

Worksheet 2.1

Name: _____

Date: _____

1. Draw what you think Earth's magnetic field looks like.
2. In your explorations of your school and classroom, where did you find magnetic fields?
3. What were the shapes of the magnetic fields like? How could you tell?
4. Were the magnetic fields constant in time?
5. What had the strongest magnetic fields? How did you determine which had the strongest magnetic fields?

Worksheet 2.2

Name: _____

Date: _____

1. Describe your observations of the compass near the electric circuit before and after there was current flowing in it.
2. What happens to the compass needles placed around the coil of wire when the switch was thrown starting current flowing in the circuit? Draw what you see.
3. Does the coil of wire attract paper clips like a magnet does?
4. What happens when the coil is placed on a magnet and then the electricity is turned on?
5. How are magnets and coils of electrical current alike and different?

Worksheet 2.3

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In the table below, record your observations for the 6 different configurations of your electrical circuit in Step 6 of Activity 2; for example, the short coil with 2 batteries in series. Be as qualitative as you like in the compass deflections. You could simply state that the closest compass (compass 1) deflected strongly, weakly, or not at all for a given configuration. Use a ruler, if you can, to measure the horizontal distance that the coil shoots.

	Low Voltage (1 Battery)	Medium Voltage (2 Batteries)	High Voltage (3 Batteries)
Short Coil	Compass Deflection: 1. 2. 3. Coil Distance:	Compass Deflection: 1. 2. 3. Coil Distance:	Compass Deflection: 1. 2. 3. Coil Distance:
Long Coil	Compass Deflection: 1. 2. 3. Coil Distance:	Compass Deflection: 1. 2. 3. Coil Distance:	Compass Deflection: 1. 2. 3. Coil Distance:

What configuration produces the strongest magnetic field?

What factors affect the strength of the magnetic field produced by a coil? Does distances from the coil make any difference?

Worksheet 2.4

Name: _____

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1. What did you have to do to make the needle move on the galvanometer/ammeter, indicating that current was flowing?
2. If you observed a current, how strong was that current?
3. Did the different magnets produce different sizes in current? If so, how were the magnets different?
4. Did different coils produce more or less current? How were the coils different?
5. What factors do you think affect the size of the current induced in the circuit, and in what ways?