At-a-Glance

The Dallas ISD Math, Science and Technology Initiative focused on scaling up proven academic programs that lead to high academic achievement and college and career readiness. The initiative had two major objectives: to support implementation of successful mathematics and science teaching and curriculum development, and to strengthen the district’s technology infrastructure to provide increased bandwidth to classrooms, and to increase computer-to-student and computer-to-teacher ratios. Several goals were set to meet these objectives:

- purchase desktop and netbook computers for student and teacher use.
- develop a district science and technology website.
- train participating teachers professionally.
- develop and administer a participant use and satisfaction survey.

During this first year, objective one was met. Internet bandwidth was not increased this year.

Funding, Goals, Participants

The district and the Dallas-based Foundation for Community Empowerment (FCE) received a grant of $1.45 million from the National Aeronautics and Space Administration (NASA). The district’s portion of the grant – $750,000 – funded the Math, Science and Technology Initiative. Using these funds, the district developed a science focused website and placed computer labs in participating campuses. The grant was funded for one year – Oct. 1, 2009, to Sept. 30, 2010. In addition to Dallas ISD campuses, participating schools included a number of community childcare programs known as School Readiness Integration (SRI) partners. Seventeen high schools, 25 middle schools, 51 elementary schools (total 93 campuses), and 11 SRI sites with 1 teacher per site, participated in the project. A total of 252 teachers, including substitutes, participated.

Selection

In selecting which schools to participate in the NASA project, district personnel reviewed mathematics and science TAKS scores for all district campuses - elementary, middle, and high. The first group selected was high schools with the lowest scores among all high schools districtwide, along with their feeder middle and elementary schools. The second group was high schools which elected to redesign their curriculum to emphasize STEM (Science, Technology, Engineering, Mathematics) subjects, along with their feeder middle and elementary schools. Recommendations for selection were augmented by input from district Executive Directors and Learning Community coordinators, the Executive Director of Core Curriculum and Instruction, and directors of Math, Science, Early Childhood, Instructional Technology and Library Media Services. All seven district Learning Communities were contacted to identify elementary schools in their area needing mathematics and science support. Finally, the Dallas ISD partners with a number of community childcare programs, so-called School Readiness Integration (SRI) partners, to develop fundamental academic and social skills necessary for school success. SRI sites collaborate with nearby elementary schools that furnish SRI sites with Dallas ISD certified teachers to teach preschool at each SRI center. All elementary schools collaborating with an SRI site were included in the NASA initiative. Ultimately, a total of 17 high schools, 25 middle schools, 51 elementary schools (93 campuses), and 11 SRI sites were included. All Dallas ISD campuses selected are listed in Appendix A of the full final report. Teachers were selected by their principals based upon student academic need. Others volunteered in order to enhance student performance.

Equipment, Training

Each high school and middle school purchased 8 netbooks at a cost of $750 apiece, and each elementary school purchased 5 desktop computers at $923 apiece. Each SRI site received two desktops loaded with Millie Math and Sammy Science software, and two desks. Science teachers and teacher technologists at participating schools received specialized training focusing on hardware and software use, as well as hyperlinks. Training also promoted collaboration among campuses. Website links were coordinated with the district’s Curriculum Planning Guides, so that teachers could align content objectives with state mandated standards, such as TEKS (Texas Essential Knowledge and Skills) and TAKS objectives. Training also provided skills and pedagogy in how to engage students with innovative and interactive strategies using technology as a learning tool. For high and middle schools, on February 24 to 25, teachers participating in the initiative received specialized professional development, including paper and foam rocket making, linear measurement of change, geography, and area mapping. A similar make-up training session was held on May 5. A post-training survey was
administered, results of which appear in the full final report.

Science Website
A website was developed to stimulate student involvement and achievement. The website was developed by the district Technology Department based upon comments, suggestions, and desires of a website development committee comprised of the Executive Director of Instructional Technology, the Environmental Center Director, project managers, an Evaluation Specialist from the Evaluation and Accountability department, and representatives from the district’s technology department. The final product was a website entitled “Science in the City,” accessible at http://www.dallasisd.org/inside_disd/depts/science. Because the website was launched on February 23, 2010, and became available for student and teacher use on March 1, 2010, only about 3 months of experience with it was available by the end of the academic year.

NASA Field Trip
Students were selected to go on a field trip to NASA based upon a contest created by the district Science Department. The contest required that secondary teachers utilize the resources found on the Science in the City website to design an intervention lesson plan for students. One teacher at the middle school level and one teacher at the high school level each were awarded the opportunity to select 25 students to visit the NASA Johnson Space Center in Houston, Texas on May 21 to 22, 2010. Ninety-five secondary school students and five teachers were chosen. Students participating in the field trip attended Pearl C. Anderson, Thomas A. Edison, Sam Tasby, and Maynard H. Jackson middle schools, and Woodrow Wilson High School. A math or science and technology teacher from each campus was selected. Teachers were selected based upon lesson plans they submitted for a contest explaining how they would use the science website to enhance learning. Transportation, hotel accommodations and food expenses were paid by the grant. The itinerary consisted of an evening “Blast Off” show, a guided “Tracking Tram!” tour, and moon walking activities.

Satisfaction Survey
Embedded as a link in the Science in the City website was an online teacher satisfaction survey designed to measure effectiveness and usefulness of the grant. The survey was designed by an Evaluation Specialist from the Evaluation and Accountability department in collaboration with the Executive Director of Instructional Technology, the Environmental Center Director, project management, and a representative of the Foundation for Community Empowerment. The survey was designed to measure teacher use and satisfaction with the project, as well as to elicit suggestions for future improvement. Survey results and interpretation appear in the full final report.

TAKS Scores
Purely for information, percentages meeting standard on TAKS mathematics and science by school level from 2009 (pre-dating the NASA grant) were compared to those in 2010 (following the grant). For several reasons explained in the full final report, no conclusions as to effectiveness or results of the grant can be drawn from these comparative scores. They appear here solely for informational purposes.

Table 3
Percent of Students Meeting Standard
2009/2010 Math and Science TAKS by Grade Level

<table>
<thead>
<tr>
<th>Elementary Schools, Grades 3-6</th>
<th>2009</th>
<th>2010</th>
<th>Change (+/-)</th>
<th>2009</th>
<th>2010</th>
<th>Change (+/-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>79.3</td>
<td>81.5</td>
<td>+2.2</td>
<td>75.9</td>
<td>80.5</td>
<td>+4.6</td>
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<tr>
<td>Sci.¹</td>
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<td></td>
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<tr>
<td>Middle Schools, Grades 7-8</td>
<td>2009</td>
<td>2010</td>
<td>Change (+/-)</td>
<td>2009</td>
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<td>Change (+/-)</td>
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<tr>
<td>Math</td>
<td>69.8</td>
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<td>-0.4</td>
<td>59.2</td>
<td>61.9</td>
<td>+2.7</td>
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<tr>
<td>High Schools, Grades 9-11</td>
<td>2009</td>
<td>2010</td>
<td>Change (+/-)</td>
<td>2009</td>
<td>2010</td>
<td>Change (+/-)</td>
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<tr>
<td>Math</td>
<td>61.7</td>
<td>63.3</td>
<td>+1.6</td>
<td>65.7</td>
<td>67.1</td>
<td>+1.4</td>
</tr>
<tr>
<td>Sci.³</td>
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</tbody>
</table>

Notes.
2010 TAKS met standard in math and science are unofficial compiled by evaluator from raw data in district database.
Change (+/-) is expressed in percentage points.
¹ Only 5th grade tested in Science
² Only 8th grade tested in Science
³ Only 10th and 11th grades tested in Science

2009 source: Campus Data Packet compiled by Dallas ISD Data Analysis, Reporting and Research Services
2010 source: District 2010 TAKS score database

Recommendations
Beginning next year, state of Texas mathematics and science curricula requirements become more stringent. Therefore, budget permitting, the following recommendations for improvement are to increase internet bandwidth and participating campuses, and teacher participation in satisfaction surveys.
For more information, see EA10-130-2, available at www.dallasisd.org/inside_disd/depts/evalacct/.