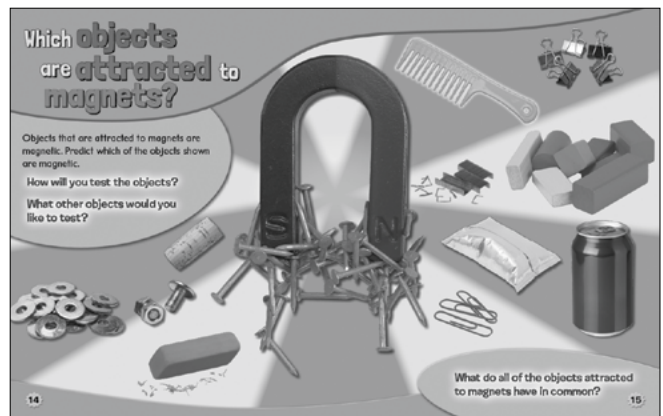




## Specific Curriculum Outcomes

- 40.0 identify familiar uses of magnets [GCO 1/3]
- 41.0 investigate and identify materials that are attracted by magnets and distinguish from those materials that are not affected by magnets [GCO 1/3]
- 8.0 sequence or group materials and objects [GCO 2]
- 16.0 predict based on an observed pattern [GCO 2]

**Students who achieve these outcomes will be able to:**

- NOTES:**

## Attitude Outcome Statements

### Encourage students to:

- show interest in and curiosity about objects and events within their immediate environment [GCO 4]

## Cross-Curricular Connections

### English Language Arts

#### Students will be expected to:

- create texts collaboratively and independently, using a variety of forms for a range of audiences and purposes [GCO 9]

## Getting Organized

| Components                                                                                                                                                            | Materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Before You Begin                                                                                                                                                   | Vocabulary                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Student Magazine, pages 12–15</li><li>• IWB Activity 5</li><li>• BLM <i>My Predictions</i></li><li>• IWB Activity 6</li></ul> | <ul style="list-style-type: none"><li>• box with variety of objects such as paper clips, straws, tacks, rubber bands, pieces of paper</li><li>• objects including cork, foil packet, staples, nuts and bolts, eraser, nails, binder clips, plastic comb, wooden blocks, washers, coated paper clips, aluminum can</li><li>• variety of objects such as a pencil, spoon, key, marble, wooden block, aluminum foil, coins, cardboard, tissue, balloon, buttons, plastic ruler; also include some objects made of copper, brass, and aluminum</li><li>• magnets</li><li>• students' Science Folders</li><li>• iron-fortified cereal (i.e., Total or Vector), zippered plastic bags</li><li>• modelling clay, paint, and small magnets</li></ul> | <ul style="list-style-type: none"><li>• Create a fishing pole by attaching a magnet to one end of a length of string and the other end to a metre stick.</li></ul> | <ul style="list-style-type: none"><li>• attract</li><li>• magnet</li><li>• magnetic</li><li>• non-magnetic</li></ul> |

## Safety

- Ensure that students know that a magnet should never be held near electronic devices such as computers; radios; debit, credit, and security cards; and televisions. Magnets disrupt electronic components and can cause permanent damage.

## Science Background

- There are three kinds of magnets:
  - Natural magnets are rocks that contain a lot of iron and are magnetic when they are found (e.g., lodestone—a form of the mineral magnetite).
  - Permanent magnets are usually made from hard iron.

- Temporary magnets can be made from magnetic materials; however, they are weak and their magnetic force lasts only a short time.
- Magnets need to be stored properly (with opposite poles together) to ensure they stay strongly magnetized. If magnets become de-magnetized, remagnetizers are devices that can be purchased through science supply stores.
- Only a few metals (iron, nickel, and cobalt) are attracted to magnets.

## Possible Misconceptions

- Some students may think magnets attract all metals and perhaps even shiny (metallic-looking) objects.
- Students may believe that all magnetic materials are magnets. Their explorations will demonstrate that magnets attract magnetic materials but these materials are not magnets.

## ACTIVATE

### Magnet Facts

Have students work individually, then with a partner, to list what they know about magnets. Have pairs of students share with the whole class and add information to the class KWLM chart for *Invisible Forces*. Students may be aware of uses such as in toys, as fasteners, and to keep things closed. Add the word “magnet” to the Word Wall.



### Magnet Scavenger Hunt

Challenge pairs of students to go on a scavenger hunt around the classroom, and/or the school, to find ways magnets are used. Students could take digital images to share their observations.

### Uses of Magnets

Direct students to pages 12–13 of the Student Magazine and have them examine the images showing where magnets may be used. Ask:

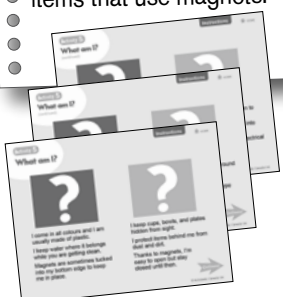
- **How are magnets used in everyday life?**
- **Where else can you find magnets?**

Students may wish to research some less familiar uses of magnets such as cow magnets, maglev trains, and magnets in electronic devices (e.g., microwaves).



#### IWB Activity:

- Students can use Activity 5: *What am I?* (see the Teacher's Website) to predict and identify the items that use magnets.



# CONNECT

## Gone Fishin'

Set up a box filled with a variety of items such as paper clips, straws, some tacks, rubber bands, and pieces of paper. Provide a “fishing pole” with a magnet tied to one end of a string and the other end tied to a metre stick. Invite students to “fish” in the box. Once students have caught all the items they can, ask:

- **What is similar about the items you caught?**
- **How did the magnet affect them?** (It attracted them.)

## Magnetic Attraction

Have students examine pages 14–15 of the Student Magazine and predict which objects are magnetic and which are not. Ask:

- **How will you test the objects?**
- **What other objects would you like to test?**

Students will explore this actively in the following activity and can support or revise their predictions.

## Testing the Attraction

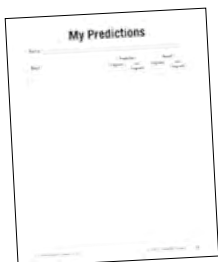
Explain that some items are magnetic (affected by a magnet) and some are non-magnetic (not affected by a magnet). Provide students with magnets and a variety of objects to test including the objects shown on pages 14–15 of the Student Magazine (i.e., cork, foil packet, staples, nuts and bolts, eraser, nails, binder clips, plastic comb, wooden blocks, washers, coated paper clips, aluminum can). Be sure to include metals such as copper, brass, and aluminum which are not magnetic. Other objects could include a pencil, spoon, key, marble, aluminum foil, coins, cardboard, tissue, balloon, buttons, and a plastic ruler.

Students should predict which objects will be attracted to the magnet and then test to check their predictions. Students can use BLM *My Predictions* to record their predictions and results. Share results as a class and discuss any discrepancies between their predictions and observations. Ask:

- **What do all the objects attracted to magnets have in common?** (They are made of metal.)

Explain to students that only items made from iron, steel (which contains iron), nickel, and cobalt are magnetic. Remind students to store their completed BLMs in the Science Folders.

Have students group the objects according to whether they are magnetic, non-magnetic, or contain both magnetic and non-magnetic materials. Add the words “magnetic” and “non-magnetic” to the Word Wall.





Ask students what they still want to know about magnets and magnetism. Add these questions to the I Wonder Wall. Ask:

- **How could you find out what you want to know?**

#### **IWB Activity:**

- Challenge students to
- identify the magnetic
- objects using Activity 6:
- *Will a magnet attract it?*
- (see the Teacher's
- Website).



## **CONSOLIDATE**

### **Magnets Around Us**

Students can create a poster illustrating the different uses of magnets in everyday life and explaining how the magnet works in each instance.

## **EXPLORE MORE**

### **Eating Iron**

Students can conduct an experiment to find out if iron-fortified cereal is magnetic. They can place cereal such as Total or Vector in a zippered plastic bag. Then they add water to the bag and seal it. As the cereal dissolves, small particles of iron are released. Students will observe that the iron content is attracted to a strong magnet.

### **Animal Magnets**

Students can create an animal magnet for use at home by making an animal shape out of modelling clay, painting it, and gluing a small magnet to the back.

# My Predictions

Name: \_\_\_\_\_

| Object | Prediction |              | Result   |              |
|--------|------------|--------------|----------|--------------|
|        | magnetic   | non-magnetic | magnetic | non-magnetic |
|        |            |              |          |              |