Invisible Ink

Background Information

- Baking soda, or sodium bicarbonate ($\text{NaHCO}_3$), is a common household item typically used for cleaning, personal hygiene, and as a deodorizer.

- Grape juice is high in tartaric acid ($\text{C}_4\text{H}_6\text{O}_6$) as well as malic acid ($\text{C}_4\text{H}_6\text{O}_5$) which makes a solution acidic once exposed to the juice.

![Tartaric Acid](image)

![Malic Acid](image)

Materials

- Safety Goggles
- Gloves
- Grape Juice Concentrate
- Baking Soda
- Paper (thicker the better)
- Q-tips or brushes
- Cup for mixing baking soda
- Water

Procedure

- Mix ¾ cup of water with a ¼ cup of baking soda. Wet a Q-tip/brush with the solution and write a message on the paper.

- Let the paper dry.

- With a second Q-tip/brush, coat the paper with grape juice concentrate.

- The letters will change color to reveal your message.