

MAGNETISM – GRADE 2

OBJECTIVES:

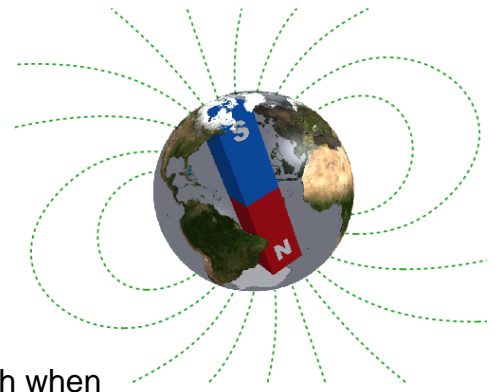
1. Discover repel and attract.
2. Explore magnetic force.

VOCABULARY:

Attract - magnetic draw toward another magnetic force.

Magnet - a piece of iron or steel that points north or south when suspended.

Repel - to push away.



PROCEDURE:

Activity 1: Attract and Repel, Types of Magnets

Materials: *Magnetism* slideshow; magnet kit (magnetic wand, 2 ring magnets, marble, logo, bar magnet, plastic rod)

1. Talk about how magnets attract and repel.
2. Show slide of the types of magnets in the magnet kit. Pass kits out to students (have them work in pairs).
3. Let students play and experiment with the magnets for about 5 minutes. Emphasize attract and repel and that they need to keep the magnets away from computers and other electronics. Guide them in their exploration by suggesting the following:
 - a. The magnetic wands and logo magnets are the most powerful.
 - b. If you put rings on a pencil in the correct way the rings will appear to float.
 - c. You can play a "game" of moving the rings around by using the wands and not touching the rings.
 - d. You can balance a ring on the thin side of the wand and it moves very quickly.
 - e. Can they move one magnet with another magnet?
4. Bring students together to discuss what they have discovered. To review attract and repel one more time use page 2 of their workbook and have them predict which picture shows attract and which shows repel. Have them write under each set of magnets whether they are attracting or repelling.

Background Information

It is very important for students to experience magnetism and spend time on feeling the "force." **Magnetism** is a force generated by the motion of spinning electrons all going in the same direction. There are only three metals that are naturally magnetic including

nickel, cobalt, and iron. The magnets that are included in the kit are made of Alnico (aluminum, nickel, and cobalt, which are considered permanent magnets and will not lose their magnetism).

Activity 2: Experimenting with magnetic force.

Materials: *Magnetism* slideshow; iron filings; bar magnet

1. Talk about magnetic force.
2. Pass out a bag of iron filings to each pair. Emphasize to students to keep the filings in the bag and not to let the filings touch any of the magnets.
3. Using the bar magnet from the magnet kit, hold the bag of iron filings in one hand while holding the bar magnet in the other hand to move the filings around in the bag from underneath the card that is stapled to the bag. Instruct students to use the north and south ends of the magnet (north end has the line) and watch what happens to filings. Do they react differently?

Background Information

North/north and south/south repel while north/south attract. The notch on the magnet is North. North is considered the positive side where the magnetism actually begins. South is considered the negative side where the magnetic force reenters the magnet. When held up to the iron filings, the bar magnet shows the magnetic force by moving the filings. This force is strong enough to go through different surfaces.

Activity 3: Is it magnetic?

Materials: Is it magnetic? kit (cloth, wooden cube, plastic chip, paper clip, shell, mylar, aluminum, nickel, tin ball, copper plate); bar magnet from magnet kit;

1. Give each pair of students an "Is it magnetic" kit. Have them predict if each item is magnetic or not. They can fill in their answer on page 4 of their workbooks.
2. Use the bar magnet from the magnet kit to check which prediction was correct.

Background Information

Magnetism defies gravity. The stronger the magnet, the less effect gravity has on the object. The stronger the magnet, the more "pull" the magnet has toward objects that are magnetic. This focuses on how the force of magnetism can vary with different objects. Some substances seem not to be affected by magnetism (non-magnetic) while others are attracted to it (magnetic).

Materials Provided

Magnetism slideshow

16 Magnet Kits:

Wand

2 ring magnets

Magnetic marble

Logo magnet

Bar

16 Is it Magnetic? kits:

Cloth

Wooden cube

Plastic chip

Paper clip

Shell

Mylar

Aluminum bar

Nickel plate

Tin ball

Copper plate