Unit 9: Cake Production

Content Area: **Art**
Course(s):
Time Period: **MP4**
Length: **10 days**
Status: **Published**

Targeted Standards

9.4.12.CI	Creativity and Innovation
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
9.1.2.CAP.3	Define entrepreneurship and social entrepreneurship.
9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).
9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).

Rationale

Commercial cake production sits at the intersection of high-yield baking science, artistic precision, and strict cost control. In restaurant and catering operations, the cake/dessert station (Pâtissier) contributes significantly to higher check averages and overall menu profitability. Third-year culinary students must advance beyond basic cake baking to master large-scale batter emulsification, tiered assembly logistics, advanced icing techniques, shelf-life management, and station profitability. Acting as Head Pastry Chefs, students will direct production timelines, scale formulas, enforce portion metrics, and manage specialty dietary adaptations.

Essential Questions

Content Specific	Skills Specific
• How do different mixing methods impact the density, crumb structure, and shelf life of commercial cake formulas? • How do pastry chefs balance intricate, labor-intensive cake decorating with high-volume profit requirements?	○ How does a Head Pastry Chef organize a multi-tier cake build to ensure stability, proper food safety, and timely service? ○ What troubleshooting strategies can a station manager apply when a batter, icing, or structural assembly fails under production pressure?

Spiraling for Mastery

Content or Skill for this Unit	Spiral Focus from Previous Unit
• Commercial cake production • batter emulsification • buttercream stabilization • structural cake engineering • pastry station costing	• Baker's Math and weight-scaling from Unit 7 • food safety and temperature control • station delegation • menu costing formulas

Career Readiness, Life Literacies, and Key Skills

Please tag the appropriate **2020 NJSLS-CLKS** standards that align with the grade band and content/skills of this unit. This is done by clicking "actions" and then "add standards".

9.4.12.CI.2	Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

Interdisciplinary Connections

How does this unit connect to standards in other disciplines? Add the appropriate **NJ SLS** here, keeping grade bands in mind. This is done by clicking "actions" and then "add standards".

- NJSLS Mathematics — High School (N-Q.A.1, A-REI.A.1):
    - Connection: Working with proportions and percentages in Baker's Math ($Flour = 100\%$), converting weight units (ounces, grams, pounds) for high-yield multiplication, and calculating overall catering event profit margins.
- NJSLS English Language Arts — Technical Reading & Writing (NJSLSA.R7, NJSLSA.W2):
    - Connection: Reading and interpreting technical BEO documents, drafting professional client catering proposals, and composing detailed equipment pack-out checklists.
- NJSLS Science / Chemistry & Biology (HS-PS1-2, HS-LS1-6):
    - Connection: Biochemistry of yeast fermentation ($C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$), gluten matrix formation via mechanical mixing and hydration, thermal death time of

pathogens, and heat retention dynamics in insulated containers.

PS1.A	Structure and Properties of Matter
N.Q.A.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
N.Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
S.MD.B.7	Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).
HS-LS1	From Molecules to Organisms: Structures and Processes
HS-LS1-6	Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.