



YALE NATIONAL INITIATIVE

to strengthen teaching in public schools®

Curriculum Units by Fellows of the National Initiative
2010 Volume IV: The Mathematics of Wallpaper

Preface

In April 2010 the Yale National Initiative to strengthen teaching in public schools® accepted sixty-two public school teachers from thirteen school districts in nine communities in eight states to participate in six national seminars held at Yale. The Initiative is a long-term endeavor to establish exemplary Teachers Institutes in high-need school districts in states throughout the country. Following the approach developed in New Haven and demonstrated in other cities, it builds upon the success of a four-year National Demonstration Project. The League of Teachers Institutes® is an alliance that advances their work locally and nationally.

Teachers Institutes are educational partnerships between universities and school districts designed to strengthen teaching and learning in a community's public schools. Evaluations have shown that the Institute approach enhances teacher quality in the ways known to improve student achievement and encourages participants to remain in teaching in high-need schools.

About two thirds of the teachers, named Yale National Fellows, were from five communities that are planning or exploring the establishment of a new Teachers Institute: Chicago, IL; DeKalb County, GA; New Castle County, DE; Richmond, VA; and the Bay Area in CA. Other National Fellows were from existing Institutes in Charlotte, Philadelphia, Pittsburgh, and New Haven that are members of the League of Teachers Institutes. The Fellows attended an Organizational Session of the seminars held in New Haven on May 7-8. The seminars reconvened during a ten-day Intensive Session from July 5-16.

The seminars, which concluded in mid-August when the Fellows submitted their completed curriculum units, included "Connecting the Visual to the Verbal in the Classroom," led by Paul H. Fry, William Lampson Professor of English; "Persuasion in Democratic Politics," led by Bryan Garsten, Professor of Political Science; "Creating Lives: An Introduction to Biography," led by Langdon L. Hammer, Professor of English and of American Studies; "The Mathematics of Wallpaper," led by Roger E. Howe, William R. Kenan Jr. Professor of Mathematics; "Nanotechnology and Human Health," led by W. Mark Saltzman, Goizueta Foundation Professor of Chemical and Biomedical Engineering; and "Evolutionary Medicine," led by Paul E. Turner, Associate Professor of Ecology and Evolutionary Biology.

The twin purposes of the program were to acquaint public school teachers with the Teachers Institute approach to high-quality professional development, and to cultivate their leadership in either creating or sustaining such an Institute. Each participating teacher wrote a curriculum unit to teach his or her students what they had learned, to share with teachers in their school district, and to disseminate to other teachers internationally over the Internet. 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 district academic standards the unit implements. The curriculum units National Fellows wrote are their own; they are

presented in six volumes, one for each seminar.

The Yale-New Haven Teachers Institute is a permanently endowed unit of Yale University, which undertook the National Initiative in 2004. The material presented here does not necessarily reflect the views of its funding agencies.

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New Haven

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