

Magnetic Hangman

Science Standard III:

Students will understand that magnetism can be observed when there is an interaction between the magnetic fields of magnets or between a magnet and materials made of iron.

Objective 1:

Investigate and compare the behavior of magnetism using magnets.

Objective 2:

Describe how the magnetic field of Earth and a magnet are similar.

Intended Learning Outcomes:

1. Use Science Process and Thinking Skills
2. Manifest Scientific Attitudes and Interests

Content Connections:

Language Arts VII, VIII

Science
Standard
I

Objectives
1 & 2

Connections

Background Information

Earth has a magnetic field very similar to a bar magnet, with magnetic field lines flowing away from the North and returning in an oval pattern to the South Pole. The magnetic North and South Poles are not the same as the true North and South poles as depicted on globes and maps. The North Magnetic Pole is slowly drifting across the Arctic. The Geological Survey of Canada keeps track of this motion by periodically carrying out magnetic surveys to determine the Pole's location.

Handling and Storing Magnets

- Always use caution when handling magnets. Strong magnets can snap together and injure students and teachers, or be damaged.
- Keep magnets away from magnetic media, such as floppy discs, credit cards, and computer monitors.
- Store magnets in closed containers so they don't attract metal debris.
- If several magnets are being stored together, they should be stored in attracting positions.
- Alnico magnets should be stored with "keepers" (iron or magnetic steel plates that connect the poles of the magnet) as they can easily become demagnetized otherwise.
- Magnets should be kept away from pacemakers!

Invitation to Learn

Allow students to hang magnets from the ceiling or another safe place. You may hang magnets ahead of time. Safety first!

Instructional Procedures

1. Hang horseshoe magnets with a string.
2. Determine north, south, east, and west directions in your classroom.
3. Brainstorm magnetism vocabulary words.
4. Look at magnets and see if there are similarities in their alignment.
5. Have students predict what will happen when the north end of their bar magnets are placed near the north end of the hanging magnets.
6. Chart and draw results in journals.
7. Discuss results with class.

Materials

- One horseshoe magnet per student group
- One bar magnet per student group
- Fishing line/3 ft. per magnet

Possible Extensions/Adaptations/Integration

- Measure the distance that other magnets attract hanging magnets. Measure in centimeters and inches.
- Chart, graph, and journal results.
- Pair special needs students with partners.
- Hang bar and ring magnets in a similar fashion and hypothesize their alignment.

Assessment Suggestions

- Grade student journals according to *Science Writing Rubric* (p. 3-34).

Additional Resources

Books

Usborn Science Activities- Vol. 1, by Joan and Maurice Martin (Usborn Publishing Ltd, Usborn House, 83-85 Saffron Hill, London, EC1N 8RT, England. Copyright 1992, www.edcpub.com or www.ubah.com); ISBN 0-7460-0698-5

Usborn Science Activities-Science With Magnets, by Joan and Maurice Martin (Usborn Publishing Ltd, Usborn House, 83-85 Saffron Hill, London, EC1N 8RT, England. Copyright 1992, www.edcpub.com or www.ubah.com); ISBN 0-7460-1259-4

World Book, Young Scientist-Light & Electricity-Magnetic Power, by Hemesh Alles (World Book Inc., 525 West Monroe Street, Chicago, Illinois 60661. Copyright 1992); ISBN 0-7166-2791-4

The World Book Student Discovery Encyclopedia- Vol. M, (World Book Inc., 233 N. Michigan Ave., Chicago, Illinois 60601. <http://www.worldbook.com>, 1-800-975-3250. Copyright 2000); ISBN 0-7166-7400-9

Web site

Fifth Grade USOE SciberText:

<http://www.usoe.k12.ut.us/curr/science/core/5th/sciber5/index.htm>

Video

The Magic of Magnetism, (100% Educational Videos; 4921 Robert J. Matthews Pkwy, El Dorado Hills, California 95762, <http://www.schoolvideos.com/index.cfm>); VHS Product #IOIOS, DVD Product #S1401

Family Connections

- Allow students to check out magnets and teach parents laws of magnets learned in class.
- Have students and parents make a list of magnets in their homes