

Demonstrating Magnetism

Electricity All Around Us Backgrounder



Electromagnetism is an interesting and highly useful phenomenon. In 1820, Hans Christian Oersted (1777 to 1851) demonstrated the first electromagnet. He discovered that insulated wire connected to a battery could turn a piece of iron into a powerful magnet. This discovery catalysed the beginning of many important inventions, such as the electric motor, the telegraph and the dynamo, all before the end of the century.

Electromagnetism is induced in a metal such as iron by the flow of electrons through a coil of wire wrapped around the metal. The moving electrons emit a field that causes the electrons in the metal to “line up.” When this occurs inside the metal, the result is a temporary magnet. As soon as the current stops flowing, the electrons in the iron return to their normal random patterns and the magnetic effect is removed.

Electromagnets find applications in an incredibly wide array of electrical appliances and tools. Electromagnets are found in:

- the power door locks on vehicles
- the torque in all electric motors
- the coils that produce the picture in television tubes
- the movement of the diaphragm in a speaker

The average Alberta home may contain different types of electromagnets.

Comprehension

- What was the importance of experimenting in the discovery of electromagnets?
- We often hear of early discoveries and how they changed our lives? Can you name any recent discoveries or inventors?