Strong and Weak Acid-Base Lab

The purpose of this simulation is to determine the differences in pH for weak versus strong acids.

You will use the simulation at:
http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/flashfiles/acidbasepH/ph_meter.html

Procedure:

1. Before beginning the simulation, calculate the expected pH for a strong acid with molarity of $1x10^{-3}$ M. Enter it in the table below.
2. On the simulation, you should see a list of several acids. You will be testing the pH of various concentrations using a pH meter.
3. Set the molarity = $1x10^{-3}$ M. Use the buttons on the pH meter to test the pH of the solution by clicking on "Insert Probes".
4. Record your data in the table below.
5. Click "Remove Probes" and choose another acid. You also need to fill in the names of each acid you are testing.
6. Repeat the above steps for the bases.
7. Choose one unknown and repeat the above procedure. Determine whether it is a strong acid or base.

Table of pH and [H+] for various acidic solutions

		1 x 10^{-3} M		
	Expected pH			
Formula	**Name**	**pH**	**[H_3O^+]**	Strong/ Weak (S/W)
HCl				
H_2SO_4				
$HC_2H_3O_2$				
HF				
$HC_3H_5O_3$	Lactic Acid			
HNO_3				
$HClO_2$				
HNO_2				

Table of pH, $[H_3O^+]$and [OH-] for various basic solutions AND unknown

		1 x 10^{-3} M			
Expected pH					
Formula	**Name**	**pH**	**$[H_3O^+]$**	**[OH-]**	Strong/ Weak (S/W)
NaOH					
KOH					
NH_3					
$(CH_3)_2NH$					
$Ca(OH)_2$					
$C_6H_5NH_2$					
$HONH_2$					
Unknown					

1. What is the difference between strong and weak acids in terms of pH?

2. Sulfuric Acid has a pH lower than expected. Explain why that is possible?

3. Describe the expected reaction of a strong and weak acid with magnesium metal.