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**Basic Electronics - DC Magnetism**

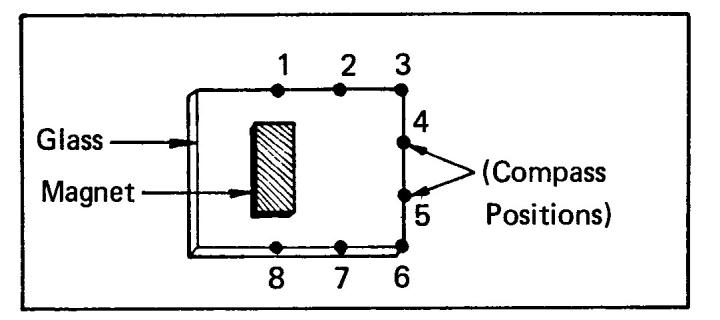
**Lab Activity Handout #1 - Show the existence of magnetic lines of force around a magnet.**

I. Equipment and Materials

* + 1. One magnet
    2. Compass
    3. Flat piece of glass or clear Lucite (approximately 8” X 10”)
    4. Shaker of iron filings II.

II. Procedure

* + 1. With a compass at least five yards away from the magnet, see that the needle points to earth’s “north.”
    2. Bring the compass to within four inches of one pole of the magnet and observe the change in the compass needle indication.
    3. Bring the compass to within four inches of the magnet’s other pole and observe the change in the compass needle indication.
    4. Place the magnet under the center of the flat piece of glass.
    5. Using the sketch below, move the compass into the positions indicated by number.
    6. Record the needle indication at each of the positions.



1. With the magnet still under the center of the flat piece of glass, sprinkle iron filings on top of the glass.
2. Observe the lines of flux indicated by the iron filings.

I. Make a sketch of the pattern formed by the filings

Answer the following questions and hand in for a grade.

1. Does the compass indicate that there is a force surrounding your magnet?
2. Do the compass indications show the direction of the flux lines? Explain why your compass indicates the flow.
3. Do the iron filings concentrate at the poles?
4. Why are the lines of flux spread out when not in the vicinity of the poles? Give two reasons.
5. Do the lines of flux cross each other?
6. Give at least three other characteristics of magnetic fields that are illustrated by the position of the iron filings.

J. Return the materials to their storage area