

A Magnetic Personality

Summary

Students investigate how many paper clips different types of magnets can pick up.

Main Core Tie

Science - 5th Grade

[Standard 3 Objective 2](#)

Time Frame

1 class periods of 45 minutes each

Group Size

Individual

Materials

For the Teacher:

Examples of different types of chains (Ex: from a swing, automobile chain, necklace, paper chain, paper clip chain, etc.)

For the Student:

Several different shaped magnets
15-20 small paper clips
Science Journal

Background for Teachers

Magnet strength is related to the composition of the magnet - not the size. The relative strength of a magnet can be determined by counting the number of iron nails or paper clips that it will pick up and comparing it with the number that another magnet will pick up.

Be sure this activity includes some large magnets that are relatively weak and some small magnets that have a relatively strong magnetic attraction.

Intended Learning Outcomes

Observe simple objects, patterns, and events and report their observations.

Sort and sequence data according to criteria given.

Use data to construct a reasonable conclusion.

Seek and weigh evidence before drawing conclusions.

Instructional Procedures

Help students understand the concept of "chain" by showing one or more different kinds of chains and explaining that they are linked together in some way. You might use a piece of chain from a swing, automobile chain, necklace, paper chain (such as those made at Christmas), and/or paper clip chain that has been fastened together.

Explain that magnetism can be used to hold some objects together in a chain.

Demonstrate how to use a magnet to pick up one paper clip and then show how the magnet can hold one or more additional paper clips in a "chain" as you carefully pick up or place a paper clip at the end of the one before.

Allow students time to examine all the different types of magnets available.

Ask students to predict which magnet will pick up the most paper clips and why. Have them record their prediction and reason in their Science Journal.
Give each student one or more magnets to test by making a paper clip chain with each magnet. Ask students to record the number of paper clips different magnets pick up in a chain in their Science Journals.
As students finish experimenting with the magnet they were given, they should trade magnets with another student until they have tried them all.
Once students have finished experimenting, compare individual results.
You may choose to make a graph of class averages and compare the results with the predictions recorded earlier.
Discuss the results.

How many paper clips did the strongest magnet pick up?

Did everyone get the same results?

Did predictions match test results?

Was the biggest magnet the strongest magnet?

Students should conclude that the strength of the magnet is not necessarily related to the size of the magnet.

Extensions

Experiment with the number of paper clips that can be held at different places on the magnet. Many more can be held at the poles than in the middle of the magnet. Following investigation, they should conclude that magnets are strongest at the poles, or ends.

Assessment Plan

Assess student Science Journals using the rubric below to check accuracy in recording predictions, observations, and conclusions.

Rubrics

[Science Journal Rubric](#)

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