Name: _____ Period: ____Date: _____

AP Physics 2

Lab #5-1: Let's Play With Magnets!

I. *In the first part of this activity, we will use a variety of magnets, compasses and other equipment to explore the magnetic force. In each box below, set up each of the scenarios and complete the corresponding row as completely as possible.*

Scenario setup	**Description – *what did it look like?***	**Explanation – *why did it happen?***	**Diagram of magnetic field**
Make a compass move without touching it; make sure you try rotating the magnet, too			
Surround a bar magnet with several compasses on either side			
Move the compass needles in the clear plastic apparatus by sliding and rotating a bar magnet over its surface			
Draw facial hair on the "Magnet Face" toy using the magnetic stylus			
Make a compass needle move by running current through the clear plastic stand apparatus (use R starting at 100Ω!)			
Alter the image on the Apple][e monitor with a variety of magnets			

II. *In the second part of this activity, we will use a Vernier LabQuest and a magnetic field sensor to further explore the magnetic force. For each scenario below, describe your procedure, draw a figure of your setup, and report and explain your results as completely as possible.*

1. Determine the direction and field strength of the Earth's magnetic north pole.

2. Determine the field strength of the most powerful permanent magnet used in this lab activity. *(remember that the Earth's magnetic field will affect your results!)*

3. Show that the magnetic field that results when current goes through a straight wire follows the right-hand rule.

4. Show that the magnetic field strength is related to the distance from a straight wire with current going through it. *(make discrete measurements with a ruler!)*