# POPULAR MAGNETICS

## Magnets in Everyday Use

TEA™
TEXAS EDUCATION AGENCY

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## Magnets in Everyday Use

region 4 Educated Solutions

This book was developed in collaboration with Region 4 Education Service Center, Houston, Texas.

TEA Texas Education Agency

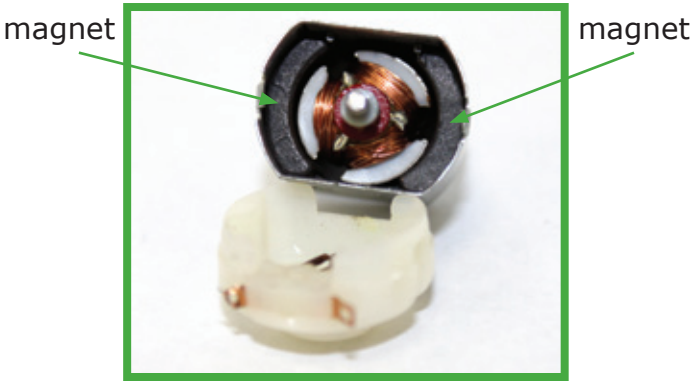
DYK | Did You Know?

# Did You Know?

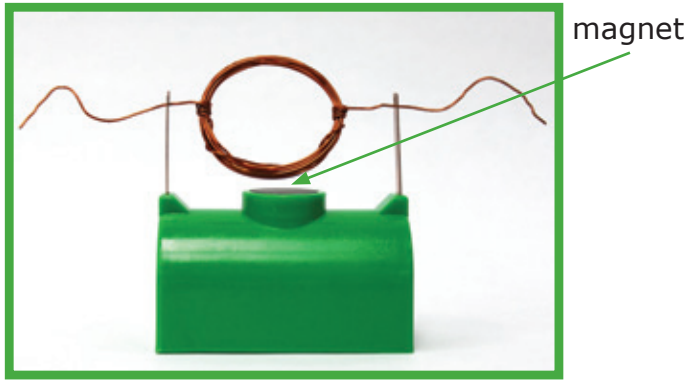
# Magnets in Everyday Use

DYK | Did You Know?

# **Did you know** there is a magnet in a motor?




small motor




World’s Simplest Motor™

The electricity coming into the motor causes the pair of magnets to push and pull on the coil of wires. The coil of wires spins, turning the motor’s shaft. That spinning can make all kinds of things move, like wheels in a motorized toy car.

Larger motors have bigger magnets that move things like gears.

It is not OK to take apart objects like motors, headphones, and speakers on your own. These devices use electricity and could shock you. You cannot see electricity, so you do not want to play with objects that might hurt you.

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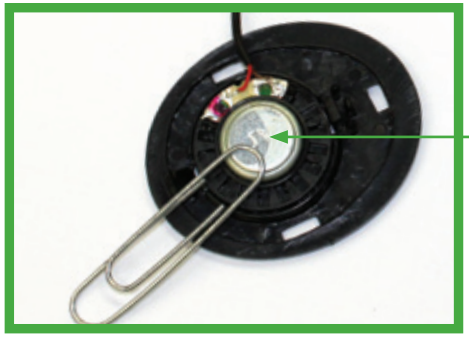
# **Did you know** there are magnets in headphones and in speakers?

headphones




headphones with earphone speaker unassembled

The wires of the headphones carry a signal to the earphone, making the magnet push and pull on a coil of wires, which moves the diaphragm of the earphones. The vibrations create the sound you hear.

Never open a speaker that is connected to a power source.

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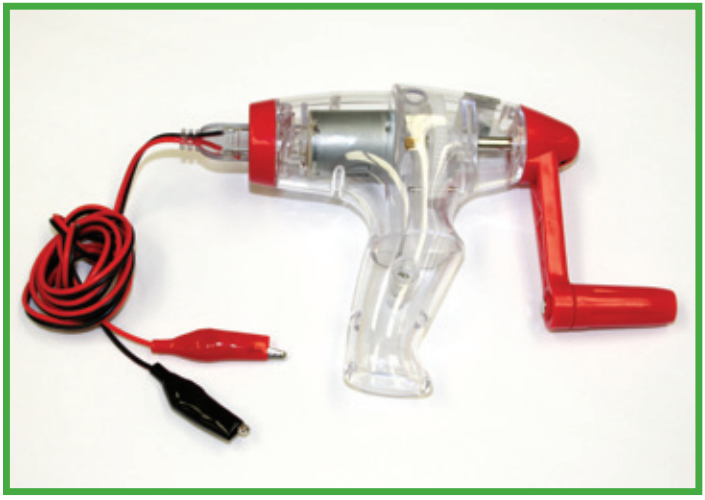
**Did you know** a generator is just a motor working backward?



hand crank generator

generator

A force spins the shaft, which turns the coil of wire inside the motor, generating electricity. There are huge magnets in the generators that make the electricity that powers our school and your home.

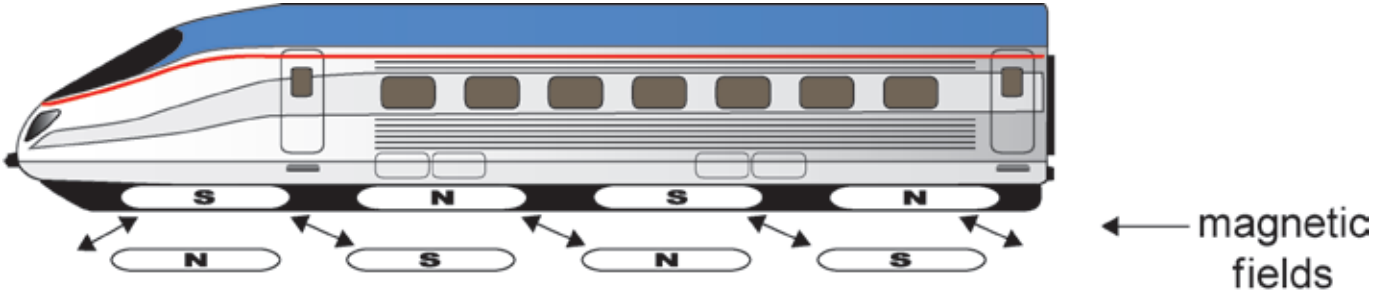
DYK | Did You Know?

**Did you know** there is a train that moves without wheels by using magnetism?

What sounds like "magnet" in the name "maglev"?

mag = magnetism

lev = levitate




A maglev train uses magnetism to levitate the train and push it along the track. Since the train levitates above the track, it does not experience wear and tear from wheels rolling on the tracks.

Maglev trains are the fastest train of any type. The fastest maglev train, as of 2012, was a superconducting maglev in Japan, which could travel up to 361 mph. Right now there are no maglev trains in the United States, but there are several projects being planned.

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**Did you know** an electromagnet is created when a coil of wire is wound around an iron core and electric current flows through it?

electromagnet

To make a job easier, large electromagnets may be used to lift heavy materials.

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**Did you know** magnets help make things around your house work?

DYK | Did You Know?

## **Did you know** there are many everyday uses of magnets?

You can find a magnetic strip along the door of a refrigerator to help it seal tightly and stay shut.

You can find a magnet on an electric can opener. The magnet holds the lids of cans as they are opened.

You can find a magnetic strip on the back of many debit and credit cards. There is important information stored in the strip.

The needle of a compass is a magnet. The needle points to Earth's magnetic north pole.

A compass is a tool to use if you have lost your way.

Which of these magnets do you use every day?

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