



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2009 Volume III: Science and Engineering in the Kitchen

Preface

In March 2009, fifty-six teachers from twenty-seven New Haven Public Schools became Fellows of the Yale-New Haven Teachers Institute to increase their preparation in their subjects and to develop new curricular materials for school courses. Established in 1978, the Institute is a partnership of Yale University and the New Haven Public Schools, designed to strengthen teaching and improve learning of the humanities and the sciences in our community's schools. Through the Institute, Yale faculty members and school teachers join in a collegial relationship. The Institute is also an interschool and interdisciplinary forum for teachers to work together on new curricula.

The Institute has repeatedly received recognition as a pioneering model of university-school collaboration that integrates curriculum development with intellectual renewal for teachers. Between 1998 and 2003 it conducted a National Demonstration Project to show that the approach the Institute had taken for twenty years in New Haven could be tailored to establish similar university-school partnerships under different circumstances in other cities. An evaluation of the Project concluded that new Institutes following the Institute approach could be rapidly established in other communities. Based on the success of that Project, in 2004 the Institute announced the Yale National Initiative to strengthen teaching in public schools, a long-term endeavor to establish exemplary Teachers Institutes in states throughout the country. In 2009 *An Evaluation of Teachers Institute Experiences* established that such Institutes promote precisely the teacher qualities known to improve student achievement and epitomize the crucial characteristics of high-quality teacher professional development. Moreover, Institute participation is strongly correlated with teacher retention. In New Haven, Institute participants were almost twice as likely as non-participants to remain in teaching in a New Haven public school.

Teachers had primary responsibility for identifying the subjects on which the Institute would offer seminars. Between October and December 2008, Institute Representatives canvassed teachers in each New Haven public school to determine the subjects they wanted the Institute to address. The Institute then circulated descriptions of seminars that encompassed teachers' interests. In applying to the Institute, teachers described unit topics on which they proposed to work and the relationship of those topics both to Institute seminars and to courses they teach. Their principals verified that their unit topics were consistent with district academic standards and significant for school curricula and plans, and that they would be assigned courses in which to teach their units in the following school year.

Through this process five seminars were organized, corresponding to the principal themes of the Fellows' proposals. The seminar entitled "Science and Engineering in the Kitchen" was led by Eric R. Dufresne, John J. Lee Assistant Professor of Mechanical Engineering, and Assistant Professor of Chemical Engineering and of

Physics. Between March and August, Fellows participated in seminar meetings, researched their topics, and attended a series of talks by Yale faculty members.

The curriculum units Fellows wrote are their own; they are presented in five volumes, one for each seminar. A list of the 192 volumes of Institute units published between 1978 and 2009 appears on the following pages. The units contain five elements: objectives, teaching strategies, sample lessons and classroom activities, lists of resources for teachers and students, and an appendix on the academic standards the unit implements. They are intended primarily for the use of Institute Fellows and their colleagues who teach in New Haven. They are disseminated on Web sites at yale.edu/ynhti and teachers.yale.edu. Teachers who use these units may submit comments at teachers.yale.edu.

Guides to the units written each year, a topical *Index* of all 1744 units written between 1978 and 2009, and reference lists showing the relationship of many units to school curricula and academic standards are online at yale.edu/ynhti.

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New Haven

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