Lenz’s Law Activity:

**Part 1**

You will be using the following setup for this activity.

**It is important that you note the direction of the windings on the solenoid. The two apparatuses above will give different results!**

First use a battery to observe the motion of the galvanometer needle when exposed to a current. **BE VERY CAREFUL TO ONLY TOUCH CONNECT THE BATTERY OR YOU WILL DAMAGE THE GALVANOMETER.**

With no current flow the needle is in the center.

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**Show how the needle deflects for each connection.**

**Part 2: Lenz’s Law**

1. On each diagram indicate the direction that the needle deflects on the galvanometer.

 N

 N

 S

 S

N

N

S

S

2. On each diagram indicate the direction of current in the solenoid.

3. On each diagram indicate the direction of the induced magnetic field in the solenoid.

4. On each diagram indicate the polarity induced in the solenoid (North/South).

Conclusion:

Can you come up with a SIMPLE RULE that describes what happens in ALL CASES above?

**Summary:**

1. When the north pole of the magnet was moved toward the left end of the solenoid, the left end of the solenoid became a \_\_\_\_\_\_\_\_\_\_\_\_\_ pole.

2. When the north pole of the magnet was moved away from the left end of the solenoid, the left end of the solenoid became a \_\_\_\_\_\_\_\_\_\_\_\_\_ pole.

3. When the south pole of the magnet was moved toward the left end of the solenoid, the left end of the solenoid became a \_\_\_\_\_\_\_\_\_\_\_\_\_ pole.

4. When the south pole of the magnet was moved away from the left end of the solenoid, the left end of the solenoid became a \_\_\_\_\_\_\_\_\_\_\_\_\_ pole.

5. When the north pole of the magnet was moved toward the right end of the solenoid, the right end of the solenoid became a \_\_\_\_\_\_\_\_\_\_\_\_\_ pole.

6. When the north pole of the magnet was moved away from the right end of the solenoid, the right end of the solenoid became a \_\_\_\_\_\_\_\_\_\_\_\_\_ pole.

7. When the south pole of the magnet was moved toward the right end of the solenoid, the right end of the solenoid became a \_\_\_\_\_\_\_\_\_\_\_\_\_ pole.

8. When the south pole of the magnet was moved away from the right end of the solenoid, the right end of the solenoid became a \_\_\_\_\_\_\_\_\_\_\_\_\_ pole.