**Simulation Activity – Acid & Base**

**Part 1) Learning about the Simulation**
Play with the simulation “**Acid-Base Solutions**”. Notice there are two tabs in the simulation (“Introduction” and “Custom Solution”) (available at [http://phet.colorado.edu/en/simulation/acid-base-solutions](http://phet.colorado.edu/en/simulation/acid-base-solutions)).

1. What kinds of solutions can be tested in the simulation?

_________________________________________________________________________________________________________________________

_________________________________________________________________________________________________________________________

2. What tests can be performed?

_________________________________________________________________________________________________________________________

_________________________________________________________________________________________________________________________

_________________________________________________________________________________________________________________________

3. What do the tests measure?

_________________________________________________________________________________________________________________________

_________________________________________________________________________________________________________________________

4. What other information does the simulation include?

_________________________________________________________________________________________________________________________

_________________________________________________________________________________________________________________________

_________________________________________________________________________________________________________________________

**Part 3) Extending Learning**
After having completed part 2) on the next page, return to this question:

Is it possible for a solution of weak acid and a solution of strong acid to have the same pH? If so, will the acid have a low pH, a neutral pH (near 7), or is any value possible?

Make an initial prediction and investigate with the simulation.

_________________________________________________________________________________________________________________________

_________________________________________________________________________________________________________________________
**Part 2) Using the Simulation to Learn About Acids & Bases**

Select and test different solutions. In each case describe your test & observations, then answer the question in terms of the particles in solution, the chemical equation, and numerical information. You may need to perform several experiments with different solutions to answer a given question. Be prepared to share your findings.

<table>
<thead>
<tr>
<th>Question</th>
<th>Tests &amp; Observations</th>
<th>Particle Description</th>
<th>Chemical Equation</th>
<th>Numerical Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>How is a base different from an acid?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How is a strong acid different from a weak acid?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How is an acid with a high initial concentration different from one with a low initial concentration?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>