Electricity and Magnetism Worksheet Key, Part 4

Name: ______________________________

1. My coil has __160__ turns in it. Move the magnet near your coil and write your observations in the box below.

   Students should make observations such as:
   
   Students should see a deflection of the ammeter needle when the permanent magnet is moved near the coil.
   
   If the magnet is held still, the ammeter indicates a current of “0”.

2. What happens when I move the magnet faster or slower?

   When the magnet is moved quickly, the current on the ammeter is higher.
   
   When the magnet is moved more slowly, a lower current is detected.

What happens when I change the direction of movement?

   A positive current is obtained by moving the magnet in one direction with respect to the coil.
   
   If this direction of movement is reversed, the current becomes negative (flows in the opposite direction).

My new coil has _________ turns in it. How does the number of turns affect the current produced by moving the magnet?

   For this, we need to compare similar speeds of magnet movement. If we do this, the current produced in the coil will be proportional to the number of turns in the coil (higher number of turns will produce higher currents).

3. What happens when I open or close the speaker circuit?

   When the speaker circuit is opened or closed, the coil moves with respect to the magnet, causing the diaphragm to move and make a noise. A constant current produces no movement of the coil or diaphragm.
4. Here is how I built a motor:

Students should include sketches and text to document their motor building activity.