Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Class:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_/\_\_\_/\_\_\_

**Basic Electronics – DC Magnetism**

**Lab Activity Handout #2 - Demonstrate that magnetic poles can attract and repel.**

1. Equipment and Materials
   * 1. Two magnets
     2. Piece of flat glass (approximately 8” X 10”)
     3. Small piece of iron
     4. Small piece of brass
     5. Shaker of iron filings II.

Procedure

* + 1. Place one magnet on a smooth surface.
    2. Bring the north pole of the other magnet close to the north pole of the first one.
    3. Observe and record the action of the magnets.
    4. Repeat steps A, B, and C, but bring the north pole of one magnet close to the south pole of the other.
    5. Observe and record the action of the magnets.
    6. Place the magnets under the glass with *unlike* poles opposite, but not touching, each other.
    7. Sprinkle iron filings over the glass, tap glass gently to define lines of force, and sketch the resulting pattern.
    8. Lift the glass and replace the iron filings into the shaker.
    9. Place the magnets under the glass with *like* poles opposite, but not touching, each other.

1. Sprinkle iron filings over the glass, tap glass gently to define lines of force, and sketch the resulting pattern.
2. Replace the filings into the shaker.
3. Place one magnet under the glass.
4. On one end of the glass, place the small piece of iron close to the pole of the magnet but not directly over the pole.
5. On the other end of the glass, place the small piece of brass close to the other pole of the magnet but not directly over the pole.
6. Sprinkle iron filings on the glass, brass, and iron pieces.
7. Sketch the resulting pattern.

Answer the following questions and turn in for a grade.

1. Explain the reactions of the magnets in steps A, B, C, and D.
2. Explain how the sketches of like poles and of unlike poles show that there are forces of repulsion and attraction.
3. What happened to the lines of force as they passed through the small piece of iron?
4. What happened to the lines of force as they passed through the small piece of brass?
5. Do the lines of force also pass through the glass?
6. Explain your sketch made in step P.
7. Clean up and return all materials to their storage area