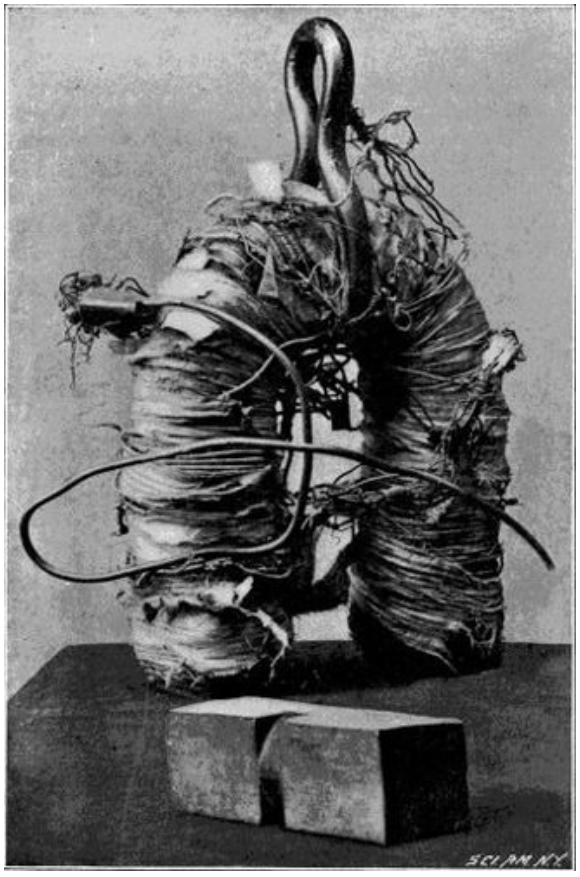
# Magnetism

by ReadWorks

Has anyone ever told you that you have a magnetic personality? Well, if someone ever says that to you, thank him or her. It is a compliment. Having a magnetic personality means that people are drawn to you, just like how some metal objects may be drawn to magnets.



*electromagnet by scientist Joseph Henry in the 1830s*

Magnetism is the force that electric currents exert on other electric currents. This force can be created by the motion of electrons in the atoms of certain materials, which are called magnets. Certain rocks and minerals are natural magnets. Magnetism may also be produced when an electric current flows through a coil of wire around a piece of metal, magnetizing the metal. The coil of wire and the metal together are called an electromagnet. In either case, magnetism can cause an attraction or a repulsion of two magnets. It may pull them together or push them apart.

Some objects have magnetic fields, which are magnetic forces near or around them. The earth has a magnetic field. So do many of the planets in our solar system, as well as some of their moons. The sun also has a magnetic field. Some scientists think that the earth's magnetic field pushes away the sun's solar wind.

For living things, some animals might naturally be able to detect the earth's magnetic field. For example, some scientists believe that dolphins and pigeons can sense the earth's magnetism. They use the earth's magnetism to find their way when traveling, especially for long distances.

**Name:** _____ **Date:** _____

**1.** What is magnetism?

A. the force that attracts an object toward any physical body that has mass

B. the force that electric currents exert on the neutrons of atoms

C. the force that electric currents exert on other electric currents

D. the force that electric currents exert on planets, their moons, and the sun

**2.** What does the text list?

A. different technologies that use magnets

B. different ways magnetism can be measured

C. different physical forces that affect magnets

D. different objects that are magnetized

**3.** Read these sentences from the text.

> Magnetism is the force that electric currents exert on other electric currents. This force can be created by the motion of electrons in the atoms of certain materials, which are called magnets. Certain rocks and minerals are natural magnets. Magnetism may also be produced when an electric current flows through a coil of wire around a piece of metal, magnetizing the metal. The coil of wire and the metal together are called an electromagnet. In either case, magnetism can cause an attraction or a repulsion of two magnets.
>
> Some objects have magnetic fields, which are magnetic forces near or around them. The earth has a magnetic field. . . . Some scientists think that the earth's magnetic field pushes away the sun's solar wind.

Based on this information, what can be concluded about the sun's solar wind?

A. Solar wind is cooler than the earth.

B. Solar wind does not have electric currents.

C. Solar wind does not have a magnetic force.

D. Solar wind has a magnetic force.

**4.** Based on the text, how might some animals be able to benefit from their ability to detect the earth's magnetic field?

A. They can locate their prey.

B. They can locate their predators.

C. They can sense powerful storms.

D. They can find their way around.

**5.** What is the main idea of the text?

A. Magnetism can cause two magnetized objects to react to each other. There are even some living things that can sense magnetism.

B. When people tell you that you have a magnetic personality, you should thank them because they are complimenting you.

C. An electromagnet is a metal magnetized by an electric current flowing through a coil of wire around it.

D. The earth, the sun, and some moons in our solar system have magnetic fields, which are magnetic forces near or around the objects.

**6.** What are two ways that magnetism is created? Use evidence from the text to support your answer.

**7.** Based on the text, what can happen when put a natural magnet near an electromagnet?

**8.** Choose the answer that best completes the sentence below.

Some objects are natural magnets. _____, certain rocks and minerals are natural magnets.

A. Consequently

B. For example

C. However

D. Above all

**9.** Read these sentences from the text.

> For living things, some animals might naturally be able to detect the earth's magnetic field. For example, some scientists believe that dolphins and pigeons can sense the earth's magnetism.

Which question does the phrase "some scientists" best answer?

A. Who?

B. What?

C. Where?

D. Why?