

Name:

Date:

Class:

Solution and Gummy Bear Recipes – Teacher Prep

Salt and Sugar Solutions

Purpose: Create the salt and sugar solutions.

Materials and Equipment

- 1 hotplate
- 1 stirring rod or spoon
- 2,000 mL distilled or tap water
- 35 g table salt (NaCl)
- 250 g sugar
- 2 1,000 mL beakers or heat-safe containers
- safety goggles and heat-resistant gloves

Procedure

Prepare each solution separately (salt solution and sugar solution):

1. Pour 1,000 mL of water into a large heat-safe beaker.
2. Place the beaker on a hot plate.
3. Heat the water to approximately 50–70°C (hot but not boiling).
4. Slowly add salt (or sugar) while stirring continuously until fully dissolved.
5. Once dissolved, remove from heat and allow the solution to cool slightly.
6. Pour the cooled solution into an appropriately labeled 1 L container:
 - salt solution
 - sugar solution

Gummy Bear Prototypes

Purpose: Make three gelatin “recipes” that differ only in the liquid used. Each batch will use the same gelatin amounts, mold size, and heating/cooling process. The only difference is the type of liquid used.

Materials and Equipment

- 3 silicone molds such as [mini ice cube trays](#), [pop it fidgets](#), or [gummy bear molds](#) with at least 30 cavities each (use same size for all gummy prototypes to reduce variability)
- 9 oz total, 3 oz each of 3 different flavored gelatin mixes (1 flavor/color per batch)
- 1.5 oz total, 0.25 oz each packet, of unflavored powder (6 envelopes at 0.25 oz each; use 1.5 envelopes per batch)
- 1/3 cup water
- 1/3 cup salt solution
- 1/3 cup sugar solution
- measuring cups
- 3 heat-safe bowls
- hot plate

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- stirring rod or spoon
- refrigerator

Procedure

1. Label three bowls:
 - a. Bowl A: Water gummies
 - b. Bowl B: Salt solution gummies
 - c. Bowl C: Sugar solution gummies
2. Add dry ingredients (same for all 3) to each bowl:
 - a. 3 oz flavored gelatin mix
 - b. 0.67 oz unflavored gelatin ($\frac{1}{3}$ of total 2 oz)
 - c. Mix dry powders first so they distribute evenly.
3. Add the liquid to each bowl:
 - a. Bowl A (Water gummies) - $\frac{1}{3}$ cup plain water
 - b. Bowl B (Salt gummies) - $\frac{1}{3}$ cup salt solution
 - c. Bowl C (Sugar gummies) - $\frac{1}{3}$ cup sugar solution
4. Let each bowl sit 5–10 minutes so gelatin hydrates.
5. Warm each mixture over medium-low heat.
6. Stir each bowl until fully dissolved (~2 minutes) Note: All three should look identical in texture and clarity at this stage.
7. Pour each mixture into identical silicone molds.
8. Keep volume per cavity as consistent as possible.
9. Refrigerate 15–20 minutes (or until fully set).
10. Chill in the refrigerator until the gummies are set. (This should only take 15-20 minutes.)
11. Once set, pop gummies out of molds and place accordingly into 3 separate labeled containers: water, salt solution, and sugar solution.

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