

How Strong Is Your Magnet?

Science NetLinks Activity Sheet

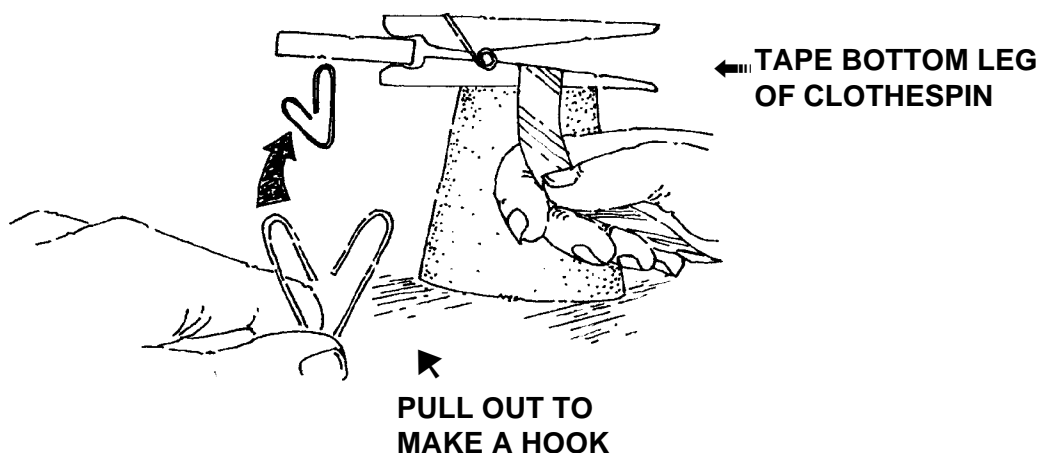
Can your small magnet attract a paper clip from across the room? From across your desk? How can you find out how strong your magnet is? This experiment will help you find out!

You will need

- magnet
- spring clothespin
- 1-inch masking tape
- scissors
- paper cup
- 20 paper clips
- data sheet
- pencil

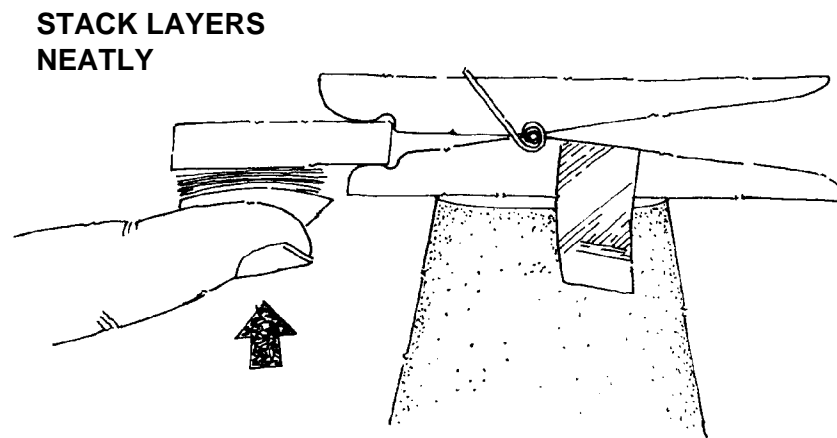
Procedure

- 1 Work with a partner.
- 2 Clamp your magnet in the clothespin. Tape the clothespin to the bottom of the cup as shown in the sketch.



- 3 Pull out one end of a paper clip to form a hook. Touch the hook to the magnet. Does it stick?
- 4 Take turns with your partner and carefully add paper clips to the hook, one by one.
- 5 Count the total number of paper clips that you can hang onto the hook before the weight becomes too much for the magnet to hold and the paper clips fall. Write this number of paper clips on your data sheet on the line for *zero pieces of tape*.

- 6 Next, cut three squares of masking tape (1 X 1 inch; 2.5 X 2.5 cm). Stick the three pieces of masking tape on the bottom of your magnet. See the picture below. Now repeat your experiment and see how many paper clips you can hang on the hook. Make sure the hook touches the tape, not the magnet itself. Record your findings on your data sheet.



- 7 Cut three more squares of tape, add them to the layer already present, and repeat your experiment. Record your findings on your data sheet.
- 8 Keep adding pieces of tape, three at a time, repeat the experiment, and record what you find. As you add more and more layers of tape, what do you notice about the number of paper clips you can add to the hook? Is the magnet able to hold more or fewer clips? Do you think the tape is causing this? How? What experiment(s) could you do to test your explanation? Try it.
- 9 Use your findings to help the group complete a graph that describes the results of your experiment.

Communicating Science

Make a copy of the data and graph in your science journal and write your explanation for the results. Write your ideas for experiments to test your explanations, record the results of those you try, and analyze them to see whether they back up your explanation or require you to change it.

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Data Sheet

How Many Layers of Tape?	How Many Paper Clips?
0	
3	
6	
9	
12	
15	
18	
21	