Food Science CDE Product Development Guide for 2026

2026 Scenario

Category: Beverages
Platform: Shelf-stable
Market: Retail

The product development phase of the Food Science CDE is scheduled for Monday, June 1, 2026 at 4:00pm in the Riverview Room (Area J) of the Randolph Riverfront Center.

Teams will have 60 minutes to complete this phase. Each team will be provided with a kit of supplies for product development. No outside supplies are allowed for use during this phase of the CDE. Any of the provided supplies can be used to create the PDP design. Pictured below are the contents of each box. Contents: (4) calculators, (4) sharpened pencils, (4) ball point pens, (4) highlighters, (4) blank index cards, pencil sharpener, eraser, glue stick, scissors, ruler, 10 pack colored markers, 12 pack colored pencils, (10) ½ sheets of construction paper, drawing compass, and protractor.

This year's product development scenario will include additional criteria not features in previous state level events. Continue reading through this guide to learn more.

Additional Criteria for 2026 Product Development Activity

Ingredients and Formulation Requirements

Ingredient Quantities

- All ingredients will be provided and measured in **milliliters (mL)** instead of grams which has been customary for the past several years.
- Students must use mL values when determining:
    - Ingredient proportions
    - Total product volume (along with standard unit of fluid ounces)
    - Nutrition calculations (if applicable)

Cost of Goods Guidelines

Ingredient Costs

- Students will receive cost information for each ingredient.
- Costs will be provided per **100 mL** of each ingredient.
- Teams must calculate:
    - Cost contribution of each ingredient
    - Total ingredient cost per unit of finished product

Packaging Considerations

Students must consider appropriate packaging options for a retail, shelf-stable beverage. This includes evaluating:

- Packaging type (plastic bottle, aluminum can, carton, etc.)
- Shelf stability and food safety
- Cost impact of packaging choices
- Retail appeal and consumer convenience

Product Development Written Response Questions

Teams should be prepared to explain concepts such as, but not limited to:

- Why specific ingredients were selected
- Potential safety and quality issues associated with the product
- How costs influence product pricing and feasibility
- Nutritional qualities of the product
- Why the chosen packaging is suitable for retail sale
- How the product will be manufactured and distributed
- How the product will be promoted to the target market
- Protocol (routines, HACCP, etc.) to ensure the product is safe

Example Product Development Costing Worksheet

1000ml Shelf-Stable Beverage for Retail Sale

Ingredient Costing Table (Example)

Ingredient	Amount Used (mL)	Cost per 100 mL ($)	Calculation	Ingredient Cost ($)
Water	700 mL	$0.02	(700 ÷ 100) × 0.02	$0.14
Concentrate	150 mL	$0.60	(150 ÷ 100) × 0.60	$0.90
Sugar Syrup	100 mL	$0.18	(100 ÷ 100) × 0.18	$0.18
Citric Acid Solution	25 mL	$0.40	(25 ÷ 100) × 0.40	$0.10
Natural Flavor	25 mL	$1.20	(25 ÷ 100) × 1.20	$0.30
Total Ingredient Cost	**1,000 mL**	—	—	**$1.62**

Packaging Cost (Example)

Packaging Component	Cost per Unit ($)
1,000 mL Plastic Bottle	$0.32
Cap / Lid	$0.06
Label	$0.08
Total Packaging Cost	**$0.46**

Total Unit Cost Calculation

Cost Category	Cost ($)
Total Ingredient Cost	$1.62
Total Packaging Cost	$0.46
Total Cost per Unit	**$2.08**