

Magnets and magnetism

By Encyclopaedia Britannica, adapted by Newsela staff on 08.21.19

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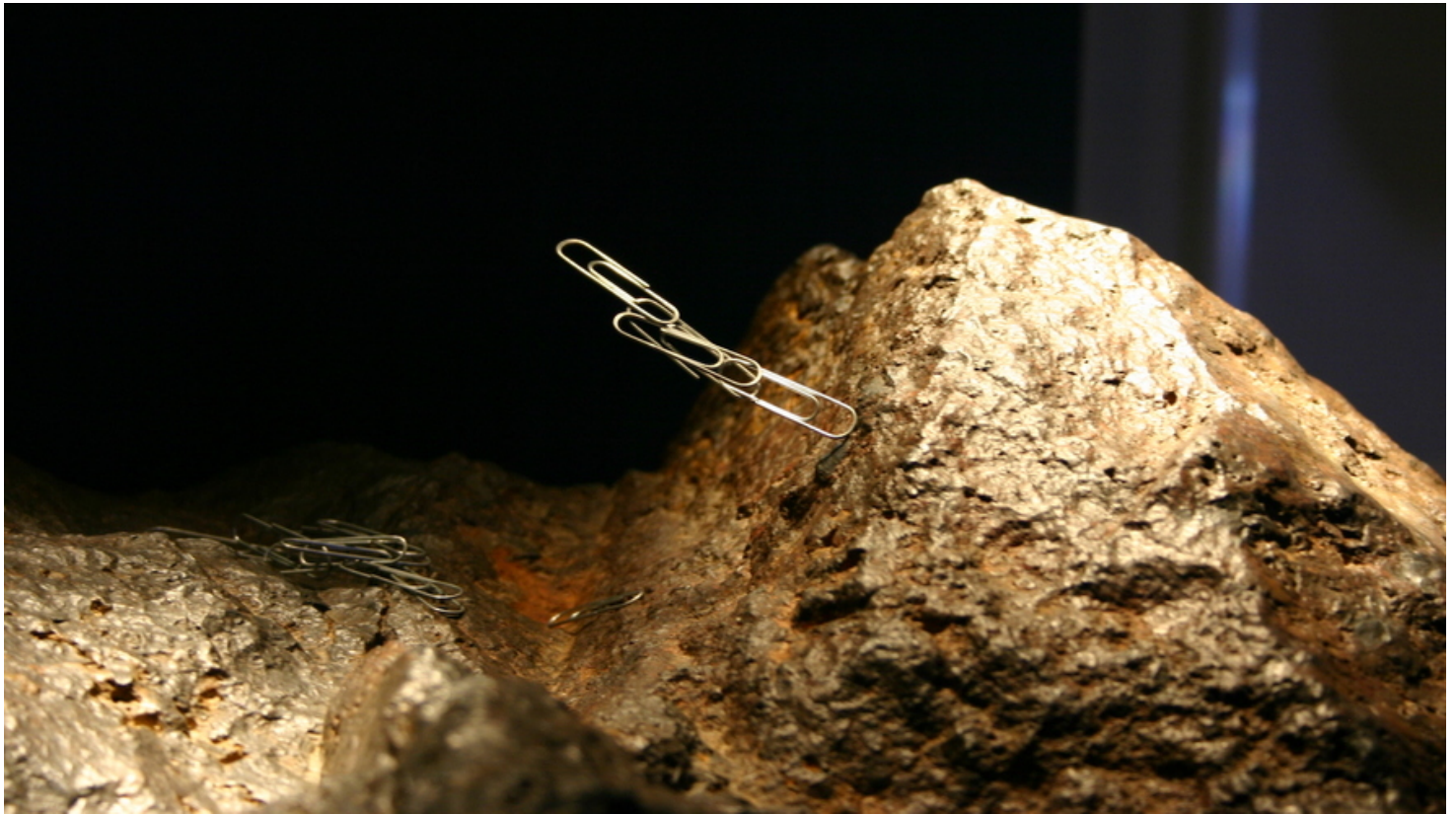


Image 1. Metal paperclips stick to a lodestone rock. Lodestone is a natural magnet. Photo by: Ryan Somma/Flickr

A magnet is made of rock or metal. It can pull some types of metal toward itself. The pulling force of magnets is called magnetism. It is a natural force.

What Causes Magnetism?

Magnets exist in nature. Certain rocks are magnets. One type of magnetic rock is lodestone.

Magnetism is caused by tiny particles. They are called electrons. These particles are found in atoms. Atoms are the building blocks of everything. They are made of electrons and other particles. The electrons rotate around the atom's center. They make tiny magnetic forces. Sometimes many electrons spin in the same direction. Their tiny magnetic forces join together. They make one big magnet.

You can use one magnet to make another. You rub the magnet on a piece of metal. You rub in only one direction. This makes the electrons in the metal start spinning. They all spin in the same direction. This is how they make a new magnet.

Electricity can also make magnets. It is a form of energy. It is made by flowing electrons. Electricity can be used to make special magnets. They are called electromagnets.

Hard And Soft Magnets

Some metals make good magnets. One example is nickel. Another is iron. Once they become magnets, they stay magnets. Then they are called hard magnets.

Metals can become magnets for shorter periods of time. This happens when you put metal near a hard magnet. Then it is called a soft magnet.

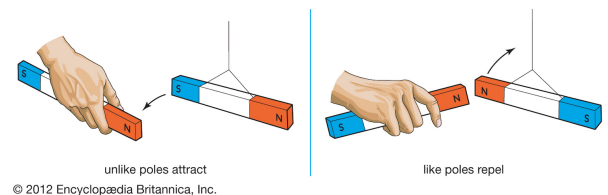
Many things in nature do not make good magnets. One example is wood. Another is water. They do not make good magnets.

Properties Of Magnets

Magnets attract other metals. They push away other hard magnets. This happens because every magnet has two ends. The ends are called poles. There is a north and a south pole.

North poles attract the south poles of other magnets. They push away other north poles. South poles attract north poles. They push away other south poles.

There are forces between the poles. They are called magnetic forces. These create a magnetic field. Every magnet has a magnetic field.



Uses For Magnets

One of the first uses for magnets was the compass. A compass helps people find their way. It is a needle-shaped magnet. The needle spins around. The Earth is like a big magnet. Its north pole attracts a compass's south pole. This makes the compass needle point north.

Magnets are found in many places. Magnets hold papers on refrigerator doors. They also hold the doors shut. Credit cards have magnetic strips, too.

Quiz

- 1 Look at Image 1.
Which detail from the section "What Causes Magnetism?" does the image show?
- (A) One type of magnetic rock is lodestone.
 - (B) Atoms are the building blocks of everything.
 - (C) You can use one magnet to make another.
 - (D) Electricity can also make magnets.
- 2 Which question is answered by Image 2?
- (A) Does nickel make a good magnet?
 - (B) What are bar magnets made out of?
 - (C) Will a south pole attract a north pole?
 - (D) Which way does a compass needle point?
- 3 What makes a good magnet?
- (A) paper
 - (B) iron
 - (C) wood
 - (D) water
- 4 Which detail in the article shows how magnets can be useful?
- (A) Magnets exist in nature. Certain rocks are magnets.
 - (B) Their tiny magnetic forces join together. They make one big magnet.
 - (C) This happens because every magnet has two ends. The ends are called poles.
 - (D) Magnets hold papers on refrigerator doors. They also hold the doors shut.