# Marvelous Magnets

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**Date Created:** 1998. Revised March 2018  
**Subject:** Physical Science  
**Grade Level:** K-3  

**Standards:** [Next Generation Science Standards](www.nextgenscience.org)  
- **K-PS2-1** Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.  
- **2-PS1-1** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.  

**Schedule:** 60 minutes.  

**CCMR Lending Library Connected Activities:**
Objectives:
Introduce magnetism to young children. Explore which objects are magnetic and which are not; learn about magnetic poles and which magnets are strongest.

Vocabulary:
- Magnet(ic)
- Attract
- Compass
- Repel
- Pole Magnet
- North Pole
- South Pole

Students Will:
- Make predictions about which materials are magnetic.
- Test their predictions and record their results.
- Use pole magnets to explore the importance of N and S poles and learn about how this relates to compasses and our Earth.
- Test the strength of several different types of magnets.

Materials:
- Activity Station Signs
- Magnet w/handle
- Assorted Materials (to test if attracted to a magnet)
- Paper Clips
- Assorted Magnets
- Bar Magnets (labeled north/south)
- Magnetic Rings and Stand Set
- Ruler
- Compasses
- Iron Fillings

Safety
Some objects may have sharp edges.

Science Content for the Teacher:


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Preparation:

- Photocopy all activity sheets
- Divide materials so that it is clear which materials are for which part of the lesson.
- Make sure that anything that could be damaged by a magnet (electronics, etc) are removed from the classroom or designated as “out of bounds” for this activity.
- For each activity, materials will need to be set up around the room.
  - Activity 1 - “Is it Magnetic?”
  - Activity 2 - “Which Magnet is Strongest?”
  - Activity 3 - “How do Magnets Behave?”
  - Activity 4 - “Can Magnets Float?”
  - Activity 5 - “Can we see Magnetic Fields?” **

**Note: The part involving iron filing might be easier to do as a class demonstration.**

Classroom Procedure:

Engage (Time: 10mins)

Ask children to tell what they already know about magnets. Where have they seen magnets before? What do they know magnets are used for?

Explore (Time: 50mins)

Have students visit each station. They will perform the task and make observations. Give each group about 5-10 minutes at each station.

Explain (Time: 10mins)

After putting the magnets and materials away student should return to the larger group to share their results from each of the activities. Did their predictions match their results? Did they notice a pattern? Did students get similar or different results than their classmates?
**Assessment:**

The following rubric can be used to assess students during each part of the activity. The term “expectations” here refers to the content, process and attitudinal goals for this activity. Evidence for understanding may be in the form of oral as well as written communication, both with the teacher as well as observed communication with other students. Specifics are listed in the table below.

4= exceeds expectations  
3= meets expectations consistently  
2= meets expectations occasionally  
1= not meeting expectations

<table>
<thead>
<tr>
<th>Engage</th>
<th>Explore</th>
<th>Explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Shows leadership in the discussion and activities. He/she collected data accurately, made logical predications and conclusions.</td>
<td>Completes work accurately while providing an explanation for what is observed. Works very well with partner.</td>
</tr>
<tr>
<td>3</td>
<td>Participates in the discussion and activities. He/she collected data accurately, made logical predications and conclusions.</td>
<td>Completes work accurately and works cooperatively with partner.</td>
</tr>
<tr>
<td>2</td>
<td>Contributes to the discussion and activities, collected data accurately but made some illogical predications and had trouble noticing patterns.</td>
<td>Works cooperatively with partner, but makes some mistakes with the activities.</td>
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<tr>
<td>1</td>
<td>Does not participate in discussion or activities. Did not collect data accurately, make illogical predications or notice any patterns.</td>
<td>Has trouble working with partner. Does little to complete the activities.</td>
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</tbody>
</table>
Acknowledgments:

Prof. Jeevak Parpia, Department of Physics, Cornell University