Activity 1: Magnetism from Electrical Flow

Data Sheet

Name_____

Date_____ Per___

As you work through the lab activity, record your data and observations on this sheet.

Procedure

1. Which part of the room is the compass needle pointing towards when you hold it in front of you? _____.

Where does the needle point when you bring some iron or steel close to it? _____.

2.

a) Draw figure 1.1. Show the direction the needle points when electricity is flowing through the wire. Show the direction of the electron movement.

b) Draw figure 1.2. Show the direction the needle points when electricity is flowing through the wire. Show the direction of the electron movement.

c) Describe how you could make the needle point in the opposite direction **without** changing the position of the wire. _____
_____
_____

d) Explore how distance affects the strength of the magnetic force. Describe what you did to find this out, and what you found out. _____
_____
_____
_____

e) Because the compass needle is deflected in the region around the current-carrying wire, you can conclude that there is _____ _____ around a current-carrying wire.

f) The magnetic field both above and below a current-carrying wire is _____.

g) To change the direction of the magnetic field above a wire, you would have to change the _____ of the electron flow in the wire. Without moving the wire above the compass, you can do this by _____ _____.

h) The magnetic field around a current-carrying wire is stronger _____ _____.

3. Use the "Left Hand Model" to predict the direction of the magnetic field in Figure 1.5…

a) At point a: _____

b) At point b: _____

c) At point c: _____

d) At point d: _____

e) Draw figure 1.6. Use the "Left Hand Model" to predict the directions of the compass needles, and draw them in.