
DARIEN PUBLIC SCHOOLS

Darien, Connecticut

DATE: September 26, 2008

TO: Darien Board of Education
Donald P. Fiftal, Superintendent

FROM: Judith Pandolfo, Assistant Superintendent for Elementary Education
Stephen V. Falcone Assistant Superintendent Secondary Education

RE: Report on K-12 Mathematics Program Action Plan

Introduction

In the spring of 2008, a team from the Tri-State Consortium visited Darien. In addition to the overall program review, the district asked a guiding, essential question of the visiting committee which was:

To what extent is the Darien Public Schools' commitment to developing conceptual thinking and computation skills evident in:

- *The K-12 mathematics curricula*
- *Classroom instructional strategies*
- *Multiple forms of assessment measures*
- *Preparation for real life/authentic transfer of skills*
- *Professional development*

Commendations

There were many commendations, including the following samples from the report:

- The foundation of performance-based assessments embedded in the Growing with Math Program
 - Tracking student standardized test data over time
 - Teachers who are passionate about teaching and committed to the development of materials to meet student needs
 - A process to collect and use data to make curricular and instructional decisions
 - Use of technology to positively affect instruction
 - Stakeholders aware of the range of learning opportunities in mathematics
 - District budget support for program and materials
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Recommendations

A series of recommendations were shared that have been clustered in the six areas consistent with the Tri-State program model. Within each area, a summary is provided as well as a description of actions that have or will be taken. Also, an accompanying grid of further detail is attached as an appendix.

- I. **Performance-Based Assessment:** (Performance assessment "requires students to actively accomplish complex and significant tasks, while bringing to bear prior knowledge, recent learning and relevant skills to solve realistic or authentic problems.")

Tri-State Recommendation: The team has recommended that the district provide staff development in the area of performance based assessments, particularly as a prelude to developing sets of common performance assessment tasks in our K-12 program.

Action Plan: During the spring of 2009, staff development is planned in the area of performance assessment. In the summer of 2009 and into the 2009-10 school year, sets of these tasks and accompanying rubrics will be created across the K-12 continuum.

- II. **Student Performance Data:**

Tri-State Recommendation: The team recommended that a more comprehensive system be developed for the examination of standardized and local test results in order to inform curricular and instructional decisions. One result could be a system of scaffolding students who enroll in a more challenging program. The group has also recommended that a survey of graduates be conducted.

Action Plan: The district is continuing to work on the development of the Inform data management system, particularly in making the data readily accessible for staff. This work will continue through the spring of 2009 and into the next school year. The potential to complete a graduate survey through the Naviance program will be investigated in the 2008-09 school year, with the goal that a survey could be administered in the fall of 2009.

- III. **Curriculum and Instruction:**

Tri-State Recommendation: The visiting team recommended that the District develop processes to facilitate collaborative planning and cross grade level communication. Additionally, the team suggested that the district clarify the role of the K-5 instructional specialist, develop a working definition of differentiation, and consider expanding the math strand in the Gifted and Talented program.

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Action Plan: One important step in broadening the communication network has been the establishment of a K-12 Math Committee. There are representatives from each building and lead contacts from the elementary, middle and high schools. Common planning time at the elementary schools and the departmental time set aside for teachers has allowed for some discussions regarding math this year. The K-5 instructional specialist role will be further refined this year and representatives from the Gifted and Talented program will investigate ways to incorporate a math strand into their curriculum. The professional development in the area of differentiation has been on-going and will continue as a professional development theme in 2009-10.

IV. **Supervision, Evaluation, and Professional Development:**

Tri-State Recommendation: The primary areas for examination related to the refining of the Communication Framework (Teacher Evaluation Rubric) and the effort to provide professional development to administrators responsible for observing math lessons. As noted earlier, a structure for an oversight of the K-12 math program was a visiting team recommendation.

Action Plan: The Communication Framework will be in a pilot stage during the 2008-09 school year. Also during 2008-09, the work of the Administrative Instructional Leadership Team has been and will continue developing a common lens for observing excellence in instruction. An area of specific focus will be in mathematics. Throughout the spring of 2008 and into this year, a structure for the K-12 math program oversight has developed with point people identified at the elementary, middle and high school levels. This structure will be further refined in 2008-09.

V. **District Culture:**

Tri-State Recommendation: The recommendations of the visiting team centered on the concept of sharing ideas and practices across the K-12 continuum. The need for a “commitment to deepening vision” and “coherence” in the program reflects a need to clearly articulate (and practice) the balance of computational skill and conceptual thinking we want to have occur in math classrooms across the district. Sharing best practices in the teaching of mathematics, particularly with technology, was an identified need.

Action Plan: As noted, the K-12 Math Committee has begun the work of clarifying the district vision of mathematics education – to take our philosophy statement and make it clear for all. The group is also working to identify and share the instructional strategies and assessments that are consistent with that vision. This group will have the opportunity to communicate findings throughout the 2008-09 school year, with implementation of recommendations set for 2009-10.

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VI. Parents and Community:

Tri-State Recommendation: The recommendations centered on identifying a common set of math facts that all students K-5 should know, reinstating 'math nights', and expanding a math website, in the teaching of mathematics, particularly with technology.

Action Plan: The work on the K-5 math facts has been completed and testing of students' automaticity with math facts will occur throughout the year. The data generated will be reviewed to inform curriculum and instruction. Parent informational math programs at the elementary level have occurred in the daytime, but opportunities for evening programs will be explored for later this year. Work on a more comprehensive website will occur this year with the goal of having a site up by the spring of 2009.

In an effort to address these recommendations, a **K-12 Math Committee** has been established to review and address the recommendations. The committee is comprised of teachers, administrators, and specialists representing all schools and grade levels. The grid that is attached as an appendix has been reviewed by committee members and preliminary responses have been generated. The grid outlines the area for review, the specific recommendation from the report, an initial response to the recommendation, and a preliminary timeline.

We look forward sharing more specific information about the recommendations and the action plan at the upcoming meeting of the Board of Education.

AREA	RECOMMENDATION	RESPONSE	TIMELINE
Performance-based Assessments - 1	<ul style="list-style-type: none"> Consider using staff development opportunities to assist teachers in defining performance-based assessments in order to increase their awareness of how these assessments enable students to demonstrate their capacity to learn and apply knowledge. 	Offer staff development opportunities in the area of performance-based assessments based on committee recommendations and math leadership team input.	Spring, 2009
Performance-based Assessments - 2	<ul style="list-style-type: none"> When performance-based assessments are defined and understood, consider developing systemic common assessments K-12 to support, balance and track the incremental development of both conceptual and computation mathematics skills for each Darien student. 	<p>Committee to compile and review current assessments within and across grade levels, and develop recommendations for improvement.</p> <p>Potential exists to dovetail this work with Rtl</p>	<u>Pilot</u> Spring, 2009 <u>Implementation</u> 2009-10
Student performance data - 1	<ul style="list-style-type: none"> Data collection is evident; however, the district could begin to show the link between the analysis of data and improved test scores. Also, consider expanding the data collection/forms used in the student study team process to include more data about mathematics (e.g. district assessments). Consider analyzing this data longitudinally data to inform mathematics teaching and learning. 	Review current assessments and data analysis practices, expand the use of Inform, and meet with SST leaders regarding use of longitudinal data related to math.	<u>Inform</u> Spring, 2009 <u>SST</u> 2008-09
Student performance data - 2	<ul style="list-style-type: none"> Consider developing a comprehensive process at the middle school and high school to examine disaggregated data from state testing reports to inform professional development and curricular decisions. 	Similar to recommendation above regarding use of data to inform teaching and learning.	Currently Underway

<p>Student performance data - 3</p>	<ul style="list-style-type: none"> Consider creating a survey or other formal or informal processes (e.g. focus groups) to collect data from graduates of Darien High School regarding their preparation and success in higher education and employment. Consider ways in which the data collected can be analyzed and then used to inform both guidance and instructional programs. 	<p>Work with high school Guidance Department Supervisor to use Naviance as a tool to survey graduates.</p>	<p>Planning in 2008-09 for possible implementation in the fall of 2009</p>
<p>Student performance data - 4</p>	<ul style="list-style-type: none"> Consider working toward a more flexible and on-going system to allow students the opportunity to participate in more challenging courses in high school. For example, analyze more diverse sources of assessment data to make placement decisions for students in middle and high schools (e.g., performance-based assessments, non-verbal portion of the OLSAT, and Orleans-Hannah for students entering algebra). Provide scaffolding for students who accelerate and challenge themselves. 	<p>Review and communicate district practices regarding student placement.</p> <p>Assess practices used to scaffold students who accelerate levels.</p>	<p><u>Review Processes</u> 2008-09</p> <p><u>Recommendations</u> 2009-2010</p>
<p>Curriculum and instruction - 1</p>	<ul style="list-style-type: none"> Consider creating a process that will link the collected data to facilitate collaborative planning across the grades and articulation with support staff. Explore other opportunities to collect and analyze data from student learning. This may include projects, writing, pre/post assessments, open ended questions and problem with multiple approaches. This information can inform instruction and improve math teaching and learning for all. 	<p>Committee to review methods and practices for sharing data.</p> <p>Explore ways in which non-standardized assessment (performance-based) data can be used to inform instruction.</p> <p>Develop rubrics for performance based-activities.</p>	<p><u>Review</u> 2008-09</p> <p><u>Implementation</u> 2009-10</p>

Curriculum and instruction - 2	<ul style="list-style-type: none"> Using work undertaken by grade one as a model, continue to develop assessments (end unit trimester benchmark assessments) with opportunities for collaborative scoring and data analysis to inform classroom instruction. 	Continue work to develop benchmark assessments at the elementary school and review middle school and high school benchmark practices.	Underway
Curriculum and instruction - 3	<ul style="list-style-type: none"> Provide time for an articulation between the elementary and secondary teachers to ensure appropriate student placement. It will also ease the transition for incoming students. 	Develop and record times for teachers across grade levels to meet regarding student placement.	Underway
Curriculum and instruction - 4	<ul style="list-style-type: none"> Clarify the role of the new position of the instructional specialist K-5, and consider creating a building level 'math leader' to serve as a point person to design common assessments and instructional strategies. This teacher-leader will collaborate with leaders of the other elementary school buildings. Consider providing more personnel designated to mathematics at the elementary level to support meeting the needs of struggling students. In addition, this would help to satisfy Tier 2 interventions required by RTI. 	<p>Review and revise, if necessary, the job description of the K-5 instructional specialist.</p> <p>Explore development of a mathematics teacher-leader model.</p>	<u>Review</u> Fall, 2008 <u>Update</u> Spring, 2009
Curriculum and instruction -5	<ul style="list-style-type: none"> CMT test results and curriculum-based assessment results should be made readily available to teachers and disaggregated to indicate strengths and weaknesses of the math program, the delivery of instruction and individual students. 	<p>Establish processes for providing teachers with access to standardized test results.</p> <p>Provide opportunities for data to be thoroughly analyzed.</p>	Underway but continued training 2008-09

Curriculum and instruction - 6	<ul style="list-style-type: none"> Consider developing a definition of differentiated instruction to guide teachers to understand and consistently apply differentiated instruction in their classrooms. 	Review, revise, and/or update district information related to differentiation.	<u>Review</u> 2008-09 <u>Implementation</u> 2009-10
Curriculum and instruction - 7	<ul style="list-style-type: none"> Consider expanding the Gifted & Talented program to include mathematics enrichment. 	Engage the Gifted and Talented teachers and program coordinator in a conversation about expanding the mathematics strand in the IDEA program.	Spring, 2009
Supervision, evaluation and professional development - 1	<ul style="list-style-type: none"> Consider including a prompt on district teacher goal forms for “rationale” grounded in student data for student learning goals. 	Review and possibly revise teacher “goal” form.	Currently being piloted <u>Review</u> Spring, 2009
Supervision, evaluation and professional development - 2	<ul style="list-style-type: none"> Consider student work samples and data as an artifact of practice to be examined collaboratively and referenced in post-observation conferences between teachers and administrators in order to move conversations beyond global statements to specific student learning needs and results. 	Provide observers with professional development to increase the degree to which samples of student work are examined in conjunction with formal and informal observations.	Administrative Instructional Leadership Team Focus 2008-09
Supervision, evaluation and professional development - 3	<ul style="list-style-type: none"> Continue to develop and implement the revised Teacher Evaluation Rubric as drafted in 2008. 	Continue work on what is now called the “Communication Framework”	Currently being piloted <u>Review</u> Spring, 2009

Supervision, evaluation and professional development - 4	<ul style="list-style-type: none"> Consider professional development vehicles for administrators—principals and assistant principals—to develop a shared K-12 lens for effective mathematics teaching and learning in the classroom in order to further the coaching and supervising of teachers in the realm of mathematics instruction. 	Continue work begun by the Administrative Leadership Team to develop the shared lens for effective mathematics teaching and learning.	Administrative Instructional Leadership Team Focus 2008-09
Supervision, evaluation and professional development - 5	<ul style="list-style-type: none"> At the elementary level, begin to shift the focus of teacher evaluations to include informal and formal observations in mathematics for all non-tenured and observation-cycle tenured teachers. 	Work with administrators at the elementary level to ensure that observations occur in the areas of mathematics as well as literacy.	Administrative Instructional Leadership Team Focus 2008-09
Supervision, evaluation and professional development - 6	<ul style="list-style-type: none"> Develop an intentional, explicit, and scaffolded infrastructure to support mathematics curriculum development, professional development and K-12 articulation. 	Develop a proposal to establish an ongoing K-12 Math personnel infrastructure.	Clarify plan for Long-term structure 2008-09
Supervision, evaluation and professional development - 7	<ul style="list-style-type: none"> Although there is a state-mandated District Teacher Evaluation and Professional Development Plan in place, the K-12 Professional Development Committee should design a comprehensive professional development plan for all staff K-12. This plan should links student performance data, professional development opportunities and district and building goals. The plan could include options for teacher education and continuous opportunities for embedded staff development facilitated by exemplary teachers K-12, including strategies for differentiated instruction strategies, instruction in technology integrated with the mathematics curriculum (including the use of 	Review professional development plans, specifically with a focus on mathematics	2008-09

	<p>presentation systems), and training in the use of data to inform instruction to meet the needs of the varying levels of students. With the adoption of a K-12 Professional Development Plan, opportunities to link theory and practice will result in data to demonstrate the connection between the plan and increased student performance.</p>		
<p>Supervision, evaluation and professional development – 8</p>	<ul style="list-style-type: none"> Consider professional development vehicles for administrators (principals, assistant principals) to develop a shared lens K-12 for effective mathematics teaching and learning in the classroom in order to further the coaching and supervising of teachers in the realm of mathematics instruction. 	<p>See Supervision, evaluation and professional development - 4</p>	<p>Administrative Instructional Leadership Team Focus</p> <p>2008-09</p>
<p>District culture - 1</p>	<ul style="list-style-type: none"> Continue to develop a culture where teachers are encouraged to make use of available resources to enhance their teaching skills in order to bring both change and creativity to their classrooms. 	<p>Provide opportunities for sharing of materials and information, through technology and other vehicles.</p>	<p>Ongoing</p>
<p>District culture -2</p>	<ul style="list-style-type: none"> Consider expanding the process of encouraging teachers to share innovative practices (e.g. Tablet PC technology) with their colleagues throughout the district. 	<p>See District Culture - 1</p>	<p>Ongoing</p>

District culture - 3	<ul style="list-style-type: none"> Continue to articulate and emphasize district goals grounded in a K-12 mathematics focus to demonstrate explicitly a district commitment to deepening vision and drive a shift in culture of mathematics professional conversations. 	K-12 Math Committee to review and update K-12 philosophy and disseminate that philosophy more widely.	<u>Committee in Place</u> 2008-09
District culture - 4	<ul style="list-style-type: none"> Consider a K-12 leadership structure that could have shared ownership of and purpose in developing a district mathematics vision marked by coherence across the K-12 experience for students. Consider levels of teacher involvement (K-12 mathematics committee, building-based math leadership teams, etc.) in developing and defining this vision. 	See Supervision, evaluation and professional development - 6	<u>Committee in Place</u> 2008-09 <u>Recommendations</u> Spring, 2009
District culture - 5	<ul style="list-style-type: none"> Consider vehicles such as lesson study structures, peer coaching, cross-grade visitations, building-based team meeting times, study groups for looking at student work and data analysis, etc. that could bring the vision to life for teachers seeking to implement instruction and facilitate student learning in the classroom. 	Monitor and assess the development of PLCs, specifically in the area of mathematics.	<u>Review</u> 2008-09 <u>Implementation</u> Spring, 2009 and forward
Parents and community - 1	<ul style="list-style-type: none"> Consider refining a set of basic math facts at each grade level (K-5) that students are expected to know with automaticity as they exit their grade level. 	Continue work on clarifying the math facts students should master by each grade level.	<u>Completed but to be reviewed</u> 2008-09

Parents and community - 2	<ul style="list-style-type: none"> Consider re-instituting math nights across the district involving students, parents and teachers that will serve to demonstrate the depth and breadth of mathematical instruction. Interactive sessions that demonstrate conceptual and procedural strategies will educate the community and ensure support. 	Discuss the potential to provide more “math nights” to transmit information about the nature of conceptual and procedural mathematics within the district program.	<u>Review</u> 2008 <u>Implementation</u> 2009
Parents and community - 3	<ul style="list-style-type: none"> Consider creating and communicating a separate “family resource” link on the district Web site that will provide an outline of available programs that connect to current mathematical issues, such as summer enrichment, NCTM articles, research, and links to mathematical learning sites. Currently, this information is available but organization and accessibility is essential. 	Develop a more formal “math link” on the district website that can serve as a resource for teachers, students, parents, and others in the community.	<u>Implementation</u> 2009
Budget support - 1	<ul style="list-style-type: none"> Consider budgetary support for additional math leadership positions, such as an instructional leader for math at each elementary school to work with students and teachers, a middle school math supervisor and a K-12 Math Leader. 	Identify budgetary needs based on possible recommendations based on <i>District culture – 4 and Supervision, evaluation and professional development - 6</i>	<u>Review</u> 2008-09 <u>Recommendation</u> 2009-10