

Ames Public Library @HOME Activities

Magnets

Magnets are substances that can move or shift certain types of materials without even touching them. Magnetism is the force exerted by magnets when they attract or repel each other. Did you know the earth is a giant magnet?

Books and Media:

Title	Author / Performer	Call Number
<i>Magnets</i>	Schreiber, Anne	ETR 538.4 SCH
<i>Magnets Push, Magnets Pull</i>	Adler, David	J 538 ADL
<i>A Look at Magnets</i>	Alpert, Barbara	J 538 ALP
<i>What Makes a Magnet</i>	Branley, Franklyn Mansfield	J 538 BRA
<i>Magnets</i>	Lawrence, Ellen	J 538 LAW
<i>The Attractive Truth About Magnetism</i>	Swanson, Jennifer.	J 538 SWA
<i>Playing with Magnets</i>	Gibson, Gary	J 538.4 GIB
<i>Magnet Max</i>	Hughes, Monica Lozano	J 538.4 HUG
<i>Amazing Magnets</i>	Rowe, Julian	J 538.4 ROW
<i>Amazing Magnetism #12</i>	Carmi, Rebecca	J MAG SCI V12
<i>The Way Magnets Work</i>	DVD	J 538 (DVD) WAY
Checkout STEM: Magnificent Magnets	STEM KIT	J STEM MAG

Vocabulary:

Magnets – Magnets are rocks or a piece of metal that can pull certain kinds of metal towards itself. Magnets are also one of the rare items on earth that can exert control on another object without touching it.

Poles – The ends of the magnet where the strongest magnetic force is felt. All magnets have a north and a south pole. When are two magnets near each other LIKE poles (N + N; S + S) REPEL; while OPPOSITE poles (N + S; S + N) ATTRACT.

Magnetize – to make something magnetic. There are three kinds of magnets - Temporary, Permanent, and Electromagnets.

Magnetic Field - The magnetic force in a magnet flows from the North Pole to the South Pole and creates a magnetic field around the magnet. This is the area around the magnet that has the power to attract magnetic metals.

Magnetosphere – The region of space into which the Earth's, magnetic field stretches. The magnetosphere shields our planet from solar and cosmic particle radiations well as erosion of the atmosphere by constant flow of charged particles streaming from the sun.

Magnets are among the most fascinating objects in our world. Magnets come in different shapes and sizes, but one thing they all have in common is that they all have two poles – a North Pole and a South Pole. The magnetic force is the strongest at the poles. When two magnets are placed close to each other the North Pole will be attracted to the South Pole of the other. When you break a magnet into two pieces it actually creates two identical magnets each with a North Pole and a South Pole.

Why are some materials magnetic and others not?

Magnetism is caused by the motion of electric charges.

Every substance is made up of tiny units called atoms. Each atom has electrons, particles that carry electric charges. Their movement generates an electric current and causes each electron to act like a microscopic magnet.

In most substances, equal numbers of electrons spin in opposite directions, which cancels out their magnetism. That is why materials such as cloth or paper are said to be weakly magnetic. In substances such as iron, cobalt, and nickel, most of the electrons spin in the same direction. This makes the atoms in these substances strongly magnetic—but they are not yet magnets.

However, when you rub a piece of iron along a magnet, the north-seeking poles of the atoms in the iron line up in the same direction. The force generated by the aligned atoms creates a magnetic field. The piece of iron has become a magnet.

(Source: National Geographic)

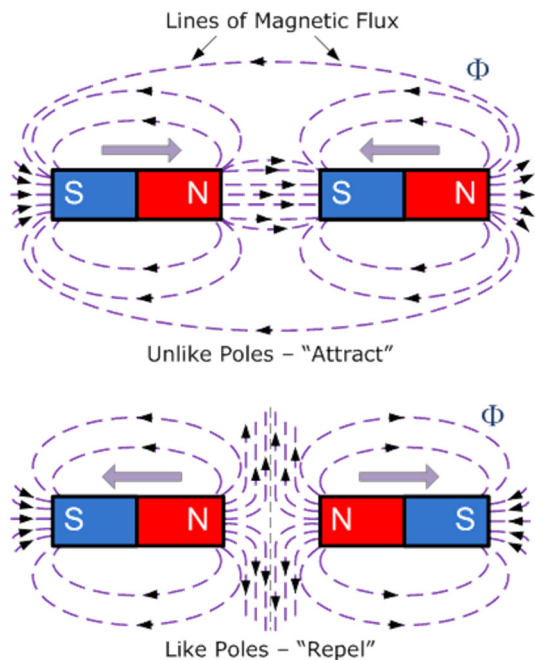


Image source: SciGo

Take Away Kit: Magnetic Wand

Bag Contents:

- Magnetic wand

The rectangular end of this wand is a magnet. Remember to keep magnets away from items like credit cards and electronic devices to avoid deactivation.

You can experiment with the wand by trying to pick up different items around your home and neighborhood.

What items does the magnet pick up?

Do the items the magnet picks up share anything in common?

What items did the magnet not pick up?

Do these items have anything in common?

Investigate, experiment and explore like a scientist!