Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
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Sweet Twinkie, Density and Sugar Chomping Yeast: A Look at Physical and Chemical Reactions in the Kitchen

Guide for Curriculum Unit 09.03.04
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Every day we take part in numerous chemical reactions; you might ask what do Twinkies have to do with it? How does making Monkey Bread fit into the seventh-grade science curriculum? My unit is intended to lead seventh-grade students through an exploration of the physical and chemical properties of matter, more specifically baked treats.

The unit is initiated with a discussion of how chemistry is an important part of all our lives. Initial connections are made by having students discuss what their morning was like and how chemistry played an important role. Before considering the intended food subject area, we first activate prior knowledge of molecules and how they move dependent upon the state of matter (class activity: Movin' Molecules). Second, students will explore the concept of density using a Twinkie. An introduction to chemical and physical properties follows with the concluding portion of the lesson illustrating how mixing/melting ingredients are examples of physical changes while baking those mixed ingredients culminates a chemical change. Lastly, students will see the fermentation process of yeast feeding upon sugar water producing carbon dioxide and alcohol as waste products.

(Developed for Science, grade 7; recommended for Science, Middle School grades)