

Final Report

to the Board of Directors
by the Assessment Task Force
of the National Council of Teachers of Mathematics (NCTM)

September 2002

The Board of Directors formed the Assessment Task Force to make recommendations to the Council, in part in response to the increasing attention on assessments. This report reflects the task force's further deliberations and revisions to its first report, which was submitted to and considered by the Board in July.

The Assessment Task Force strongly believes the highest priority of the National Council of Teachers of Mathematics should be the development and implementation of a political action agenda. A recent highly visible example of the lack of NCTM's influence is the list of resources in the Department of Education's "Parents Guide to No Child Left Behind." Mathematically Correct is on that list of resources. NCTM is not. This should be a profound lesson to the Council in the consequences of not being politically engaged and active. This is the result of years of effective advocacy by opposing points of view and the ineffectiveness of the Council.

No Child Left Behind has changed the political landscape significantly. The new legislation will have drastic effects on teachers and education. By 2005, every state will have to test all students in grades 3 through 8 on what they know in mathematics. If students do not demonstrate adequate yearly progress, schools will face stiff federal sanctions. As a result of this increased accountability, there is an urgent need for immediate action. This increased significance of state assessments will have a direct impact on classroom instruction. The reality is what you test is what you teach, and given NCTM's lack of influence on assessments, there is serious concern that the assessment component in No Child Left Behind will undermine the progress the Council has made in mathematics education since 1989.

The six recommendations of this report are presented in order of priority. However, these recommendations are interdependent, and for the Council to address the issue of assessment effectively, the task force strongly recommends that the Council undertake all these activities. Engaging in these activities will help to realize the vision of the task force stated below.

Recommendations

- I. Develop and implement a political action plan**
- II. Review and analyze large-scale assessments and publish results**
- III. Produce Mathematics Assessment Literacy Guides**
- IV. Publish a Mathematics Assessment resource**
- V. Conduct a research study of state standards**
- VI. Initiate an *NCTM News Bulletin* column on assessment issues**

The task force was guided in its work by the following vision, which emerged from its first meeting. The actions recommended in this report were developed to realize the following vision.

Vision

- I. The National Council of Teachers of Mathematics (NCTM) must be a strong, visible, nationally recognized leader in the assessment arena.**
- II. As a national leader, NCTM will develop a well-informed education community, including teachers, administrators, policymakers, and the public, to become knowledgeable about both large-scale and classroom mathematics assessment.**
- III. NCTM must ensure and improve the quality of mathematics assessments at the national, state, local, and classroom levels.**

Recommendations of the Assessment Task Force

I. Develop and Implement a Political Action Plan

(NCTM Strategic Goals 4.2, 6.1, 7)

In order to realize the vision the task force articulated, the Council must embark on a strategic, long-term plan of political action. These recommendations draw on the Council's strength in numbers to extend its influence and realize the goal of increased influence.

A. Develop and establish an NCTM member-based grassroots network

Rationale. In order for NCTM to regain its leadership position, it must undertake a concerted, strategic effort to expand its influence. NCTM must provide support to its members and Affiliates to actively engage in the political arena. In order to influence the public policy process, NCTM needs to tap into the expertise of its members and capitalize on its strength in numbers.

The database of current NCTM members should be integrated with legislative district matching software to identify NCTM members' representatives in Congress.

Description. Develop a grass-roots network of NCTM members to interact with those involved in policy making at national, state, and local levels through the following actions:

- Identify members in targeted legislative districts.
- Train members for political action.
- Identify members who already have established relationships and strong political ties with federal and state elected officials.
- Develop and train members to deliver NCTM messages to legislators.
- Develop and present sessions at NCTM conferences on political action.
- Establish and maintain constant two-way communication with spokespersons via listserv and regular e-mailings.
- Produce a political action kit, which would include, but is not limited to:
 - Lists of members in legislative districts with telephone numbers, addresses, etc.
 - Common, consistent NCTM messages on assessment and other issues
 - Background and briefing materials
 - A spokesperson training session or training materials

Timeline. These activities can begin when approved, after identifying member contacts (including members who have already developed relationships with political decision makers) and when proper resources are committed to them. (March 2003)

Who. It is anticipated that this action would require significant reallocation of resources and the possible addition of a full-time, experienced, professional government relations staff position.

B. Develop Relationships with Key Organizations

Rationale. NCTM has weakened its leadership role in mathematics education by not facing the need for political action. The Council cannot wait to be asked to be part of the political process because it will not be.

The costs of this reluctance to engage in political action have been:

- The increasing influence of groups like Mathematically Correct
- Declining NCTM membership
- Diminished reliance of key stakeholders on NCTM positions

For the Council to be a key player and to influence the development of quality assessments in the future, it must be engaged with key organizations.

Description. Appoint or select members and dedicate staff to approach organizations to represent NCTM. This is a long-term commitment, and NCTM contacts with these organizations must be carefully chosen with the understanding that their commitments will be more than superficial contacts but developed as strong relationships over time. Key organizations include (but are not limited to):

1. Testing organizations

College Board
ACT
Educational Testing Service
National Assessment Governing Board
National Center for Education Statistics
National Assessment of Education Progress

2. Government organizations

Department of Education
National Science Foundation
National Governors Association
Commissioners of the States

3. Businesses

National Alliance of Business
Business Roundtable

4. Other organizations

National Education Association
American Federation of Teachers
National Council of Supervisors of Mathematics
Council of Chief State School Officers
Council of Great City Schools
National Association for Bilingual Education
Association for Supervision and Curriculum Development

Develop a kit for political action and supporting materials for these activities. Materials will include what to say and how to say it. Materials should include talking points and bullets for users, and one-pagers to send to legislative offices.

Among other organizations, Achieve is playing an increasingly significant role in mathematics education. Now may be an opportune time for NCTM to establish a more constructive, mutually beneficial relationship with Achieve for two reasons: (1) Achieve has recently engaged a new vice president responsible for its standards work, and (2) Achieve is just beginning to develop its professional development work. Maria Santos, the new vice president of programs, is formerly of the San Francisco Unified School District and was a member of the Assessment Standards writing team. Peg Smith, who authored NCTM's recent publication on professional development, is leading Achieve's professional development initiative. With these individuals leading Achieve's efforts, it appears to be a good time for NCTM to formalize a relationship with the organization.

Who. A subcommittee of the Board should be formed and charged with the responsibility of content development and oversight of this function. Initial outreach to Achieve should be made through the NCTM president, who should keep the executive director and Board informed of the developing relationship. Educational content of the political action materials would be a member responsibility. The preparation, presentation, and production would be a communications and government relations staff responsibility.

Timeline: These activities can begin when approved, after prime movers are identified (including members who have strong or existing relationships within target organizations) and when proper resources are committed to them. (March 2003)

C. Acquire third-party endorsements from business, technology, or other major players about NCTM *Principles and Standards for School Mathematics*.

Rationale. NCTM is relatively well known in the smaller education environment, but not in the larger business or political world. Gaining endorsements from major businesses will help to establish the leadership role of NCTM and carry greater weight and authority with other key audiences. This expanded influence will also lead elected officials and other organizations to consult NCTM on all issues related to mathematics education. Through this support of NCTM *Principles and Standards*, the quality of assessments will improve.

Description. These relationships are developed through identifying the proper contacts within organizations and persistently developing those contacts. Some of these relationships will be developed through leadership, e.g., by the NCTM President or Board members, and others through staff. NCTM should actively pursue opportunities to place speakers on the programs of other organizations' meetings and develop and contribute articles for their publications.

Who. This is a Board and staff responsibility. The Instructional Issues Advisory Committee may advise on this action.

Timeline. These actions can begin upon approval through identifying target organizations, determining key NCTM contacts, and making initial contacts.

II. Review and Analyze Large-scale Assessments and Publish Results

(NCTM Strategic Goals 1.1, 1.3, 1.4, 6.3)

The actions of section I above will support the establishment of the Council as a respected authority. Through the activities described below, the Council will establish its expertise in assessments and the range of issues affecting assessment.

A. Develop framework and criteria for evaluating large-scale mathematics assessments

Rationale. In lieu of producing an NCTM model assessment, clear criteria and processes for evaluating the quality of mathematics assessments will enable educators to (1) determine the quality of their current assessments, (2) identify changes needed to improve the quality of their assessments, and (3) select high-quality assessments.

Description. The framework/criteria will consist of a set of analytic tools and processes for applying them to measure constructs such as:

- Alignment of test content with *Principles and Standards for School Mathematics*, which will include analysis of test items in terms of content, structure and depth of knowledge, and source of challenge, and range
- Instructional validity
- Articulation across grade bands
- Coordination/balance across strands
- Equity

Development of this framework should build upon existing processes and tools; e.g., those of Norman Webb/CCSSO, Achieve, and AAAS Project 2061. (If appropriate, NCTM may even adopt one of these existing protocols.) In addition, this framework should include a description of how to modify items to remedy deficiencies.

Products

- Short guide describing the process and analytic tools used to identify a quality assessment.
- Training sessions (specific conferences and sessions on assessments within NCTM Academy) to teach people how to use the process and tools.
- Training materials/professional development kit to enable those who attend professional development sessions to teach others to apply process and use tools.
- Both guide and training materials should be available online. Online training should be interactive—i.e., provide opportunity for rating items and making judgments with feedback.
- Consider partnership with NCSM to disseminate and conduct professional development conferences.

Who: A task force will develop a process and tools, a guide manuscript, training and professional development, and conduct the initial NCTM and Assessment conference sessions. (Members should be compensated for conference presentations.) The task force

should include at least some members who are familiar with existing analysis processes and skills, for example,

- Norman Webb (possible chair)
- Mary Lynn Raith (Pittsburgh)—familiar with Achieve process
- Someone who has been involved with AAAS Project 2061 assessment evaluation
- Psychometrician (e.g., Jim Ridgeway of MARS)
- Someone with State Department of Education experience (e.g., Marge Petit, Chuck Allen)
- Someone who has worked on NAEP (e.g., Ed Silver, Pat Kenney)
- State mathematics supervisors
- District mathematics leader
- Board liaison
- NCTM staff

The task force will report to IIAC, and work in conjunction with the Academy Services Committee (TASC) to develop Academy sessions. The Conference Services Committee (CSC) will be responsible for the logistics of the conference sessions.

Timeline

Fall 2002	President appoints task force
July 2003	Process/tools development complete
January 2004	Guide manuscript completed
April 2004	Draft training materials ready for tryout as part of 2004 NCTM Academy session at annual meeting (and perhaps at NCSM)
May 2004	Revise training materials if necessary
Summer 2004	Processes/tools used in NCTM Academy institutes

B. Review widely used national tests and publish the results, à la Project 2061 textbook reviews.

Rationale: Expert evaluations of widely used mathematics assessments will help educators and policymakers at the local, state, and national level make more informed decisions regarding the selection and retention of particular assessments and use of assessment results. It is critically important that the group assembled to conduct these evaluations be broad based to avoid the criticism or perception that this project is NCTM-centric. It is imperative that this be an objective process.

Description. Expert panels will use the NCTM assessment evaluation processes and analytic tools (described above) to produce Consumer Report-like evaluations of widely used national tests, e.g., SAT-9, CAT¹, ITBS, New Standards Reference Exams (NSMRE), and CTB-Balanced Assessment (developed by the MARS group in conjunction with CTB-McGraw Hill). This evaluation would consist of multiple criteria with a quality scale. State assessments could also be reviewed if permitted by the state. Expert panels will consist of mathematics educators, mathematicians, policymakers and psychometricians with extensive experience in mathematics assessment.

¹ CTB will be releasing a new version of CAT; the TerraNova name is being retired.

Evaluations of each assessment will also describe other relevant features, for example, the intended purpose of the assessment, appropriate uses of assessment results, scoring processes, and types of score reports available. Sample items, rubrics, and student work will also be included if available.

Panel members will receive training in the NCTM evaluation processes and tools. The Project 2061 textbook evaluations might provide a useful model for organizing the review process. The American Educational Research Association (AERA) and the National Council on Measurement in Education (NCME) are other groups to include.

Products. Evaluations will be published online to be widely available to educators and the general public. This publication must clearly describe the evaluation process. New assessments would be evaluated as they are published. The collection of evaluations may also be published in a single volume. Individual reviews could also be published in NCTM journals.

Who. A task force of seven or eight members will be responsible for establishing the evaluation process. The task force should include at least one or two members who were on the NCTM Assessment Task Force and others chosen from the following:

- Psychometrician
- Someone with State Department of Education experience
- Someone who has worked on NAEP
- District mathematics leader
- Board liaison
- NCTM staff
- Ed Hartel (Stanford)
- Bob Lind (Center for Research and Evaluation and Student Standards and Testing [CRESST], Eva Baker, Joan Herman)

Expert panelists will conduct the reviews and will be compensated. The Instructional Issues Advisory Committee (IIAC) will oversee the work of the task force.

Timeline

April 2003	Name task force members.
July 2003	Begin planning evaluation process as soon as NCTM framework is completed.
January 2004	Identify Expert Panels. (Form alliances with research universities.)
July 2004	Complete Panel Reviews. (This timing depends on whether the task force decides to have the panels do the reviews together in one location, or to allow panelists to complete reviews—or at least initial reviews—in the home locations.)
December 2004	Publications appear on the Web, with extensive external public release and promotion
April 2005	Printed copies ready for sale at NCTM annual meeting.

C. Develop an NCTM position statement on assessment

Action. The Council should develop a position statement on assessment that would be compatible with the existing high-stakes testing statement, but more specific to the range of issues related to quality assessments. This position statement would form the foundation for this comprehensive action plan. It would prove a useful touchstone for the content and rationale of the Council's assessment-related activities. It would consist of messages that would support the Council's other activities and would be a philosophical and ideological expression of the Council's position on assessment issues.

Who. The group formed ideally would include at least one member from the Assessment Task Force and one member from the group that developed the Council's position statement on high-stakes testing. The President would decide the size of the group and select other members.

III. Produce Mathematics Assessment Literacy Guides

(NCTM Strategic Goals 3.2, 3.3, 3.8)

Action. Produce three booklets of approximately 20 pages each, and a professional development kit designed to inform mathematics teachers, principals, superintendents, policymakers, and others about basic mathematics assessment principles and practices critical to an increasing emphasis on assessment in schools. Dissemination will be aided by working with or through the Council of Chief State School Officers, the National Governors Association, and the National Conference of State Legislatures.

Rationale. Mathematics assessment literacy is critical in today's world as teachers and others are confronted with an increase in mandated assessments, emphasis on using assessment data to make judgments on schools, and accountability at all levels. Data from an increasing number of mathematics assessments are frequently reported in newspapers. These reports are derived from international studies, national assessments, state assessments, district assessments, and a variety of research studies. Teachers of mathematics are confronted not only with following a curriculum, but also with attending to local, district, and state assessments that can have significant consequences on them, their students, and their schools.

Assessments are used for different purposes and can produce conflicting information. District and state mathematics assessments, designed to produce accountability information on schools and districts measure content from a wide spectrum of topics. In most cases there are insufficient data on any one topic to make sound instructional decisions for a class, much less for a student. Teachers' own mathematics classroom assessments can have high validity when compared to the curriculum, but lack consistency in administration and scoring. Because of this inconsistency, classroom-based assessment data cannot be aggregated across classrooms to produce school or even teacher accountability information. But teachers, administrators, policymakers, and the general public still often interpret and use assessment data in ways that far exceed the valid purposes of the assessment as developed.

A series of mathematics assessment literacy guides will serve NCTM members, but will be more than a member benefit. The series also will target and benefit policymakers and others who make decisions about and use mathematics assessment data. The mathematics assessment literacy series will have a shelf life of several years—up to 10 or more. An additional 5 percent or more of the mathematics teaching force is new and in need of learning about assessment—a topic given little or no attention in pre-service education. New school board members are elected annually, again in need of becoming familiar with mathematics assessment.

The guides will be written in simple and non-technical language to be a readily available reference for teachers and others to use to make decisions about assessments and assessment data. One goal for the guides is to provide teachers, principals, administrators, school board members, policymakers, and others with a shared language in talking about mathematics assessments. For example, people frequently associate norm-referenced tests with multiple-choice items. Norm-reference and multiple-choice tests are not synonymous. “Norm-referenced” refers not to multiple choice, but only to how scores are interpreted and not to the item type. “Machine-scoreable” items frequently refer to multiple-choice or fixed-response items.

Rick Stiggins and his group have done significant work in assessment literacy in general, particularly as it pertains to classroom assessment. This work clearly needs to be consulted. However, mathematics assessment literacy needs to attend to what the *Principles and Standards for School Mathematics* advances for mathematics. Norm-referenced tests can assess more than skills and concepts, including reasoning and problem solving. The first booklet in the proposed series will give specific examples of how norm-referenced tests and criterion-referenced tests can be developed to be better aligned with the *Principles and Standards for School Mathematics*. The guide will be explicit about how data from a state test can be used as one source of information for providing information on student learning, but emphasize the fact that a state test is more appropriate for program planning rather than individual student learning diagnoses.

Description. We propose that three mathematics assessment literacy guides be developed, along with a professional development kit, to raise the understanding of those in the education community about what are appropriate and inappropriate uses of mathematics assessments at different levels. This series should be sequenced from the first, providing very basic information, to the third, which would simply describe some fairly technical concepts. The series should be produced as a printed copy and put on the Web. The printed copy could be sold and generate revenue.

In addition, the NCTM Academy should develop and present institutes on assessment and distribute the professional development kit to attendees at the Academy institutes.

- The first in the series, ***Basic Mathematics Assessment Literacy (Assessment 101)***, will describe in simple terms words frequently used, but rarely defined: norm-referenced tests, criterion-reference tests, standards-based assessment, multiple-choice items, open-ended items, open-response items, performance assessments, and multiple questions related to one context. This 20-page booklet will draw upon existing NCTM documents, but will frame the topics in simple and clarifying terms.

A professional development kit useful for Academy institutes as well as much wider application will be developed to support the dissemination of information from these three assessment literacy guides.

- The second booklet, *Applying Mathematics Assessment to Instruction (Assessment 102)*, will focus on using assessment information as it can be applied in the classroom. This will address scoring and reporting. It will build on existing documents such as one written by Ann Shannon and another one written by Mark Driscoll. This booklet will describe different scoring techniques (analytic and holistic) and the benefits and disadvantages of each. It will address using item analyses from large-scale assessments and what may and may not be accurately inferred from these. The booklet in simple terms will address how information from different kinds of assessments can be combined and used for instructional purposes.
- The third booklet, *Interpreting Large-Scale Assessments (Assessment 103)*, will describe in simple language, but in some detail, how large-scale assessments are constructed and scored. This booklet will describe scaling of scores using a Rasch model (as used in Texas and other states) to help demystify how a scale score can be interpreted and how it differs from the percentage of items correct. It will also address vertical equating (relating test scores across grades) compared to scores that can be compared only within a grade. This booklet will address and illustrate to some degree a value-added analysis for a cohort of students compared to a cross-sectional analysis. As with the other booklets, the examples will be drawn from mathematics.
- A professional development kit should accompany these materials. As each of the assessments is developed, content for the professional development kit should be created. These kits would include transparencies, a PowerPoint presentation, and speaker notes.

Who. EMC should appoint a six-member Task Force that would include:

- Psychometrician (e.g. Steve Klein, Phoebe Winters, Bob Lind)
- State assessment director
- District assessment director
- Generalist in assessment literacy (Rick Stiggins, Jim Popham, Mark Applebaum, Ross Green)
- Professional developer (Susan Love, Mark Driscoll, Ann Shannon)
- Writer and Webmaster (Steve Leinwand, Mark Driscoll, Ann Shannon, Phil Daro)

Timeline. The three booklets will be developed in five stages: outline, draft, pilot, finalize, and professional development kit.

	Assessment 101	Assessment 102	Assessment 103
Jan – March 2003	Outline	Outline	Outline
April to June 2003	Draft		
July-August 2003	Pilot	Draft	

Sept.-Nov. 2003	Finalize	Pilot	Draft
Nov.-Dec. 2003	PD kit	Finalize	Pilot
Feb.-March 2004		PD kit	Finalize
Sept. 2004			PD kit

IV. Publish Mathematics Assessment Resource Kit

(NCTM Strategic Goals 3.2,3.3)

Action. Develop a package of assessment materials, *Mathematics Assessment—All You Need to Know and Then Some*, to provide teachers, teacher leaders, and state, district and site-based administrators core information about assessment. This package would include (1) an *Assessment Guidebook* for mapping a comprehensive assessment strategy and interpreting assessment results; (2) an *Assessment Sampler* that illustrates assessment activities, student work, several design processes, and scoring schemes; and (3) a *Professional Development Kit* for the NCTM Academy institutes on assessment, designed to help teachers and administrators get the most out of these resources.

Rationale. The 2001 No Child Left Behind legislation sets requirements for assessment and accountability. Each state must develop content and performance standards; measure improvement; implement and administer assessments, including assessing students with limited English proficiency; report assessment data; and apply consequences for not meeting performance goals. Individual teachers have to prepare students for these large-scale assessments while developing or selecting tasks and activities for classroom administration.

A common framework for decision-making about mathematics assessment consistent with the *Principles and Standards* is needed. These materials support district and school leaders through offering guidelines for the development of effective assessments. They support teachers through offering guidelines for use of effective instructional and assessment practices.

This *Mathematics Assessment* package, targeted primarily for classroom teachers, teacher leaders, and administrators, would explain how teachers are to put all the assessment pieces together. This resource will provide some explanation of the roles of large-scale assessments and classroom assessments along with how each of these is developed and can be used. It will help readers identify:

- Materials for classroom assessment tasks
- How information from different tasks can be aggregated over time
- How collections of assessment tasks need to be structured to ensure that and monitor how students' learning is improving
- How information from large-scale information can and cannot be used for instructional purposes.

A wealth of materials produced by NCTM already exists, including the most recent edited assessment books and case studies, 1993 classroom assessment yearbook, the 1995 mathematics assessment standards, and Stenmark's *Mathematics Assessment*. These

materials provide excellent resources, but none of them addresses how teachers and administrators are to put all the pieces together to develop good assessments or to select items and tests that can be used to support the *Principles and Standards for School Mathematics*. This proposed new resource will build on these existing resources and provide succinct directions about structuring an assessment program that incorporates the large-scale and high-stakes testing so prevalent in education today and the near future.

Teachers and administrators will be the primary benefactors of these mathematics assessment resources. They will be able to use them to think more deeply about all the mathematics assessments they employ and the relationship with external assessments that are imposed on them.

- The ***Guidebook*** will present a way of thinking about assessment and specific steps that can be taken to ensure mathematics assessments of quality and coherence.
- The ***Assessment Sampler*** will provide illustrative examples of classroom-based assessments, student work samples, scoring tools, and strategies for item adaptation and development.
- Finally, the ***Professional Development Kit*** will include ideas for how to engage teachers in conversations about these ideas through the use of the ***Guidebook*** and the ***Assessment Sampler***. Individual professional developers could use this kit, or it could be the basis of a second NCTM Academy institute on assessment.

There is an acute need for such resources now, but realistically, producing such resources would take 3 or 4 years. Even taking this into account, a detailed book on mathematics assessment development and selection will be relevant, needed, and used for years to come. Such a resource should be sold and will provide revenue to the Council well into the future.

Description. The NCTM ***Guidebook*** will begin by describing some fundamentals of assessment clarifying the purposes and general features of any assessment. The book will present examples of how students' progress in one area (e.g. multiplication or proportional reasoning) can be monitored over time. This would include how to structure (develop their own or select/adapt from different sources) a set of assessment activities that could be used over time to measure student progress. (The ***Sampler*** would provide additional examples of similar sets of assessment activities, along with student work samples.) It will include discussing and demonstrating how classroom assessments should be structured in relation to large-scale assessments. Although it is strategically necessary to practice the type of assessment tasks that appear on a large-scale, high-stakes assessment, assessing students' knowledge on a variety of measures will actually provide more information about their learning and prepare them for the large-scale assessments.

Assessment Guidebook

The ***Guidebook*** will directly address "teaching for the test" and what this can mean given different types of assessments and different degrees of alignment with *Principles and Standards*. One of the goals of the guidebook is for teachers and administrators to become more sensitive to, and understand, the advantages and disadvantages in using different types of assessments for different purposes (e.g. instruction compared with program evaluation). The book will also address scoring and reporting. It will conclude by presenting ways that more can be gained from assessment through teachers working collaboratively to reflect on

students' work, how teachers' knowledge of assessment can continue to be improved, and how teachers within a school should work together to create a coherent assessment program.

Guidebook Outline:

- Define Purpose for Assessment
 - Accountability (Sort or Certify)
 - Instructional Improvement (Diagnose)
 - Program Evaluation
- General Features of an Assessment: Question, Response, Score, Analysis, Report
- Demonstrating Adequate Progress in a Mathematical Area (Reliability, Validity, Alignment, ...)
- Equity in Assessment
 - Bias
 - Comparisons to National Norming Groups
- Identifying/Choosing Forms of Assessment
 - Multiple Choice
 - Open Response
 - Short Answer
 - Performance Assessment
- Administrative Requirements – (Before and After)
- Scoring
- Analyzing and Reporting Results in a Timely Fashion
 - Disaggregating data
- Value Added
 - Professional Development for Teachers (scoring process and growth over time)
 - Teacher Collaboration and Growth—Focus on Examining Student Work
 - Teacher Reflection and Implications for Practice

Assessment Sampler

Rather than develop its own assessment, NCTM should develop an ***Assessment Sampler*** with coordinated professional development opportunities related to these materials. The ***Assessment Sampler*** would be a print/electronic resource that will:

- Help teachers, teacher leaders, administrators, and others develop a vision for standards-based assessment through excerpting portions of NCTM *Assessment Standards for School Mathematics* to reflect current teaching contexts and *Principles and Standards for School Mathematics*.
- Provide examples of good assessments/tasks connected to *Principles and Standards for School Mathematics* reflecting each content strand and grade level band. These examples will be taken from existing assessments, item banks, instructional resources, etc. In addition to individual items/tasks, the *Sampler* will provide examples of assessment testlets (short collections of items/problems/tasks) to measure specific content areas or strands of *Principles and Standards*.
- Present “how to” strategies for modifying tasks/problems/test items.
- Provide a framework for professional development opportunities using the existing NCTM Academy structure.

Who. The Educational Materials Committee would recommend a seven-member task force that may include selected members of original *Assessment Standards* writing team, a member involved in developing *Principles and Standards for School Mathematics* (and interest in the Assessment Principle), authors who developed the “newer” assessment resources, a member from Assessment Task Force (Nicole Rigelman, Ellen Lee), an NCTM Board member and staff liaison, and recommended teacher and/or teacher leaders with expertise in assessment. Researchers should be included, and AAAS content maps should be consulted in the group’s work. The following should be considered.

- State, district, and teacher leaders who have worked on large scale assessments (Harold Asturias, Pam Beck, Cathy Brown, Cathy Carroll, David Foster [Noyce Foundation])
- Malcolm Swan, Sandra Wilcox (staff of Mathematics Assessment Resource Service (MARS) who develop quality assessment tasks and provide professional development re: quality classroom assessment
- Psychometricians, e.g., Jim Ridgway (MARS), Norman Webb
- District and site administrator
- Classroom teacher with experience using multiple forms of classroom assessment
- Professional developer (Linda Fisher, Coordinator, Noyce Foundation)
- Researcher, Math Assessment (Susan Nickerson)
- Designated writer (Award writing contract after response to request for proposals)

Timeline

October-December 2002	EMC recommends Task Force members
Oct. 2002– March 2003	Task Force prepares RFP and contracts with Editor
April 2003 – Jan. 2004	Writer (e.g. EDC, WestEd, SDSU PDC [Susan Nickerson])
Jan. – July 2004	Prepare draft for review
July – Aug. 2004	Field review with written response
Sept. – Apr 2005	Prepare Draft 2
May – July 2005	Field test and revisions/develop Academy institutes
Aug 2005 – July 2006	Final copy

V. Conduct a Research Study of State Standards

(NCTM Strategic Goals 5.1, 5.2)

Action. Commission a study to compare and contrast mathematical content and processes in each state’s standards.

Rationale. No Child Left Behind calls for increased flexibility for districts in exchange for increased accountability. Districts are held accountable through yearly testing that must be aligned with content standards.

State and district level frameworks provide grade level specificity regarding content, sequencing, and pacing for mathematics instruction. These frameworks should reflect what NCTM suggests students should know and be able to do while offering guidance for teaching, learning, and assessment aligned with *Principles and Standards for School Mathematics*.

Consistency among state and district frameworks, NCTM Standards, and research and learning trajectories offers curriculum developers and test developers a common basis for the development of materials. This research will also better inform members and state affiliates as states review and revise their standards.

Description. The research study will:

- Compare and contrast the mathematical content and processes in each state’s standards.
- Determine the grade levels in which specific content is taught and determine the extent to which specific content is taught at the same grade levels across states.
- Determine the extent to which *Principles and Standards for School Mathematics* is reflected in state standards.
- Compare state grade level expectations with high performing countries, their research on learning trajectories, and lessons learned by exemplary curricula developers.
- Compare to the research on learning trajectories.

Timeline. Research should be commissioned as soon as possible so results can be considered and organized to provide a basis for possible further deliberations on grade level standards.

VI. Initiate an *NCTM News Bulletin* Column on Assessment Issues

(NCTM Strategic Goals 1.4, 3,3)

Action. Institute a regular monthly feature, “What’s Up in Assessment?” in the *NCTM News Bulletin* to inform members and teachers about developments and issues in assessment.

Rationale. Over the past 5 years, almost all states have been working to make changes in their statewide accountability systems by attempting to align them with specific state standards. No Child Left Behind legislation sets requirements for assessment and accountability. Each state must develop content and performance standards; measure improvement; implement and administer assessments, including assessing students with limited English proficiency; report assessment data; and apply consequences for not meeting performance goals.

Mandated assessment requirements will continue to influence the classroom curriculum over the next decade. In the face of federal and state mandated assessments, teachers are mistrustful and face confusion about the purposes of such assessments. A current events column, “What’s Up in Assessment?” in the monthly *NCTM News Bulletin* will provide a member benefit and a service to teachers. It will inform them about 1) the purposes of the new assessments as well as historical references related to the initial development of the assessments; 2) the most current federal and state policies related to current assessments; 3) the assessment instruments available; and 4) the use and abuse of assessment reports from state to state (e.g., Students in New York were required to attend summer school due to errors in score reports) as well as instances of public and media reaction to the assessments

(“What Is a Useful Comparison of Standardized Tests?” By Jay Mathews, *Washington Post*, Nov. 20, 2001 or “Bay State’s Exam Has Left Its Mark,” by John Gehring, *Education Week*, Nov. 21, 2001).

Description. A monthly column in the *NCTM News Bulletin*. Monthly columns may include reprints in full or excerpts (with Web links) of available print sources (e.g. articles, editorials, letters to the editor, op-ed opinions) from current publications – such as:

- *Education Week*
- Major newspapers representing all regions of the country
- Journals, other than NCTM’s

Who. *NCTM News Bulletin* staff with one member editor (e.g. Carol Fry Bohlin, CSU-Fresno, who edits COMET, which provides similar service via e-mail from California, or Janet Trentacosta, current editor of California Mathematics Council journal, the ComMuniCator).

Timeline. This action could begin as soon as approved and as soon as an editor is engaged.

Conclusion

The benefits of implementing this plan are far reaching and long lasting. If properly executed, it would establish the Council in an unprecedented position of leadership. It would also address the strategic goal of increasing membership.

In order to give this effort the prominence it deserves, the task force recommends forming a steering committee to manage the Council’s work on assessment issues. This is preferable to charging existing committees with these responsibilities, which may diminish the attention given to them and the collective impact of this integrated plan. This assessment steering group should be responsible for the overall cohesiveness of this effort and the coordination and points of contact with other NCTM committees and groups producing related, ongoing work.

Members of the Assessment Task Force

Diane Briars (Chairperson)
Marieta Harris
Ken Krehbiel (Staff liaison)
Ellen Lee
Nicole Rigelman
Vodene Schultz
Bert Waits (Board liaison)
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Actions	Description	Benefits or Rationale	Task Force Vision ¹	NCTM Strategic Plan ²
I. Develop and Implement a Political Action Plan				
A. Develop a grassroots network	Develop and establish an NCTM-member based grassroots network	Significantly expand NCTM influence	I, II	Strategic Goals 4.2, 6.1, 7
B. Develop relationships with key organizations	Establish and nurture key ongoing relationships with targeted organizations	Establish NCTM as leader among key audiences	I, II	Strategic Goals 4.2, 6.1, 7
C. Acquire 3rd-party endorsements from business, technology, or other major players for <i>PSSM</i>	Enlist external support for <i>Principles and Standards</i>	Expand NCTM influence among key audiences	I	Strategic Goals 4.2, 6.1, 7
II. Review and Analyze Large-scale Assessments and Publish Results				
A. Develop and produce framework and criteria for evaluating large-scale mathematics assessments	Criteria consist of analytic tools and processes for applying them to measure constructs. Guide and framework would be available online.	Framework will enable educators to determine quality and identify needed changes of current assessments, and select high-quality assessments.	I, II, III	Strategic Goals 1.1, 1.3, 1.4, 6.3
B. Review widely used national tests and publish the results, à la Project 2061 textbook reviews	Expert panels will use NCTM assessment processes and analytic tools to produce a Project 2061-like evaluation for widely used national tests	Evaluations will help educators and policymakers make better-informed decisions on assessments	I, II, III	Strategic Goals 1.1, 1.3, 1.4, 6.3

¹ See Task Force Vision Statements on page 2

² See NCTM Strategic Plan on page 21

Actions	Description	Benefits or Rationale	Task Force Vision¹	NCTM Strategic Plan²
C. Develop an NCTM position statement on assessment	Position statement on full range of issues related to quality assessments, compatible with current high-stakes testing statement	Statement would provide philosophical foundation for all NCTM assessment work	I, II	Strategic Goals 1.1, 1.3, 1.4, 6.3
III. Produce Mathematics Assessment Literacy Guides				
Produce Mathematics Assessment Literacy Guides	Three published 20-page guides to raise the understanding of mathematics assessments at all levels	Establish shared language for NCTM members and policy makers	I, II, III	Strategic Goals 3.2, 3.3, 3.8
IV. Publish Mathematics Assessment Resource Kit				
Produce package of assessment materials, <i>Mathematics Assessment—All You Need to Know and Then Some</i>	<i>Assessment Guidebook</i> and <i>Assessment Sampler</i> would describe and clarify assessment fundamentals	Provide teachers and administrators explanation and guidance on mathematics assessments. Also produces NCTM revenue and content for Academy institute.	I, II, III	Strategic Goals 3.2, 3.3
V. Conduct a Research Study of State Standards				
Study on increased flexibility and accountability for school districts (NCLB)	Compare and contrast mathematical content and processes in each state's standards	Consistency among state and district frameworks, NCTM <i>Standards</i> , research, and learning trajectories	I, II	Strategic Goals 5.1, 5.2
VI. Initiate an NCTM News Bulletin Column on Assessment Issues				
A. <i>News Bulletin</i> column, <i>What's Up in Assessment?</i>	Provide reprints of print sources from publications (with Web links)	NCTM member benefit and a service to teachers	II, III	Strategic Goals 1.4, 3.3

¹ See Task Force Vision Statements on page 2

² See NCTM Strategic Plan on page 21