



Real-Life Uses

Electromagnets are used in many machines. For example:

- **Electric motors** use electromagnets to spin wheels and gears.
- **Speakers** use them to vibrate and create sound.
- **Cranes in junkyards** use huge electromagnets to lift metal cars and scrap.
- **MRI machines** in hospitals use strong magnets and electricity to take pictures inside your body.
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Why Is It Important?

Without electromagnetism, we wouldn't have electricity in our homes, smartphones, or many tools we rely on. It's one of the reasons we can turn on lights, listen to music, or even drive electric cars. Understanding how it works helps us build better technology and solve real-world problems.