

Name: _____ Date: _____ TOC: _____

Magnetic Field Experiments

Filings in a Bag

This activity will help you visualize the magnetic field and magnetic field line. Softly, shake the ziplock bag. DO NOT OPEN THE BAG! Place the small bar magnet on the table. Lie the ziplock bag over the bar magnet. Lightly tap or pull the bag, so the filings fall away from the magnet. The filings left show the strongest places on the magnet. Look at the orientation of the filings, what directions are they pointed?

Draw the filings on the magnet below.



Dish Filings

Place the disc magnet underneath the dish and gently shake the dish. Hint: After you shake the dish, tip it gently to one side, allowing the “extra” iron filings to move away from the magnet. This will allow you to better “see” the lines of force in each magnet.

What do you see? _____ Notice how the magnet “grabs” the filings in certain areas of the magnet. There should be a few separations, or breaks, in the pattern of the iron filings, which indicate the separation between the poles of the magnet if this magnet has a south and north pole on each side of the disc. Draw the filings around this disc magnet.



Now try this experiment using the red bar magnet. What do you see now? The strength of any magnet lies in its poles, and so this is why the iron filings are attracting around either end of the bar magnet. The separation between the poles in this magnet, then, is clearly in the middle of the bar magnet where there are no or very few filings. Draw the filings around this bar magnet.



Amazing Magnets

Does the magnetic force of a magnet travel through glass? Plastic? Water? Test out the magnet in the following situations.

Hypothesis: Glass: _____ Plastic: _____ Water: _____

Place some paperclips in the glass jar. Bring the magnet near the outside of the jar. Can you make the paper clips move? _____. Were you able to get the clips out of the jar without putting your hand in the jar or the magnet in the jar? _____

Now try the plastic beaker. Place some paperclips in the plastic beaker. Bring the magnet near the outside of the beaker. Can you make the paper clips move? _____. Were you able to get the clips out of the beaker without putting your hand in the beaker or the magnet in the beaker? _____

If you were able to get the paper clips out of the beaker, then try this. Place some paperclips in the plastic beaker. Add water to the beaker. Bring the magnet near the outside of the beaker. Can you make the paper clips move? _____. Were you able to get the clips out of the beaker without putting your hand in the jar or the magnet in the jar? _____