

NCTM Updating Standards Documents

The National Council of Teachers of Mathematics (NCTM) has begun an effort to revise the mathematics education standards that it published over the last several years. The goal of the project is to combine the three standards documents into one, reaffirm their central message, and revisit the specifics in light of reactions and experiences that have accumulated since the standards were first published.

The first NCTM standards document, *Curriculum and Evaluation Standards for School Mathematics*, appeared in 1989. This document had a large influence not only on many mathematics teachers across the country but also on other academic disciplines, such as history and the sciences, which later sought to produce their own standards. The NCTM published *Professional Standards for Teaching Mathematics* in 1991 and *Assessment Standards for School Mathematics* in 1994. In April 1996 the NCTM launched the four-year project called Standards 2000 to update, refine, and revise the Standards.

The NCTM Standards do not comprise a curriculum or even a curricular framework. Rather, they set forth a general philosophy and approach for effective teaching of mathematics and suggestions for the content of mathematics courses. As with most such documents, the Standards have been both praised and criticized. Many K–12 teachers expressed enthusiasm for the Standards not only as providing a way to improve students' understanding of mathematics but also as an expression of their professional expertise and responsibilities. Many college and university mathematicians also approved of the Standards; indeed, the Standards have much in

common with some of the calculus reform projects developed by mathematicians. On the other hand, some mathematicians have criticized certain aspects of the Standards. (For examples of views on both sides, see the "Forum" section of this issue of the *Notices*.) The generality of the Standards has led to a variety of interpretations of what constitutes a Standards-based curriculum. Certain mathematics curricula claiming to be based on the Standards have come in for heavy criticism, leading some to conclude that the Standards themselves are flawed.

The central tenets of the NCTM Standards—emphasis on understanding over rote memorization, getting students to be active learners, a focus on problem solving, etc.—will remain central in the revision. However, the revision will also take into account advances in technology and "lessons learned" from experimental curricula and calculus reform. In addition, the active discussions over the past decade about what students should learn and which skills are important will inform the revision. Thus the revised Standards are expected to include a reexamination of curricula, new and perhaps extended illustrative examples of content and pedagogy, and an updated look at the possibilities of technology. The NCTM believes that combining the existing three Standards documents into one will provide a better and more coherent vision for mathematics education reform. Mindful of the broad impact of the original Standards and of the many groups who feel they have a stake in them, the NCTM has constructed the Standards 2000 process in such a way as to include

a wide range of views in formulating the new version.

Standards 2000 is overseen by the Commission on the Future of the Standards, appointed by NCTM president Gail Burrill (a list of the Commission members accompanies this article). In addition, there is a network of linked groups working on different aspects of the project. The Writing Groups, which will have responsibility for the actual writing of the revised document, are organized around four grade-level clusters. The chair of the Writing Groups is Joan Ferrini-Mundy of the University of New Hampshire, who is currently executive director of the Mathematical Sciences Education Board of the National Research Council. The leaders of the Writing Groups are: Jeane M. Joyner, Department of Public Instruction, North Carolina (grades pre-K-2); Barbara Reys, University of Missouri-Columbia (grades 3-5); Ed Silver, University of Pittsburgh (grades 6-8); and Alan Schoenfeld, University of California, Berkeley (grades 9-12).

The Association Review Groups (ARGs) consist of members of organizations having an interest in improving mathematics education and providing a way for these organizations to contribute to the project. The ARG for the AMS is chaired by Roger Howe of Yale University; the ARG for the MAA is chaired by Kenneth Ross of the University of Oregon. There are also ARGs for the American Statistical Association, the American Mathematical Association of Two-Year Colleges, and other groups.

The present plan calls for the formation of five Topical Advisory Resource Panels of four or five individuals having expertise in key areas: (1) equity issues; (2) technology; (3) research in mathematics learning; (4) special populations (including special education, gifted and talented, and bilingual students); and (5) applications, business, and industry. The panels will identify resources useful to the Writing Groups and also read drafts of the new document. The Electronic Format Group will work closely with the Writing Groups to develop electronic means for presenting drafts of the Standards as well as the final version of the document.

A draft is expected to be released in the fall of 1998, with the final version available in the year 2000. The NCTM welcomes input by individuals for Standards 2000. The NCTM Web site, <http://www.nctm.org/>, has a list of 7 questions about the Standards which were developed by the Commission in the fall of 1996 as well as other information about the project. Individuals may respond to the questions directly at the Web site. Comments may also be sent to the e-mail address futureweb@nctm.org.

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Commission on the Future of the NCTM Standards

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