YALE NATIONAL INITIATIVE
to strengthen teaching in public schools®

Curriculum Units by Fellows of the National Initiative
2026 Volume V: Chemistry of Cooking

# Chemical Transformations: Merging the Science of Food and Culture for Independent Living

Guide for Curriculum Unit 26.05.10, published September 2026
by Vickie Young Weatherspoon

This unit is a 14-week study for special education grades 9-12 Life Skills science class. It will act as a roadmap to teach special education Life Skills students how chemical and physical transformations during cooking can help them understand what happens when they prepare meals for independent living. We will study the chemistry of cooking; connect food studies to biology, chemistry, integrated physics and chemistry (IPC), and environmental science; explore the history of food and cultural heritage experiences; and engage in the kitchen laboratory.

Students will engage in community involvement by taking shopping trips to the local market to purchase the ingredients we will use for cooking. Students will learn how to develop budgets, create shopping lists, plan meals, and experiment with the chemical and physical transformations of ingredients while cooking. Students will learn about careers in the culinary and life science industries to investigate options for post-secondary careers. This capstone project includes a journal, student workbook, recipe book, PowerPoint presentations on the process, and hosting a Thanksgiving dinner for their parents. Working collaboratively as a team, this event serves as an authentic assessment of independent living skills and practical knowledge of the chemistry of cooking.

By the end of the unit, students will be able to:

1. Explain and demonstrate the chemistry of cooking
2. Make connections between all of the cross-curricular applications of scientific principles
3. Create recipes and plan for a Thanksgiving dinner
4. Develop a shopping list and budget for preparing meals
5. Communicate verbal and written scientific observations through journals, student workbooks, PowerPoint presentations, and final Thanksgiving dinner production
6. Explore interests in cooking and chemistry for careers in culinary arts and life sciences

(Developed for Life Skills, Food Science, and Culinary Arts, grades 9-12; recommended for Life Skills, Food Science, and Culinary Arts, grades 9-12)

https://teachers.yale.edu
©2026 by the Yale-New Haven Teachers Institute, Yale University, All Rights Reserved. Yale National Initiative®, Yale-New Haven Teachers Institute®, On Common Ground®, and League of Teachers Institutes® are registered trademarks of Yale University.
For terms of use visit https://teachers.yale.edu/terms_of_use