

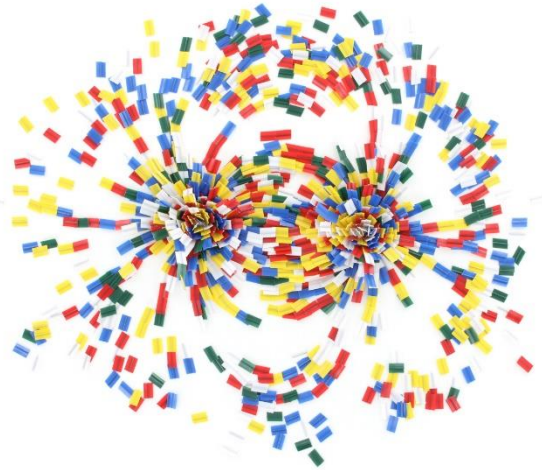
INSTRUCTIONAL GUIDE

Contents

- 100 g bag of colorful magnetic chips
- Instructional Guide

Required but not Included:

- Magnets of different shapes and sizes
- Tray or sheet of card stock

**Background**

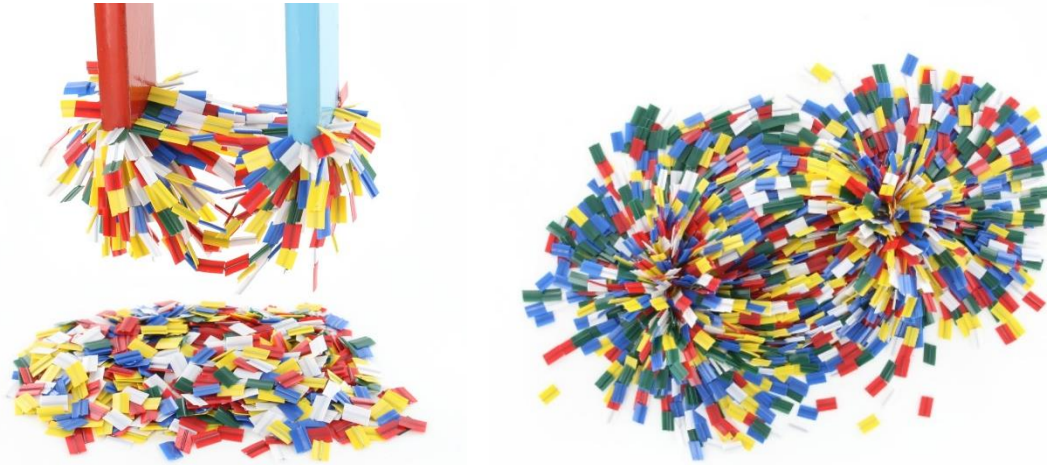
Magnetism has been known for quite a while. Observations of lodestones attracting small pieces of iron were recorded by ancient Greeks. Lodestones are pieces of the mineral magnetite which was originally discovered in Magnesia, a region of Ancient Greece. It wasn't until the end of the 11th century that Shen Kuo, a Chinese scientist, philosopher, and statesman, employed a lodestone and an iron needle to discover the concept of true north. This form of compass was in widespread use by Chinese navigators in the 12th century. French scientist Petrus Peregrinus de Maricourt mapped the poles of a spherical magnet in 1269 and was the first to suggest that the earth itself is a magnet. Now we know that magnetic fields surround subatomic particles and entire galaxies.

Set-Up

Using the Magnetic Color Chips to observe magnetic fields is a much tidier process than with the traditional iron filings. We suggest using a piece of paper or the top of a shoe box to make clean up even easier. Having a variety of magnets on hand will set the stage for a great demonstration or experiment. Horseshoe magnets make for great demonstrations of the magnetic fields around two points, and bar magnets can demonstrate a cross-section model of Earth's magnetic field.

Experiment

The Magnetic Color Chips are a great open-ended resource for exploring magnetism. Place whatever magnet you're using under a tray or piece of paper and sprinkle the chips on top. Colorful lines will start to appear between the poles of the magnet. This method is kind of like making a pencil rubbing to see the veins of a leaf. Placing a magnet directly into a pile of the magnetic chips does a great job of illustrating 3D magnetic fields. Spherical magnets, like the one used by Petrus Peregrinus de Maricourt, demonstrate the magnetic fields of planets, stars, and subatomic particles.



Conclusion

Students will garner an appreciation for the fundamental qualities of magnetic fields. This experience will build a solid foundation for further exploration into electricity and magnetism where the ability to visualize fields is key.

Related Products

3D Magnetic Field Observation Box (P8-1180) This self-contained device reveals the proper, three-dimensional nature of magnetic lines of force. The sealed acrylic box contains iron filings suspended in a silicone oil solution.

Magnetic Field Model (P8-1138) Visualize magnetic fields in an instant! The magnetic field model is one of the quickest and easiest ways to demonstrate invisible magnetic fields to your students.

Magnetic Field Observation Window (P8-1010) Your days of cleaning up iron filing messes are over! The Magnetic Field Observation Window provides a clean & quick way to visualize magnetic fields. A must have for any magnetism lesson. Magnets sold separately.