

# Nasco STEM Works

Volume 24

## How Many Paper Clips Will a Magnet Hold?

Developed by Linda Roberts **Grades 2-5**

### Objectives


Students will...

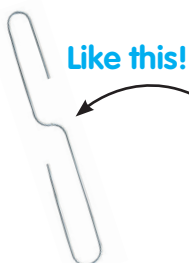
- Determine the holding power of various sizes and types of magnets.
- Use tally marks to count the number of paper clips the magnet will hold.
- Pool their data to make a class graph.

### Materials

- Horseshoe Magnet (**Cat. No. SB45565M**)
- Block Magnets, set of 12 (**Cat. No. SB45570M**)
- Neodymium Magnets, set of 6 (**Cat. No. SB38463M**)
- Wand Magnets, pkg. of 12 (**Cat. No. SB16505M**)
- Paint Sticks or Tongue Depressors, box of 500 (**Cat. No. 5500190M**)
- Paper Clips, box of 100 (**Cat. No. KI01037H**)

### Activity

- Show the students the different types of magnets. Tell them the names of the magnets. Draw a picture of each magnet with its name on a chart. Have students predict which magnet they think will be the strongest (hold the most paper clips). Use tally marks to record their responses. Explain the use of tally marks. A diagonal line is used to cross 4 straight lines representing 5 paper clips. Tell students when they have finished their tallies that the marks will be converted to numbers by counting to fives.
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- Divide the class into groups of 4. Each group will test one magnet. Use masking tape to tape the magnet onto a paint stick or tongue depressor so the end of the magnet protrudes about ½" to 1" past the end of the stick. Tape the stick to the edge of the table so the magnet sticks out over the edge where the students will be working.
  - Give each group of students 3 boxes of paper clips to start with. They may need additional clips if they have a strong magnet.
  - Show the class how to bend a paper clip to make a hook. (Grasp the paper clip in the middle and then bend one loop up.)
  - Tell the students the hook will be suspended from the bottom of the magnet. It will not be attached to the magnet by anything but magnetism.



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## Activity (cont.)

- In each group, one person will record the number of paper clips they think their magnet will hold. Students will take turns recording tally marks, handing a student paper clips to put on the hook, and putting the clips on the hooks. The test is finished when the hook with the paper clips drops off the magnet.
- At this time, the groups will count the tally marks together by fives and write their final answer on the paper.
- When the first hook is full of magnets, a second hook can be attached to one of the paper clips to add more clips.
- If time allows, each group can test a second magnet and record their results.
- At the end of the activity, write the number of paper clips each magnet held on the previous class chart. Have students rank the magnets by which held the most paper clips to the least. Compare these findings with the predictions the students made earlier.
- Demonstrate how to make a graph on a large chart. Label with the number of paper clips on one axis, and the type of magnet on the other axis. Have students report their data one group at a time. Show them how to use a bar graph to visually display their findings.

## Assessment

Teacher observation, participation in activities, cooperation, handling materials, participation in oral discussions, completeness of written work.

## Check Out These Other Great Products from Nasco!



### Economy Magnet Set

An exceptional value! This kit includes a variety of magnets and accessories for teaching the basics of magnetism. Includes steel horseshoe magnet, two ceramic bar magnets, three ceramic donut magnets, four metal squares (iron, copper, aluminum, zinc), iron filings pack, lodestone, two magnetic compasses, and an English activity guide containing 17 experiments. Comes in a reusable storage box.

**SB31100M**

### Dowling Alnico Magnet Set

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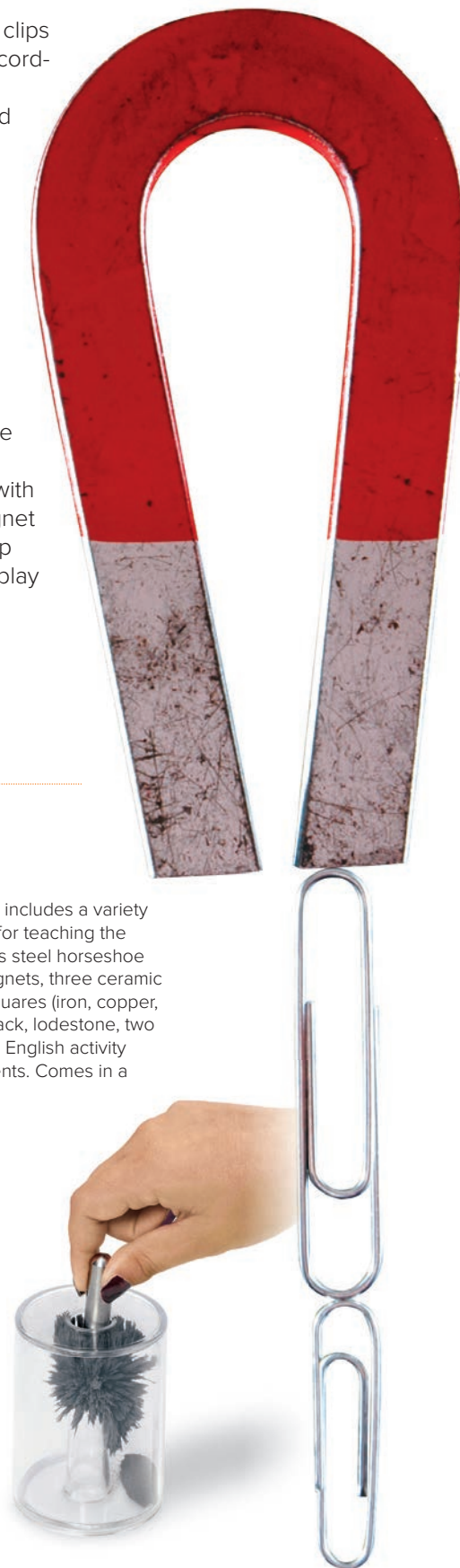
**SB45563M**



### Dowling Mysterious Magnet Tube

Allows you to explore the mysterious forces of magnetism! Perform experiments that demonstrate magnetic forces and North/South polarity using iron filings and a cylindrical magnet.

**SB26942M**



**WARNING:**  
**CHOKING HAZARD**  
Small parts.  
Not for children under 3 yrs.

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