



Food Science/ Healthy Living:

Project: Fruit – Apple Varieties

Applesauce

Supplies:

- 4 apples –1 of each variety (suggest Jonathan, McIntosh, and Red Delicious, etc. to show differences)
- 4 Tbsp. sugar
- Water
- Salt

Time: 30 minutes

What to Do:

Wash, pare if desired, core, cut in equal width slices, and remove any decayed or bruised spots. Weigh smallest apple and use same weight for each apple. Cook in water $\frac{1}{4}$ the weight for 8 minutes or until at least 1 variety is tender. After cooking, add 1 Tbsp. sugar. Stir until sugar dissolves. Compare apple varieties.

Reflect:

Rate the consistency from 9 = very hard to 1 = very mushy.

Variety	Consistency	Flavor
A.		
B.		
C.		
D.		

Evaluate the flavor of the apples using the hedonic scale.

	Extremely Tart	Tart	Slightly Tart	Very Slightly Tart	Neither Tart Nor Sweet	Very Slightly Sweet	Slightly Sweet	Sweet	Extremely Sweet
A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Which apple variety has the most flavor?
2. Which apple variety breaks up into a sauce?
3. Which apple variety would you use to make applesauce?

Baked Apples

Supplies:

- 5 apples –1 of each variety (suggest Jonathan, McIntosh, and Red Delicious, etc. to show differences)
- 5 Tbsp. brown sugar
- ½ tsp. lemon juice

Time: 30 minutes

What to Do:

Conventional oven: Wash, pare if desired, and core but not to bottom. Put into baking dish, fill cavities with sugar, and add about 1/8 tsp. lemon juice for each apple. Add water to depth of 1 inch. Bake at 375°F until soft. Apples may be baked covered or uncovered. If uncovered, baste with syrup in pan. Compare apple varieties.

Microwave: Using only 1 apple: wash, remove core, but not to bottom. Peel 1 inch strip at top and cut ¼ inch slit half way down. Fill cavity with 1 Tbsp. brown sugar and 1/8 tsp. lemon juice. Place in casserole dish and cover. Cook apple on high 2-4 minutes until tender.

Reflect:

Describe consistency from extremely firm to extremely mushy.

Variety	Consistency
A.	
B.	
C.	
D.	
Microwave Baked	

Evaluate the flavor of the apples using the following hedonic scale.

	Extremely Tart	Tart	Slightly Tart	Very Slightly Tart	Neither Tart Nor Sweet	Very Slightly Sweet	Slightly Sweet	Sweet	Extremely Sweet
A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Which apple variety provides the best flavor for baked apples?
2. Which apple variety provides the firmest texture?
3. Which apple variety would you use to make baked apples?

Apply:

Different varieties of apples are used in the food industry for different types of food products. Texture, flavor, acidity, and color all play a part in what the end product is going to look and taste like. Food scientists tests different varieties of apples in food products (similar to the applesauce and baked apple experiments above) to determine which variety will give the final product the best attributes to produce the best possible product.

Background:

Apples are a source of both soluble and insoluble fiber. Soluble fiber such as pectin actually helps to prevent cholesterol buildup in the lining of blood vessel walls, thus reducing the incidence of atherosclerosis and heart disease. The insoluble fiber in apples provides bulk in the intestinal tract, holding water to cleanse and move food quickly through the digestive system.

It is a good idea to eat apples with their skin. Almost half of the vitamin C content is just underneath the skin. Eating the skin also increases insoluble fiber content. Most of an apple's fragrance cells are also concentrated in the skin and as they ripen, the skin cells develop more aroma and flavor.

Apple Nutrition Facts

(*One medium 2-1/2 inch apple, fresh, raw, with skin)

Calories 81	Iron .25 mg
Carbohydrate 21 grams	Sodium 0.00 mg
Dietary Fiber 4 grams	Potassium 159 mg
Soluble Fiber	Vitamin C 8 mg
Insoluble fiber	Vitamin A 73 IU
Calcium 10 mg	Folate 4 mcg
Phosphorus 10 mg	

*The nutritional value of apples will vary slightly depending on the variety and size.

Source: <https://extension.illinois.edu/apples/nutrition.cfm>