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❤ *Marie*

7 Hands-On Magnetism Experiments

There are 7 hands-on Magnetism Experiments in this set. You can choose to do all 7 experiments or only one. These labs are written with step by step instructions for the student and teacher. Questions are asked throughout the exploration so that students are encouraged to process and connect what it is that they know about magnets with what they are experiencing. The materials for each experiment is listed at the top of the page. Do not be intimidated with these experiments. They are fairly easy and shouldn't take too much effort on the teacher or student's part. The experiments do help solidify laws of magnetism for students.

1) What does a magnetic field look like?
2) How do magnetic poles react?
3) What makes something magnetic?
4) What items are magnetic?
5) Does the size of a magnet affect its strength?
6) Does distance alter the strength of a magnetic field?
7) Can I make a temporary magnet?

What does a magnetic field look like?

Materials:

- Bar Magnet
- Clear Laminating Sheet
- Bag of Iron Filings
- Plastic Spoon

Step 1: Lay bar magnet flat on the desk.

Step 2: Lay the clear laminating sheet centered on top of the magnet.

Step 3: Use the plastic spoon to sprinkle two spoonfuls of iron filings on top of the paper.

Step 4: Below in the box, draw the magnet and the magnetic field created.

Step 5: Based on what the magnetic field looks like, where do you think the strongest part of the magnet is? _____

How do magnetic poles react?

Materials:

- 2 bar magnets

Step 1: Lay both magnets flat on the desk about 6 inches apart.

Step 2: Move the north end of one of the magnets toward the north end of the other magnet.

Step 3: Make observations.

Step 4: Now, move the south end of one magnet toward the north end of the other magnet.

Step 5: Make observations.

Step 6: What poles repel each other? _____

_____

Step 7: What poles attract each other? _____

_____

Step 8: Read the statements below and write True or False.

_____ Opposite poles attract.

_____ Opposite poles repel.

What makes something magnetic?

Materials:

- Bar Magnet

Step 2: Use the bar magnet to discover items in the classroom that are magnetic.

Step 3: Record your data in the table.

Magnetic Items	Non-magnetic Items

What items surprised you? Is there any item you thought would be magnetic, but wasn't? _____

_____

_____

_____

What items are magnetic?

Materials:

- Paper Bag
- Random selection of testable items (suggested list)
    - wooden toothpick
    - penny
    - jewelry
    - plastic cup
    - thread
    - needles or pins
    - rubber bands
    - elastic hair bands
    - tin can
    - bobby pin
    - glass
    - aluminum foil
    - crayon
    - nail
    - mitten
    - paper
    - school scissors
    - tack
    - staples

Step 1: Observe the materials in the bag. Predict: Name 3 items you think are magnetic? _____

_____

Step 2: Predict: Name 3 items you think are not magnetic? _____

_____

Step 3: Use the bar magnet to discover what items in the bag are magnetic and not magnetic. Sort the items into two piles: magnetic & not magnetic.

Step 4: Analyze findings: Were your predictions correct? Explain. _____

_____

_____

_____

Step 5: Did any of the items surprise you? Explain. _____

_____

Step 6: What did the items have in common that were magnetic? _____

_____

_____

Step 7: Are all metals magnetic? Explain. _____

_____

_____

_____

Does the size of a magnet affect its strength?

Materials:

- 5 magnets of various size and strength
- 300 paperclips

Step 1: Gather your supplies. Give each of your magnets a name or number to help record data collected. Write the names or numbers of your magnets below in the table.

Magnet Name	# of Paperclips

Step 2: Predict which magnet will hold the most paperclips and put a star next to it on your table.

Step 3: Predict which magnet will hold the least number of paperclips. Underline it.

Step 3: Now, take each magnet one at a time and discover how many paperclips each will hold.

Step 4: Record data in your table.

Step 5: Analyze your data. Were your predictions correct? _____

Step 6: Did the strength of any of the magnets surprise you? Which one?

_____

Step 7: Based on your findings, does the strength of a magnet depend on its size? Explain. _____

_____

_____

_____

Does distance alter the strength of a magnetic field?

Materials:

- floss
- paperclip
- bar magnet
- tape

Step 1: String a paperclip to a piece of floss so that it slides on the floss easily.

Arrange it so that it is approximately in the middle of the floss.

Step 2: Now, tape one end of the floss to a table or desk.

Step 3: Now, tape the other end of the floss to a chair or another desk, but make sure that the floss is not tight, but somewhat loose allowing the paperclip to hang.

Step 4: Now, take the bar magnet and run the magnet parallel to the floss about 12 inches above the floss.

Step 5: Did the paperclip move? _____

Step 6: Now, take the bar magnet and run the magnet parallel to the floss about 6 inches above the floss.

Step 7: Did the paperclip move? _____

Step 8: Now, take the bar magnet and run the magnet parallel to the floss about 3 inches above the floss.

Step 9: Did the paperclip move? _____

Step 10: What happened to the strength of the magnetic field as the distance to the paperclip decreased? _____

Can I make a temporary magnet?

Materials:

- Bar magnet
- Nail

Step 1: Take a nail and swipe it against the end of a magnet thirty times making sure to go in one direction.

Step 2: Once you are done swiping, try to pick up a paperclip with the nail.

Step 3: What happened? _____

_____

Step 4: Did the nail become permanently magnetized? Explain. _____

_____

_____

Step 5: Can any material become a temporary magnet? Explain. _____

_____

_____