Name: _____ Date: _____

The Good, the Bad and the Electromagnet Worksheet

Answers

Procedure

1. **Leaving 3 to 4 inches at either end of the wire, wrap the wire around the straw. Attempt to keep the wire all together in a small area.**
2. **Using the scissors, cut off the straw before and after the wire coil.**
3. **Using the blade of the wire strippers, strip the coating off the wire ends.**
4. **Spread loose staples out on a table.**
5. **Using alligator clips, connect the wire to the terminals of a battery.**
6. **Try using the coil, which is now an electromagnet, to pick up the staples. Record how many staples you were able to lift at once: _____**
7. **Disconnect the battery.**
8. **Now, slip the nail into the straw sleeve so that the wire coil is ~~now~~ positioned around the nail.**
9. **Reconnect the battery.**
10. **Attempt to pick up the staples again. Record how many staples were picked up this time: _____**
11. **Which set-up enabled you to pick up more staples? Why?**

Possible answer: After the nail was slipped into the straw sleeve and the wire coil was positioned around the nail, we were able to pick up more staples. With an iron core, the solenoid is stronger, and able to pick up more staples than before.)

12. **List three things you could do to increase the intensity of your electromagnet (use the number of staples picked up as the dependent variable):**

Possible answer:

- Wrap more coils of wire around the straw.
- Add an extra battery in series.
- Bundle multiple iron nails together and wrap the wire around them.