YALE NATIONAL INITIATIVE
to strengthen teaching in public schools®

Curriculum Units by Fellows of the National Initiative
2017 Volume IV: Chemistry of Cooking

The Math and Science of Kitchen Ratios

Guide for Curriculum Unit 17.04.01, published September 2017
by Jacqueline Alvarado

In the kitchen, sometimes measurements need not be so precise: a pinch of this, a dash of that, or the common phrase “to taste”. Ask any grandma how to make a family dish and I guarantee that while the ingredients and process are very specific, the measurements are not. Baking is the one exception to cooking. Baking is the art of precision and the reasoning behind the necessity of precision is simple math and some kitchen chemistry. The differences in technique, ingredients, and measurements can make a ball of dough for bread, or something that feels like a rock. Every culture in the world has their version of the pancake. The purpose of this unit is to bridge math and science concepts in an engaging, culturally responsive way. It is often difficult to find time for science lessons in a cored or self-contained classroom, when math is at the forefront of scrutiny and high stakes testing. This four-week unit seeks to examine the science behind the ratios in cooking pancakes around the world. The unit is aimed toward middle school students and will best work in a cored math and science block or in a self-contained classroom.

(Developed for Mathematics and Science, grade 6; recommended for Mathematics and Science, grades 6-8)