

## PROFESSIONAL DEVELOPMENT RECOMMENDATIONS FOR CURRICULUM IMPLEMENTATION

Three districts, Stafford, Willington, and Plainfield implemented the Goals 2000 Mathematics curriculum. The following recommendations reflect the professional development provided as part of that implementation. Only those steps deemed successful by participants have been included.

The Connecticut Guide to Program Development for Mathematics states that "...teachers need at least two years to **experiment** with the new curriculum ...in their classrooms. It is critical ...to nurture this process." (p173, Section 9)

The professional development recommendations we offer address experimentation and using student work and feedback to learn from that experimentation. Nurturing in each district is provided by a curriculum coordinator. Each district will continue with year two of implementation under the direction of their coordinator.

### Step 1:

Provide an overview of the curriculum document emphasizing how it differs from the past. Provide time for a discussion of the NCTM Principles and Standards and the Mastery Test Objectives for **ALL** grade levels. In the chapter of the document that includes the Objectives, Sample Activities and Assessments, review some of the pages that show the specific connections of the objectives for that standard to the CMT objectives and NCTM Standards (See page 316 in Grade 2 for an example.)

Be prepared to address the questions that will surface with regard to what might appear as the high expectations at some grade levels. Emphasize that the objectives identify what all students at that grade level need to experience.

### Step 2:

Share district CMT Results and have participants identify the areas that are strengths and weaknesses. Have them then review the activities and assessments for those standards where weaknesses occur and select a given number of activities or assessments for trial. Selected items should be done in more than one classroom, the best scenario being that all classrooms in one grade do the same activity or assessment. For departmentalized grades with one teacher, it is important to do the task with more than one class.

Identify a process for having both teachers and students reflect on the task. Sample reflective protocols and student feedback forms are included in the Chapter on Balanced Assessment Components. It is recommended that each teacher reflect individually and collect feedback from their students and bring this information, together with the resulting student work, to be analyzed at grade level meetings or at staff and/or department meetings dedicated to this purpose. District Curriculum Committee representatives then bring the summaries from these meetings back to the District Committee.

The District Committee can then use this information to make decisions about needed professional development and/or to revise, delete, or realign suggested activities or assessments. It is important to note that revision and realignment is done to insure that the curriculum clearly communicates the expectations for teaching and learning.

### Step 3:

To address the goal of implementing a coherent assessment system that includes required performance task across all grade levels, create a committee that includes a lead person from each grade level. Provide intensive professional development that addresses the following:

- a. Coming to consensus on what you want to measure: Ask, *What behaviors do you want students to demonstrate in mathematics?* Have teachers work in grade level clusters to generate a list of behaviors on chart paper. Have them post them and share with the whole group. Come to consensus on the behaviors. Use these behaviors as the framework for the remaining professional development. They are key in selecting assessment tasks and developing rubrics.
- b. Assessment Terminology: Agree on the terms that all teachers in the system need to understand and define in the same way. Create an Assessment Glossary.
- c. Recognizing and creating quality performance tasks: We found there to be confusion about problem solving versus solving word problems and knowing the difference between open-ended, open response, ill structured, and authentic tasks. Provide examples of each and define their role in your assessment system.
- d. Developing Rubrics: Provide examples and discuss the benefits and drawbacks of holistic and analytic rubrics. Develop some generic rubrics that reflect the key behaviors defined in Step 1. As performance tasks are selected for piloting add another “strip” to the generic rubric to address the specifics of that task. (The generic rubric created by a previous Goals 2000 project and those created by Willington are located in the chapter on Balanced Assessment.)
- e. Use the student work from piloted tasks to make decisions: Select work that is representative of a high, medium, and low response to the tasks and discuss the results with the entire committee. Decide whether the task is a keeper, needs modification and a second trial, or does not get to the desired behaviors and needs to be discarded.
- f. Develop a professional development plan for implementing assessment tasks in all classrooms.

### Step 4

If the estimation standard is addressed, have all participants read and discuss the estimation articles most relevant to their grades. Select and define common terminology. Investigate the possibility of assigning the development of estimation anchors to specific grade levels. (Stafford School System is implementing this strategy and has designed professional development K-12 specific to estimation. They developed a Teacher’s Guide and Lesson Template for Estimation lessons during year one of implementation. See the chapter titled Estimation, Word Problem, and Literature References.)