Magnetism & Electricity

by Dallas Koch

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The activities in this book provide an introduction to the basic concepts of magnetism and electricity. Material presents magnets, circuits, and battery cells. Work is suitable for individuals, small groups, or class instruction.

General background information, suggested activities, questions for discussion, and answers are included.

Encourage students to keep completed pages in a folder or notebook for further reference and reviews.

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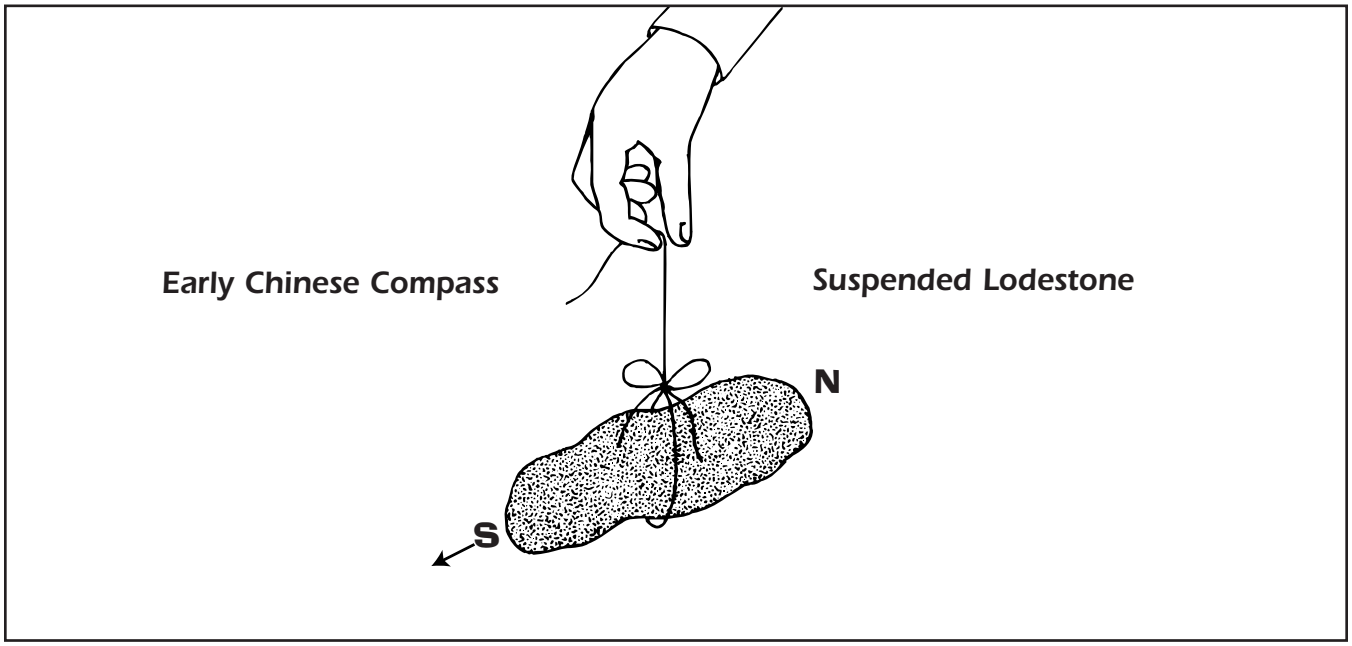
Name _____ Date _____

INTRODUCTION TO MAGNETISM



The ancient Greeks and Chinese knew about magnetism over 2000 years ago. They learned about magnetism from exposed pieces of black iron ore. This ore, which we call magnetite today, gave people direct contact with magnetism. Almost 2000 years ago, the Chinese hung thin pieces of this ore so that it could swing freely from a thread. The hanging stone made a simple direction finder. These natural, magnetic rocks, became known as lodestones or "leading stones." By the 1200s, sailors were using iron needles, magnetized by pieces of lodestone as direction finders instead of using the lodestone itself.

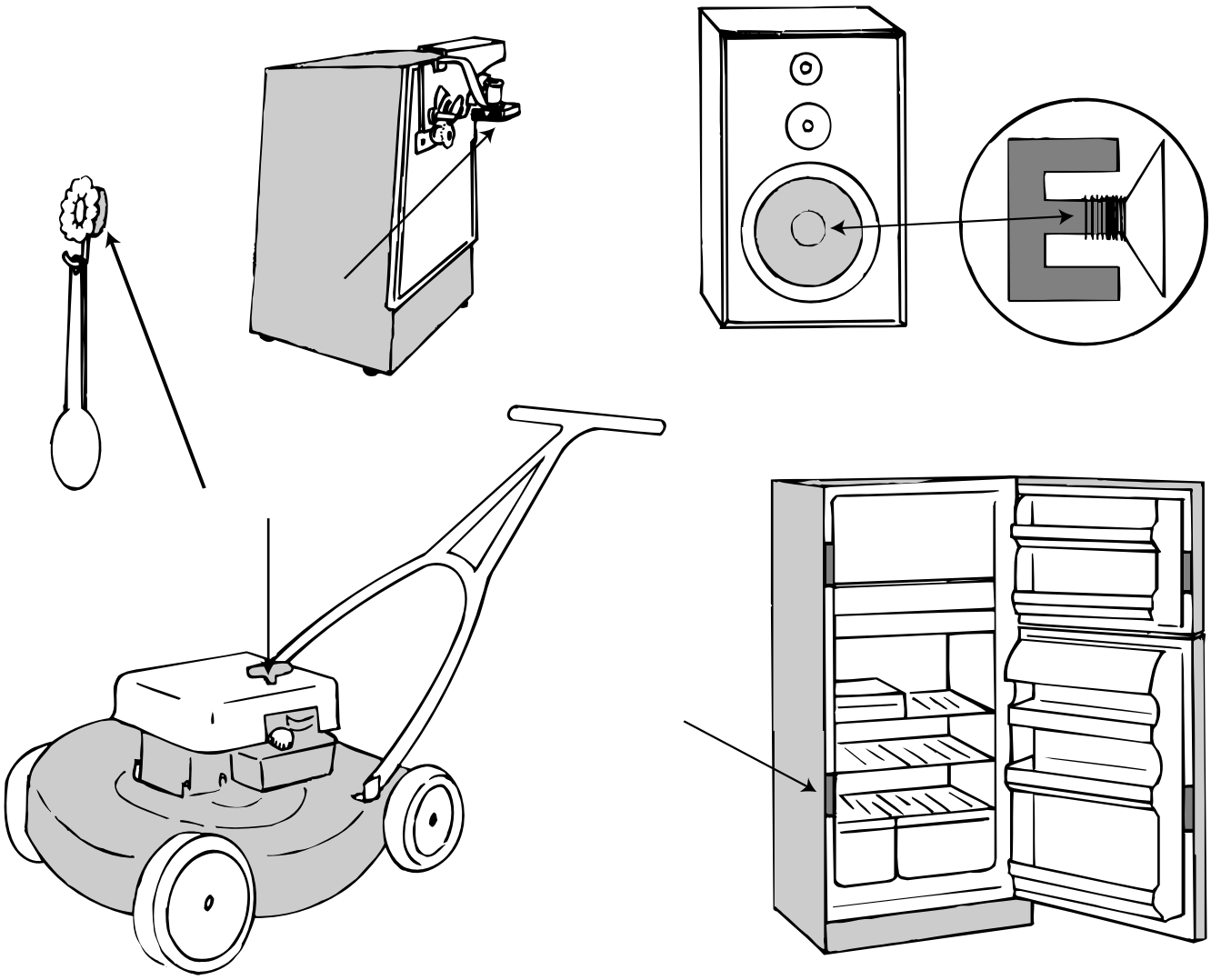
Today we know how to make strong, artificial permanent magnets. They are used frequently in our everyday lives.

List eight uses of magnets in or around your home or school.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Name _____ Date _____

What Do All of These Items Have in Common?



List these and other household items that use magnets. Explain how each uses its magnets.

_____

_____

_____

_____

_____

_____

_____

_____

Name _____ Date _____

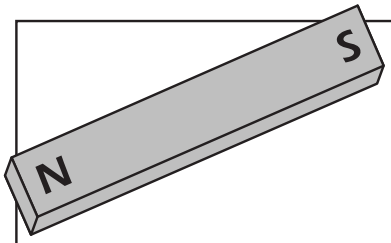
MAGNETIC FORCE

Magnetism, like gravity, is a force that cannot be seen. Every magnet, however, has an area or space in which it exerts its force. This area or space is called the magnetic force field. The size of this field depends upon the strength and size of the magnet.

To help picture the presence of a magnet's field, try the following experiments.

ACTIVITIES

Place a sheet of white paper over a bar magnet. Sprinkle iron powder or iron filings lightly over the paper. Tap the paper gently. Draw a picture of what you see.



Repeat this activity with a horseshoe magnet. Draw a picture of what you see.

Each line or path pattern you see in these two experiments is part of a complete curve or loop. These are magnetic lines of force. Magnetic lines of force leave the north pole and enter the south pole of a magnet. A magnet is completely surrounded by these lines of force.