Purpose: To find the pH and concentration of citric acid in Pixi Stix.

Procedure:

1. Weight 5g of the solid.
2. Dissolve in 0.05L of water until solution.
3. Add two drops of phenolphthalein.
4. Titrate 0.10M sodium hydroxide into 0.01L of acidic solution.
5. Stop titrating once solution turns pink, indicating neutral pH.
6. Measure final volume of solution.
7. Calculate final concentration of sodium hydroxide (M2), giving the concentration of the citric acid.
8. Use this value (M2) to determine pH.
9. Repeat two more times.

Materials:

* 2.5 Pixi Stix (5g)
* 0.05L water
* 0.04L sodium hydroxide
* Filter paper
* Pipette
* 2 graduated cylinders
* 2 beakers

Data:

Trial 1:

* 0.01L citric acid and water solution
* 0.003L of sodium hydroxide needed to neutralize solution
* Final volume: 0.013L

Trial 2:

* 0.01L citric acid and water solution
* 0.0057L of sodium hydroxide needed to neutralize solution
* Final volume: 0.0157

Trial 3:

* 0.01L citric acid and water solution
* 0.0043L of sodium hydroxide needed to neutralize solution
* Final volume: 0.0143

Calculations:

Conclusion:

By the end of this lab we understood that acids play a role in many aspects of our daily lives. We understood that for calculating the pH of a candy, we should dissolve it in water, and in the second step for getting rid of the unnecessary materials we must filter it. Also, phenolphthalein plays a big role in this lab, if it wasn’t available in the beaker, the colour of our solution couldn’t change from orange to pink. We used M1V1=M2V2 formula. In this case the M1 & V1 are the concentration and volume of the base (NaOH), and M2 & V2 are the concentration and volume of the citric acid (final product). Based on our data and [H3O+], it makes sense that the final pH will be between 1.5 and 2, as the pOH of the base is approximately 13.