Chemistry 1 Name

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Unit 8: Acids and Bases

# Solutions Lab Practical

## Opening Discussion

How is knowledge of different ways of analyzing properties of solutions helpful to chemists working in laboratories?

## Skills

Together, with a partner, you will be analyzing four (4) different **AQUEOUS SOLUTIONS** using five (5) of the following skills for **EACH** solution.

1. Identify the correct name of the solution from the given chemical formula (A-F)
2. Given 2 of 3, calculate Molarity, moles, OR volume of a solution.
3. Choose a lower concentration and write basic instructions for diluting a solution.
4. Given 2 of 3, calculate molality, moles OR kilograms of a solution.
5. Calculate the mass percentage of solute in the solution.
6. Use Insta-check 0-13 pH strips or Hydrion Papers (1 to 12) to check the pH. (A-F)
7. Calculate the pOH of a solution using the solution's pH value. (A-F)
8. (For solution B only) Use the solution's Molarity value to calculate the pH.
   (For solutions C only) Use the solution's Molarity value to calculate the pOH.
9. Show a solution involved in a precipitation reaction with another solution and report the balanced net ionic equation from the reaction along with the spectator ion that would be present.

## Procedure

1. Conduct your analysis of 4 different solutions (A-F) using 5 of the 9 skillettes above.
2. Organize your data for each solution in the same way (chart, graphic organizer, etc).
3. When your analysis of the 4 solutions is complete, compose a report to detail the findings.
4. Share the results of your analysis with classmates.

## Solutions Reference

SOLUTION A: 175 mL of 3 *M* $HC_2H_3O_2$ (aq)
SOLUTION B: 125 mL and 0.0130 mol of $HNO_3$ (aq)
SOLUTION C: 0.400 mol of 2 *M* $NH_4OH$ (aq)
SOLUTION D: 0.499-m solution contains 21.23g $AgNO_3$ (aq)
SOLUTION E: 0.174 mol $Na_2CO_3$ in 150g water
SOLUTION F: 0.261-m solution contains 0.0521 mol $CuSO_4 \cdot 5H_2O$

## Grading Rubric

**Score: _____/35**

1. Student participation in class discussions before the activity and/or in sharing the results of their analyses. _____/5

2. Report includes an analysis of four different solutions. _____/4

3. Each solution was analyzed using five or more of the nine skillettes. Results for each solution are clearly reported. _____/20

4. Report is neat, free of misspelled words, and typed or written in blue/black ink. _____/6