Mathworks Summer Math Camps

With over 20 years of history, our flagship summer math camps continually set new standards of success for all students, developing future leaders in mathematics, science, and engineering while serving as a laboratory and testing ground for Mathworks teacher training and curriculum development programs. They also provide teacher preparation for university undergraduates and research opportunities for math education graduate students, who gain first-hand experiences working with K-12 teachers and students.

Junior Summer Math Camp (JSMC)

The Junior Summer Math Camp includes a two-week, five-level program that provides a mathematical foundation for approximately 200 rising 4th-8th grade students who commute from the local area and a higher-level residential program for 32 students from throughout Texas and beyond. To date, the JSMC has served more than 7,000 young students with an intensive immersion doing mathematics at a high level using hands-on activities and inquiry based teaching. More than 55% of our students are Hispanic and more than 50% of students come from disadvantaged families, attending on camp scholarships. The residential camp participants include a team of four students who compete in the Primary Math World Contest in Hong Kong. In nine years of competing, the Mathworks team has been awarded the Po Leung Kuk Cup seven times (top non-Asian team), and also tied for first place overall in 2008.

The JSMC curriculum provided the foundation for the school-year *Math Explorations* curriculum. The JSMC also provides the setting for Mathworks teacher training, as in-service teachers observe and participate in morning camp sessions, followed by graduate level classes in the afternoons where they learn both content and pedagogy. Teachers see Mathworks "in action" and learn how to implement the *Math Explorations* curriculum in their own schools.

Honors Summer Math Camp (HSMC)

The Honors Summer Math Camp recruits 60 of the most talented high school students from Texas and across the nation to attend a six-week residential program. This includes students from all backgrounds. One such student who attended our program last summer wrote on her final camp evaluation:

> "My family is made-up of four people: my mother, myself, and my two brothers." [Her family's adjusted gross income was $12,324, and her mother is unemployed, living on less than $800 a month in child support.] "I thought I was not going to be able to succeed at the things that they gave me here because I thought it was going to be too hard. Thanks to camp, my mindset switched. I liked the math problems because they were challenging and they made me think a great deal! I have learned many new things that I know are going to help me back at school."

Campers are engaged in doing high-level mathematics, conduct original research with faculty mentors, and meet with leaders from academia and industry. Over the past 22 years, more than 750 students have participated in the HSMC, subsequently going on to great success in budding careers and advanced academic study. Over 80% of our HSMC alumni major in math, science or engineering in college. One measure of the program's success is the students' achievements in the prestigious national Siemens Competition for high school students. In the past 11 years, 116 Mathworks camp students have been recognized as semifinalists or above in the competition, including 51 regional finalists and 14 national finalists. Five Mathworks teams have achieved national finalist standing, with a team winning first place overall in 2009. The HSMC has been recognized 10 times by the American Math Society Epsilon fund as one of the top math programs in the country.

Mathworks Curriculum Research, Development and Evaluation

The Mathworks school-year curriculum, *Math Explorations*, enables all students to complete Algebra I by 8th grade or earlier with an exciting, research-based middle school curriculum that integrates algebraic concepts throughout. Students are engaged in careful thinking and rigorous problem solving, establishing a solid foundation in mathematics that will prepare them for higher-level math courses, college and careers in Science, Technology, Engineering and Mathematics (STEM).

Funded with support from the Kodosky Foundation, RGK Foundation, and the Meadows Foundation, Texas State mathematics faculty developed a series of three middle-school mathematics textbooks, student workbooks, and teacher editions. An intensive teacher-training program was created as part of the Mathworks Algebra Project (MAP). MAP is a comprehensive program that addresses the critical elements needed to achieve student success, including teacher training, administrative support, parental involvement, and school environment. *Math Explorations* covers all of the Texas Essential Skills & Knowledge (TEKS) for the 6th- 8th grades, as well as the Algebra I TEKS. Students who have used *Math Explorations* not only do well on the Texas Assessment of Knowledge and Skills (TAKS), soon to be STAAR, they are also above grade level in their preparation for algebra (see below). To date, the Mathworks curriculum has impacted more than 4,600 students. MAP is now being extensively evaluated and prepared for broader dissemination.

Mathworks Curriculum Implementation Sites

District	School Year	Grades	# of Students
McAllen	2008-2009	6, 7	426
	2009-2010	6, 7, 8	611
Midland	2009-2010	7	409
	2010-2011	6, 7	1,150
New Braunfels	2010-2011	6, 7	1,500
Austin	2009-2010	6	242
	2010-2011	6	300

Student Gains in Algebra Readiness: Orleans-Hanna Algebra Prognosis Raw Scores