Discovery Channel School's CURRICULUM CENTER

project ideas

Magnetism

Looking for ways to attract students to magnetism? Here are eight ideas that you can turn into individual or classroom projects.

1. Maybe It's Magnetic.
   Make a list of items to test with a magnet. Include a range of items that have different amounts of metal, such as silver, gold, nails, high-iron cereal, and crushed multi-vitamins. Predict which will have magnetic properties and explain why. Then check their magnetic force by using a strong magnet.

2. A Day Without Magnets.
   Magnetism and electromagnetism are the driving forces in the devices we use every day—telephones, alarms, speakers, TVs, computer discs, cassette tapes, and more. Research what other common devices rely on magnetism or electromagnetism. Then describe how a typical day would be different if magnets did not exist.

3. Future Forces.
   Brainstorm ideas for how people could use magnetic energy, and come up with some inventions of your own. Compare your inventions with those of others in your class. Which inventions would be the most useful. Why? How could they be improved?

4. Polar Puzzler.
   By studying the Earth's magnetism, scientists in the 1960s began to find evidence that suggested that continents float and drift across the globe, and that at one time they fit together like a puzzle. Cut out pieces of poster board in the shapes of the continents. Move the continents around to see how they might once have fit together and how they might have split up and moved into their current positions.

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5. Destination Vacation.
   Maglev, or magnetic levitation, trains are supported by powerful magnetic fields. Thanks to magnetism, they ride above frictionless tracks. Currently, maglev trains run in Japan, Germany, and Disney World in Florida. There are two primary types of maglev systems—electrodynamic suspension (EDS) and electromagnetic suspension (EMS). Research both types and report on their differences.

6. Medical Magnets.
   Many people believe that magnets can be used therapeutically to help our bodies heal, or at least feel less pain from arthritis, chronic back pain, tennis elbow, and other ailments. Research the ongoing debate about whether magnets can help heal you. Then decide which side of the argument you're on and write a brief essay supporting your position.

7. Ogling Auroras.
   Auroras are colorful curtains of light that wave and fold above the Earth's magnetic poles. These lights are created by charged particles flying from solar winds and colliding with gases in Earth's atmosphere. Research how our planet's magnetosphere reacts to solar wind, and the role it plays in where the Aurora Borealis and Aurora Australis can be best seen.

8. Polar Reversals.
   Earth's magnetic field flip-flops on average once every 500,000 years. Geologists believe that this magnetic field has reversed about 171 times in the past 76 million years! Pretend that you are the chief researcher in a government agency devoted to the study of magnetism. You believe that within the next year Earth's magnetic field will reach zero and stay there. What major industries and infrastructure systems would be especially affected? What advice would you give the president on what to do to avoid a catastrophe?