Moving Ahead in Support of Young Children’s Mathematical Learning:
Recommendations to Conference Organizers and Participants

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Today many states and districts are involved in the politics of high stakes accountability. It seems likely that standards for preschool mathematics are coming—especially as they relate to screening for children preparing to enter kindergarten. As screening profiles and assessments for monitoring progress are developed, they must be accompanied by strategies for providing assistance for children who need it and never be used to prevent children from opportunities to learn.

Hopefully, those in positions of authority will be wise enough to create standards for learning opportunities and programs rather than specific benchmarks for individual students. Accompanying program standards there can be discussions of a general continuum that describe children’s development as they move from novice to emerging to competent related to mathematical goals. If this convened group - along with others who have similar roles - do not create these standards, someone else with far less expertise will.

*Principles and Standards for School Mathematics* is a document that highlights the importance of mathematics for young children. It advocates environments and interactions that are child-oriented yet rich in opportunities to explore mathematical ideas. It talks about the importance of adults adding language to the informal and intuitive mathematics of young children and building upon children’s interests and
curiosity. It reminds us that children are far more capable than we have ever expected and that we must listen to their thinking and reasoning rather than telling them how to think.

*Principles and Standards* discusses content and process standards that are components of a coherent, rich mathematics program from the earliest years through high school, but it does not detail standards that are specific to preschool children. Building on PSSM and creating specific standards is a task for a combined community such as participants in this conference.

Recommendations:

**NCTM and NAEYC should form a working group with a similar composition as this conference to draft Standards for Early Mathematics Learning.**

- These would be “opportunity to learn” standards (program standards) that bring together the content from mathematics with the focus on children from NAEYC.

- Commentary that accompanies the standards should describe what it looks like when children have these experiences. This should be a strong set of statements honoring young children - their ways of knowing and doing - and advocating opportunities for children to build both confidence and competence in mathematics.

- Additional commentary should describe the actions of teachers, caregivers, and parents that are necessary for the standards to be implemented.
• NSF, ExxonMobil Foundation, DOE, and other appropriate funding agencies should consider this conference as a “first step” and provide financial support so that this working group can convene this calendar year.

A second, accompanying document should describe the development of mathematical ideas (a continuum that describes general benchmarks) for the youngest learners 1 to 4 (5) years old.

• While individual children do not learn in a linear, lock-step fashion, there is a general trajectory that can be described to assist adults who are caring for and working with young children. Unless we give these adults some insight into children’s potential, we are likely to continue to see a huge gap in what children know and are able to do as they enter formal schooling because of their early experiences.

• This document should indicate where most children are likely to be as they enter kindergarten so that as districts and states are required to establish screening instruments, the guidelines can talk about ranges and refer back to the opportunity standards.

At the same time this work is taking place, an organized campaign should be mounted to translate this information into a variety of forms for different audiences.

• There can be simple, reader-friendly pamphlets that parents might get through libraries or doctors’ offices or places like WalMart.

• Booklets for preschool directors and teachers might give more detailed information.
• Public service announcements (15 – 30 second spots that might be organized
around things
such as math in the kitchen, math at bedtime, etc.) would reach a broad audience.

• Fact sheets for policy makers that go beyond their experiences with few
children to inform them more broadly about children birth to 5 can help them make
appropriate decisions.

• Professional development for caregivers in day care/preschool settings that
relates to observations of and conversations with their children about mathematical
ideas will help strengthen children’s opportunities to build upon their informal
knowledge.

Each person in this room must take responsibility for addressing the areas he
or she can influence.

• Mathematics and early childhood educators can bring quality exemplars,
appropriate language, and realistic goals to the table, give guidance to the documents
related to the “what” and “how,” help sort out the issues of “yes, they can...but should
they.”

• State agency consultants must talk to one another and combine your expertise
in addressing state mandates and guidelines for mathematics for young learners.
Agencies are notorious for starting initiatives and giving directives that are often at
odds.
• Researchers should get together and discuss how findings from one study can inform and combine with others. Unless we can come together and give guidance to this effort, recognizing that there is always more to learn and much we do not know, we will find ourselves in various “camps” that cause as much confusion as clarification.

• Conference organizers, NCTM and NAEYC representatives (as well as those from other appropriate agencies), and funders of this conference, should not let these 3 days be just another in a series of meetings. Conference proceedings should include papers and possible directions. Negotiations should begin right away to carry out these recommendations.

As we consider standards for pre-school mathematics, there are four issues that I would like to raise. Many of these have been discussed in the conference, but definite answers are needed if the project is to move forward.

**What word should be used to describe the project and product?**

We have heard much discussion at this conference about the word standards and the concern that it is linked closely with “testing.” It is not the word that we use; there could be a misuse of testing no matter what word is used. Thus, there should be a strong and forceful position taken about testing and a positive approach to how those working with young children can assess the child’s strengths and needs.

**Why should standards be developed?**
Preschool mathematics is attracting more and more attention, and is in need of careful, thoughtful guidance. We are expecting more of young children in their beginning years, and often those expectations are unrealistically low or unrealistically high.

The recent report, *America’s Kindergartners*, of the Early Childhood Longitudinal Study (NCES 2000) shows surprising high entry level mathematical skills of most of our youngsters. A question to be asked is whether this is good enough. Can we balance higher expectations with the aim of preschool to foster a love for learning, a feeling of success, and the joy of being a child?

The trend to push the present kindergarten mathematics to pre-school is not the answer. Too often that curriculum was not even appropriate for kindergarten. Certainly children of this age could learn the concepts and skills, but they also were learning that mathematics did not have to make sense. The power of children until faced with a more formal curriculum is the ability to do tasks with understanding. Guidance is needed to help prevent the push downward the curriculum without thoughtful consideration of the ramifications.

States are being mandated to produce guidelines for pre-school curriculum. Developing guidelines is not an easy task, and too often not enough support is given to the groups so mandated. A project that gives the time, effort, and expertise needed in a sensitive and important period of children’s lives could be most useful for states to adapt and use in their own efforts.

Adults working with children need guidance in what to observe and how to encourage young children develop mathematical ideas and dispositions. We all get a
joy as a young child learns to count, and we have some feeling that it is not an all or nothing skill. What about the other ideas of mathematics? Do we know what to look for, what to encourage, and when to be surprised?

How can we be smart?

Before developing guidelines, we need to consider how to position the document. How can the environment be massaged to ready the constituents for such a document? What public relations issues need to be addressed before and after the document? Who should be involved; in particular, what professional organizations should be brought in from the beginning? Who should take the lead? Who has the responsibility for decisions?

This conference has begun the process and certainly speaks to the need for NAYEC and NCTM to continue to work together. However, there are some fundamental surrounding questions that need to be addressed such as those mentioned here.

What should be considered in developing the guidelines?

If the decision is to develop guidelines then many issues will arise, but some decisions should be made from the start. I will give four of my views for later discussion:

The purpose of the standards should be clearly stated in terms of why they are being developed, for whom, and for what reason.
The main messages should begin with careful consideration of those in the preschool part of Principles and Standards for School Mathematics (NCTM 2000).

The format should be user friendly for a variety of audiences including professional development for those who work with young children.

The document should reflect this century’s media. It should not be only a print document, but should include judicious use of electronic examples, videos and other means to reach the broad audience for which it is intended.

These are not simple issues; resolutions of these issues are needed before moving ahead. The conference has brought together many of those needed in the process, and has given us a time to think and begin the discussion. I would encourage the group to take the next steps and turn to the leaders of this conference to assume responsibility for action.

References
