

Supporting Information

Mobile app to quantify pH strips and monitor titrations: smartphone-aided chemical education and classroom demonstrations

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Technician's Notes

5x Miniso tablet lamp (soft light)
5x Lab stand
5x Stir bar
5x Stir plate
5x Kimwipes
5x 25 mL graduated cylinder
30x 150mL beakers
5x 1 tsp measuring spoon

Determining the pH of different solutions (Experiment 1)

Preparation of acidic and basic solutions

Lemon or lime juice

Combine 10 mL of juice with 40mL of distilled water

Windex Solution

Combine 5 sprays of Windex with 40mL of distilled water

Vinegar

20 mL of white vinegar (5% acetic acid by volume) in a beaker

Baking soda solution

Add 1 teaspoon of baking soda (NaHCO_3) to 40mL of distilled water

Dry ice in water

Add a small piece of dry ice (CO_2) to 40 mL of distilled water

Measure the pH of each solution using universal pH paper, ranged paper, and pH probe.

Materials and equipment needed for performing acid-base titration (Experiment 2)

All equipment used in Experiment 1 will be required for Experiment 2. Materials needed for preparing solutions are as follows (per group):

20 mL vinegar with 5% acetic acid
1.0 M sodium hydroxide solution (NaOH)
1 mL plastic gas syringe
25 mL Erlenmeyer flask
Merck universal pH indicator (pH 4.0-10.0)

Disposal

All solutions are to be disposed of in the dedicated aqueous waste.

All pH papers and left over / unreacted baking soda is to be disposed of in the solid waste.