

SUMMARY:

Learners will explore magnetism.

GRADE LEVEL:

This activity has been used successfully with 1st to 3rd graders as well as college undergraduates.

TIME:

This activity takes approximately 30 minutes with 1st to 3rd graders. Depending on learners' prior experience this time may need to be extended or shortened.

SUBJECTS:

Physical Science
(magnetism)

LEARNER BACKGROUND:

None required. This activity is designed to follow the [Light Me Up](#) activity.

LEARNING OBJECTIVES:

Completing this activity will allow learners to:

- ✓ understand some metals are magnetic
- ✓ understand that magnets have two poles.

Discover Question:

I found this weird rock. I wonder what it does?

Background:

This activity encourages learners to explore how a magnet (weird black rock) interacts with common items. The concepts of magnetism are then discussed after the learners' exploration phase.

From a list of metal objects the learners will see that not all metals are magnetic. This list of metals (and the definition of what is a metal) is covered in the simple circuit activity [Light Me Up](#). However, you do not have to complete that activity prior to exploring magnetism.

Learners will be challenged to "levitate" their magnet. This allows learners to explore the concept that magnets have poles. We do not stress the vocabulary of North and South poles since this typically causes confusion.

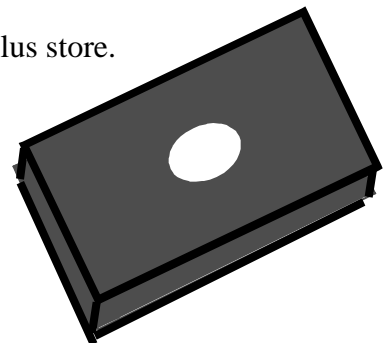
The educator needs to facilitate the sharing of observations and ideas. Try to avoid answering questions directly. Instead, ask questions like what have you tried? What do you notice? What else could you try? These types of questions encourage further exploration.

Materials:

- Each learner should receive a permanent magnet.
- Each learner should have
 - a few toothpicks and Q-tips
 - some metal objects like a nail, penny, washer and aluminum foil.
- ✓ If you have already done the [Light Me Up](#) activity then learners will already have these objects.
- Each group of four learners should have the following community supplies:
 - Masking tape, Markers, Paper and Scissors

Resources and Handouts:

I buy my magnets for 25 cents each at a surplus store.



Procedure:

- 1 You can introduce the activity any way that is appropriate for your class. I have told learners that I found a weird black rock and it stuck to me. A watch under a long sleeve shirt allows the magnet to stick. I then challenge learners to find everything in the room that sticks or that does not stick to the weird black rock.
- 2 Hand out magnet and supplies. If learners have already completed the [Light Me Up](#) activity they should already have the supplies they need.
- 3 Record learners' observations on the board. Make a list of materials that the weird black rocks stick to and do not stick to.
- 4 Ask questions that are open-ended "What have you tried?" "What else could you try?" "What do you notice about your objects?"
- 5 Discuss the list of magnetic objects.
 - Compare to the list of metal objects. Are they the same?
 - Are there any non-metal objects on the list?
 - ✓ Careful, many objects are painted or have plastic coverings - like white boards. You may want to arrange to have a painted metal object available that you can scratch to show it is shiny underneath the paint.)
- 6 Challenge learners to "levitate" their magnet. Have students work in groups or have extra magnets available.

**MODIFICATIONS/
ADAPTATIONS:**

Older learners can be given a challenge of trying to use multiple magnets to levitate one or more magnets.

Younger learners can be given different colored Post-It notes to stick to magnetic and non-magnetic objects. If you do this in a classroom you can then look around to see what is common about all the magnetic materials.

EXTENSIONS:

- ✓ Have a compass available to use in exploring their weird black rocks
- ✓ Design a game using magnets.
- ✓ Make a Ouiji board and ask it questions.

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Discuss the levitating magnets.

- Can you make the magnet stop levitating?
- How many magnets can you levitate?
- Could you mark your black rocks so that anyone could figure out to orient them to levitate them?

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Discuss any extensions learners may have explored and/or showcase any games that may have been created.

Safety Considerations:

- If you use more powerful rare earth magnets be careful that fingers do not get pinched.

Assessment Ideas:

- Can the learner identify objects that are magnetic?
- Can the learner levitate his or her magnet over another magnet?

Internet Resource:

This is part of a NatureShift unit on electricity and magnetism that can culminate in controlling the Mars Rover telerobot.

The National Museum of Science and Technology has information about magnets on-line that provides good background information.

http://www.science-tech.nmstc.ca/english/schoolzone/Info_Magnets.cfm

You may find that Ask Jeeves (<http://www.askjeeves.com>) is a good source of additional information and explanations about magnets.

EXTENSIONS:

- ✓ Have the class classify and color code the poles on all their weird black rocks.
- ✓ See if the whole class can levitate all their weird black rocks in one big stack.

CREDITS:

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