

# Preface

Nearly a decade ago, the National Council of Teachers of Mathematics (NCTM) published *Administrator's Guide: How to Support and Improve Mathematics Education in Your School* (Mirra 2003). In the years since that publication, the educational landscape across the United States in general, and in mathematics education in particular, has dramatically changed. For example, in 2003 the landmark federal legislation No Child Left Behind (NCLB 2002) was barely one year old, and the consequences of the law were not well understood. Today, hundreds of school districts all across the country are facing increasing penalties for failing to meet Adequate Yearly Progress targets; administrators and teachers are under increasing pressure to produce results or face possible termination; schools are being closed or reconstituted; and pressure to change teacher evaluation systems, tenure, and collective bargaining is mounting.

In 2003, no one could imagine the formation of a national math panel. Today, not only has a such a panel—the National Mathematics Advisory Panel (NMAP)—been convened and a report issued (NMAP 2008), but as of this writing, forty-four states and the District of Columbia have adopted voluntary national standards in mathematics, known as the Common Core State Standards for Mathematics (CCSSM), produced by the Common Core State Standards Initiative (CCSSI 2010). In addition, two national assessment consortia—Partnership for the Assessment of Readiness for College and Careers (PARCC) and Smarter Balanced Assessment Consortium (SBAC)—are creating new assessment systems for determining student attainment of the Common Core State Standards for Mathematics. Both assessment systems are currently scheduled for implementation in the 2014–2015 school year.

The last decade has clearly been one of unprecedented and rapid change in mathematics education. Published reports and major documents that have significantly influenced mathematics education since 2003 include the following:

*How Students Learn: Mathematics in the Classroom* (National Research Council [NRC] 2005)

*Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics: A Quest for Coherence* (NCTM 2006)

*Mathematics Teaching Today: Improving Practice, Improving Student Learning* (NCTM 2007)

*Rising Above the Gathering Storm* (Committee on Science, Engineering, and Public Policy [CSEPP] 2007)

*Foundations for Success: The National Mathematics Advisory Panel Final Report* (NMAP 2008)

*Focus in High School Mathematics: Reasoning and Sense Making* (NCTM 2009)



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*Mathematics Learning in Early Childhood: Paths toward Excellence and Equity* (NRC 2009)

*Common Core State Standards for Mathematics* (CCSSI 2010)

The purpose of this updated *Administrator's Guide* is to help school and district leaders make sense of the many recommendations that have been made over the past decade, with a special emphasis on the Common Core State Standards for Mathematics and the similarities between these new standards and those outlined in NCTM's influential *Principles and Standards for School Mathematics* (NCTM 2000). In addition, this guide draws on a number of recent NCTM publications and other NCTM documents, including Position Statements and Research Briefs, and summarizes and organizes many of the recommendations found in these diverse publications in this one guide for the convenience of school administrators and other mathematics education leaders.

Although this publication is titled *Administrator's Guide: Interpreting the Common Core State Standards to Improve Mathematics Education*, anyone who has an interest in improving mathematics teaching and learning can gain something of value from it. Research increasingly indicates that many individuals within a school can and do contribute to the work of leading and managing the school. Influential leadership within schools—that is, the cadre of individuals to whom teachers look for mathematics education guidance and advice on curricular, assessment, and instructional issues—is often widely distributed across a school and not limited to the positional leader (Spillane 2011). Teachers may look to instructional math coaches, colleagues in their professional learning community, mathematics specialists, department chairs, or knowledgeable others to provide them with information on how to improve mathematics teaching and learning. This guide can support anyone who finds himself or herself in the position of working to improve mathematics education—either alone or in the role of supporting others.

Although much has changed in the last decade, one thing has been constant: the National Council of Teachers of Mathematics has remained a global leader and authority in mathematics education. NCTM has steadfastly advocated for changes in school mathematics programs to ensure that all students have access to the highest-quality mathematics teaching and learning, preparing them for success in school today and for college or careers tomorrow in a world of work that can only be imagined. This guide provides a starting place for you, as an administrator or other mathematics education leader, to acquire the knowledge that you need about mathematics education, the Common Core State Standards for Mathematics, and ways in which you can support and improve mathematics education in your school and district.



Go to <http://www.nctm.org/more4u> and enter the access code printed on this book's title page for a version of Appendix A with live links for NCTM resources.

## Acknowledgments

This guide begins by examining the importance of school mathematics for college and career readiness. It then briefly surveys the current state of mathematics achievement within the United States as well as how students in the United States compare with their peers internationally. An explanation of the Common Core State Standards for Mathematics follows, with an emphasis on CCSSM's Standards for Mathematical Practice and their connection to NCTM's Process Standards, as articulated in *Principles and Standards for School Mathematics* (NCTM 2000).

The guide examines the NCTM Principles for a high-quality mathematics program and then provides brief vignettes from elementary, middle, and high school classrooms to give the reader snapshots of high-quality mathematics instruction. From there, the guide moves on to specific actions that school leaders can take to support and improve mathematics education in their school or district. The section "Frequently Asked Questions" offers guidance on questions that often come up in mathematics education.

The guide concludes by presenting a list of additional resources that can support you and teachers as you work together to improve mathematics education within your school or district. Two appendixes supply detailed information about the connections between CCSSM and NCTM's Standards for school mathematics and supporting publications.

Throughout, the guide cites relevant and current research so that you can have confidence in the recommendations that it offers and will be able to defend your own policy and program recommendations to critics. In time, by using this guide and the additional resources that NCTM provides, you can successfully implement CCSSM and make a significant difference in the quality of teaching and learning of mathematics in your school or district.

In many ways, this guide is a combination of two previous NCTM publications. It updates NCTM's *Administrator's Guide: How to Support and Improve Mathematics Education in Your School* (Mirra 2003), in part by incorporating portions of NCTM's *Making It Happen: A Guide to Interpreting and Implementing Common Core State Standards for Mathematics* (NCTM 2010). Some of the material from both of these publications is used here exactly as it originally appeared in them. Readers are encouraged to use *Making It Happen* and its accompanying online database as a tool to support implementation of the Common Core State Standards for Mathematics. Sincere thanks are extended to those who prepared both of these previous NCTM publications.