Educational Innovations, Inc.

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Surprising Science for Kids:

MAGNETS!

KIT-500

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We would like to thank Michelle Copher and Karen Loutzenhiser of layers-of-learning.com for allowing us to reproduce some of their lessons in this workbook.

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Welcome to Surprising Science for Kids: MAGNETS!

Your ***Surprising Science for Kids: MAGNETS!*** kit includes everything you need to perform hands-on experiments and dynamic demonstrations related to magnetism.

We believe the best way to learn about science is to have fun! The activities in this guide will ignite young children's curiosity and make them eager to explore on their own.

Included in this kit:

- 50 Magnetic Counting Chips
- 20 Magnetic Marbles
- 6 Rainbow Bar Magnets
- 2 Magnetic Wands
- 1 Floating Ring Magnet Kit
- 1 Plastic Sealed Case with Iron Filings (*)
- 1 Plastic Soda Bottle and Cap
- Pipe Cleaners

You will also need:

- scissors
- water
- paper clips
- string

* *Optional:* You may want to cover the case containing iron filings with clear tape. This will prevent the magnets from scratching the case.

SAFETY TIPS

Parental supervision is suggested for younger children.

Always handle your magnets gently. They are brittle and can break if they are dropped.

NEVER put a magnet into your mouth, ears, or nose! Swallowing a magnet is very dangerous. Store your magnets away from younger children.

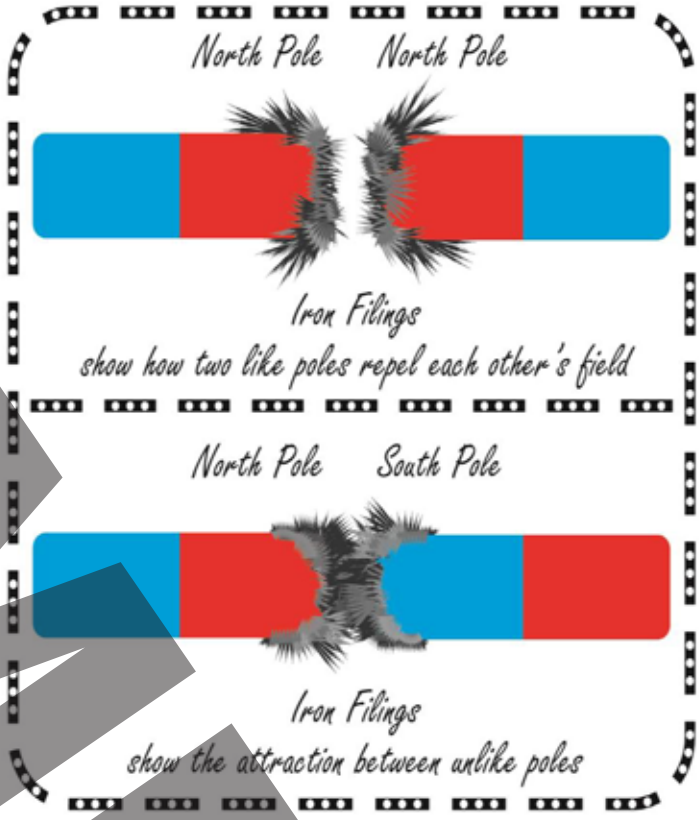
Magnets can ruin things like televisions, tablets, cell phones, computers, and other types of electronic equipment. Don't leave your magnets close to these things!

What is a magnet?

A **magnet** is an object that can push or pull things using an invisible force called **magnetism**.

You can't see this force, but it's there. When electrons in an object all line up and face the same direction, one end of a magnet gets a positive charge and the other end gets a negative charge. These ends are called the **north pole** and **south pole**.

All magnets have two poles. The two ends attract each other. The pull of a magnet is strongest at the poles. The pole of one magnet can pull or push the pole of another magnet. For example, the north pole of one magnet will **attract**—or stick to—the south pole of another. Two north poles or two south poles will **repel**—or push away—each other.



Magnets come in many shapes, sizes, and strengths!

Magnets come in many sizes and shapes. There are horseshoe magnets, round magnets, ring magnets, bar magnets, and many other shapes, too.

Activity 4:
Levitation Exploration

You can make objects levitate—or float—with the force of magnetism. Try this:

- Place a Rainbow Bar Magnet on the edge of a table, with just a bit hanging over the edge.
- Tie a string onto a paper clip.
- Hold the string so the paper clip comes near the magnet, but does not touch it.
- The paper clip should stand straight out in the air, toward the magnet.

Why did this happen? Magnetism, of course!

For even more magnetic levitation fun, try your Floating Ring Magnets! Place each ring onto the base, one at a time. Make sure that similar poles are facing each other (for instance, north faces north or south faces south) so the magnets repel instead of attract. *Hint: if your magnets stick together, flip one over.*

- Measure the amount of space between the first and second magnet.
- Measure the amount of space between the second and third magnet.
- Measure the amount of space between the third and fourth magnet.

Are all the magnets spaced apart equally? Which ring magnet floats the most? Why do you think this is?

Now try stacking the four rings in a different order and repeat your measurements. Did the space between the magnets change? Why do you think this is?

Activity 8:
Magnetism and Sea Turtles

continued