

Electromagnetism

Electricity

An electrical current is the flow of electrons from one place to another. There must be an electrical circuit for a current to flow. A circuit is a closed loop of conducting material. Electricity can flow along it. There are two types of electricity. They are static and current.

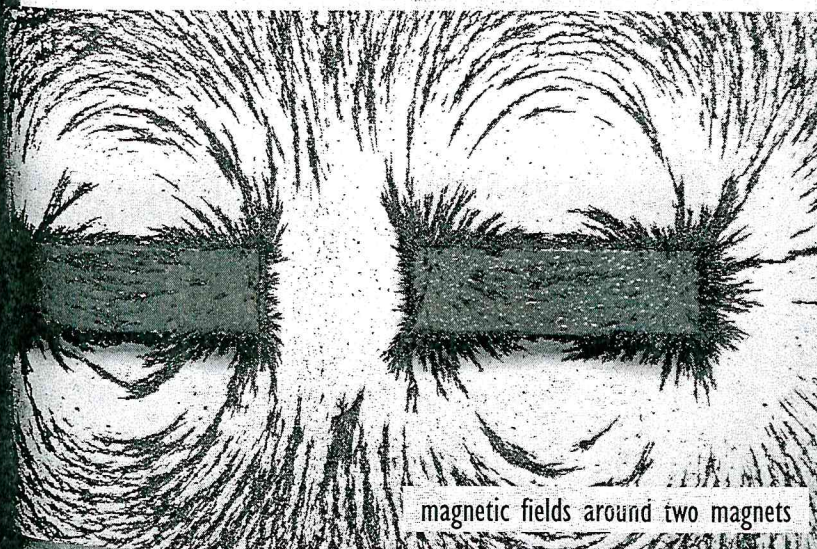
Shuffle your feet across a carpet. Then touch your friend's hand. You may both feel a small shock. This shock is a tiny jolt of static electricity.

Electricity is at rest until it is able to move. It is called static when it is at rest. You move electrons from one surface to the other when you shuffle your feet on the carpet. This makes one surface have a positive charge and the other have a negative charge. This difference in charges is called a "potential difference." When you touch your friend's hand, the jolt you feel is the electrons moving from one hand to the other. This evens out the potential difference. It makes both surfaces neutral again.

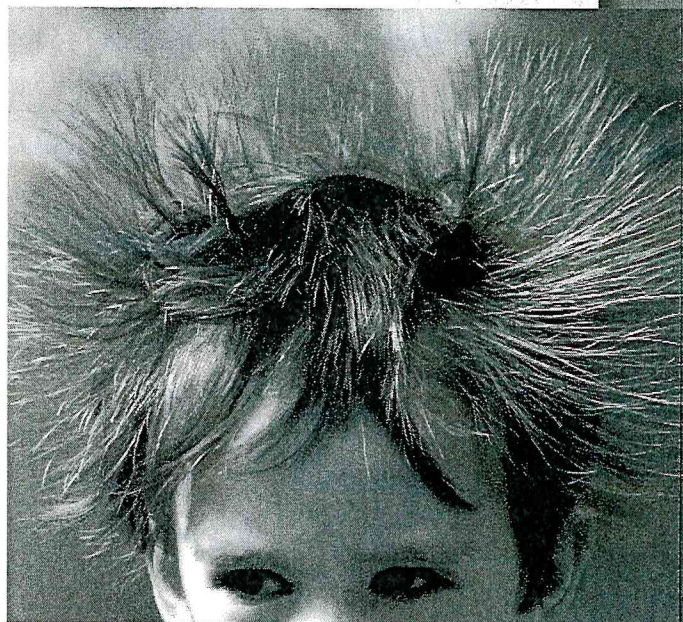
Current electricity is like a river that runs in a circle. The electrons are always moving. To see how that works, we need to understand magnets.

Magnetism

Have you ever played with magnets? Magnets create an invisible force. The force only affects some things. Iron is one of these things. Magnetic forces can move a piece of iron without anything touching the metal.



magnetic fields around two magnets



Magnetism can only reach so far, though. The reach of a magnet is called its magnetic field. Magnetic forces can only be felt within the field. The lines of force cannot be seen.

The first magnets were found in nature. Scientists began to wonder if they could make artificial ones. Artificial means something that is made by people.