



Food Science/ Healthy Living:

Bonus Lesson

Project: Snack – Fruit Roll-Ups

Supplies:

- 9 cups ripe or slightly over-ripe fruit, diced
- 6 Tablespoons sugar
- 3 Tablespoons honey
- 4 teaspoons lemon juice
- Food processor
- 3 baking sheets or 9x13 baking pans
- Oven
- Plastic wrap or silicone baking mat
- Parchment paper (optional)
- Scissors
- Spatula
- Clock or timer
- Lab notebook or table below

Time: 6-8 hours

What to Do:

1. Preheat oven to lowest temperature - 140°F or higher.
2. Puree all ingredients in a food processor or blender until smooth.
Control: 3 cups fruit + 2 tsp. lemon juice + 3 Tbsp. sugar
Test 1: 3 cups fruit + 2 tsp. lemon juice + 3 Tbsp. honey
Test 2: 3 cups fruit + 3 Tbsp. sugar
3. Pour onto a baking sheet lined with plastic wrap, or a silicone baking mat (don't use foil, parchment, or waxed paper), and spread to 1/8" thick.
4. Place in oven and bake for 6-8 hours, until center is not tacky anymore.
5. Remove from oven and peel off of baking sheet.
6. Cut into strips and roll in parchment or plastic.
7. Store in airtight container or freeze.

Reflect:

1. Why does the fruit need to be a smooth puree without chunks before baking?
2. What role does the lemon juice play?
3. What are other ways to dehydrate the fruit puree without an oven?

	Control	Test 1	Test 2
Describe the texture.			
Describe the flavor.			
Describe the color.			
Describe the sweetness.			
Which one do you prefer?			

Apply:

Dried fruits are a great snack, being convenient and easy to pack no matter the season or activity. This process is a very good way to use fruit with ugly spots, bruises, or overripe. Dried fruits can also be added to granola or hot cereals, salads, pilafs, meat dishes and much more.

To cook dried fruit, cover with boiling water and simmer covered until tender (about 15 minutes). If needed, sweeten to taste near the end of cooking or after removing from heat. Most dried fruits need no extra sweetening. If desired, add a few grains of salt to help bring out the fruit's natural sweetness, or add a little lemon, orange or grapefruit juice just before serving. This helps give fruits a fresh flavor and adds vitamin C.

To reconstitute fruit for use in a cooked dish, such as a pie, place it in a bowl and cover with boiling water. Let soak until tender and liquid is absorbed (one hour or longer). Thinly sliced fruits may not require soaking before using in cooked dishes. Reconstituted or dried fruits are excellent in cobblers, breads, pies, puddings, gelatin salads, milk shakes and cooked cereals. Any liquid that remains after soaking can be used as part of the water needed in the recipe.

<http://extension.colostate.edu/topic-areas/nutrition-food-safety-health/drying-fruits-9-309/>

Background:

Drying preserves food by removing enough moisture so that bacteria, yeasts, and molds cannot grow and spoil the food. Enzymes are chemicals in all fruits and vegetables which cause them to ripen. Enzymes may cause browning, loss of vitamins and loss of flavor. Drying slows down, but does not stop the action of enzymes. Pre-treating with heat, ascorbic acid, or sulfur dioxide can stop enzyme action and oxidation. Fruit is ideal for drying because of its naturally high sugar content. Fruit is high in acid and thus less prone to spoilage and microorganisms.

<http://www.uaf.edu/files/ces/preservingalaskasbounty/fruitleather/>

Some foods such as apples, pears, peaches, and apricots dry better when pretreated. Pretreatment reduces oxidation, giving a better color, reducing vitamin loss, and lengthening shelf life. Research studies have shown that pretreating with an acidic solution enhances the destruction of potentially harmful bacteria during drying.

<https://extension.psu.edu/drying-fruits-and-vegetables>