



Magnetic Sleuth



COLLEGE OF
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Overview

You know that magnets can push or pull on objects without touching them, but how is this possible? And why are some magnets “stickier” than others? In this activity, you can investigate these questions and more.

Doing the activity

Pick one of the magnets from your kit (you have refrigerator magnets, ring magnets, and a neodymium magnet — be careful with that one!). Place the magnetic view film over the magnet. What do you notice? Try a different magnet. How is its magnetic field similar? How is it different? What do you see if you stack two ring magnets or two refrigerator magnets together? Try investigating other items you have around. Many speakers, including those in laptops and cell phones, contain magnets. What other interesting things can you find?

What's happening

Magnets make *magnetic fields*, and these fields are what exert forces (pushes and pulls) on other magnets and magnetizable materials (such as iron). A field is a rather strange concept, but it's definitely real. It's a sort of alteration of the space around the magnet, and its properties allow us to predict and understand the behavior of the magnet. For example, a stronger field will exert larger forces than a weaker one. Different magnets have different field structures. The green magnetic view film included in your kit allows you to see these field shapes. The film contains iron filings, which will experience forces from magnetic fields. These forces make the iron filings line up with the magnetic field, creating a pattern of darker and lighter areas that correspond to variations in the magnetic field.

Summing up

The magnetic field is a rather strange concept, but it is definitely real and a fundamental fact about magnets. Understanding the magnetic field gives us some insight into why magnets do what they do. The magnetic view paper lets us see magnetic fields, and so gives us a new way to investigate the world.

For more information

Visit our website: www.lsop.colostate.edu

Contact us: cns_lsop@colostate.edu

Necessary materials:

- green magnetic view film
- refrigerator magnets, ring magnets, neodymium magnet*
- anything else you'd like to investigate

***Be careful with this magnet!** It's very strong, and can wipe credit cards, do bad things to cell phones, break if it “jumps” to a surface, etc.