

Mathworks

LEGACY campaign

Over a 20-year span, Mathworks' programs have provided more than 7,000 young students with exciting learning opportunities in mathematics, trained 650 in-service teachers, and developed innovative middle school mathematics curriculum that engages young students in the joy of mathematical exploration and discovery. These programs have been proven to enhance achievement in algebra and higher-level mathematics in all students, leading to careers in fields ranging from mathematics and computer science to finance, engineering and medicine.

The Mathworks Legacy Campaign is designed to sustain Mathworks as a permanent national treasure.

The goal: a \$6 million permanent endowment to support Mathworks' three pillars – Junior and Honors Summer Math Camps, Teacher Training, and Curriculum Development.

This campaign will elevate Mathworks from its present status as one of the most prestigious programs in the nation to a model national center of excellence that will continually attract and nurture future generations of students and advance teaching effectiveness in mathematics.

The Mathworks Advisory Board and faculty of Mathworks invite you to consider a gift to the Mathworks Legacy Campaign. Whether through naming a permanent program endowment or giving to our annual scholarship fund, your generosity will directly impact the future of educational excellence in mathematics across Texas and beyond.

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PROGRAM ENDOWMENT GIFTS

Endowment funding is sought for these programs, with extensive naming opportunities available:

Honors Summer Math Camp – \$2.5 million permanent endowment, supporting 60 students and 15 counselors each summer.

Junior Summer Math Camp – \$1.25 million permanent endowment, supporting 170 commuter students and 30 residential students each summer.

Mathworks Centennial Chair – \$1 million permanent endowment, to support a named Mathworks Chair in the Mathematics Department, ensuring that Mathworks will always be able to recruit outstanding leadership in the future.

Teacher Training Program – \$500,000 permanent endowment, supporting training of five (5) public school teachers in the Mathworks curriculum, each of whom will establish a Junior Summer Math Camp in their district for at least 16 students.

Curriculum Development – \$500,000 permanent endowment, supporting development of middle school textbooks that extend the Junior Summer Math Camp curriculum to a full school year, empowering young students to do math at a high level, and preparing all students for success in algebra and more advanced mathematics.

Primary Math World Contest Training and Participation – \$250,000 permanent endowment, supporting 4 students to attend the international mathematics competition in Hong Kong each year.

$$a^2 + b^2 = c^2$$

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TEXAS MATHWORKS AT TEXAS STATE UNIVERSITY

LEGACY campaign (continued)

The passion, energy and enthusiasm of Mathworks students, faculty and supporters sets the program apart as a model for engaging young students in the excitement of mathematical exploration and discovery.

PERMANENT NAMED SCHOLARSHIPS AND FELLOWSHIPS

Honors Summer Math Camp:

Permanent individual named scholarships may be endowed at the \$50,000 level to support high school students to attend.

Junior Summer Math Camp:

Permanent individual named scholarships may be endowed at the \$25,000 level to support residential students to attend. A permanent named scholarship for students to attend the San Marcos commuter Junior Summer Math Camp may be endowed at the \$10,000 level.

Graduate Named Fellowships:

Permanent individual named fellowships may be endowed at the \$125,000 level to support Texas State graduate students in our new mathematics education program to conduct research about Mathworks programs.

Undergraduate Named Fellowships:

Permanent individual named fellowships may be endowed at the \$50,000 level to support undergraduates to work with Mathworks faculty and teachers each year.

ANNUAL SCHOLARSHIP FUNDING

Honors Summer Math Camp student scholarship:
\$2,700

Junior Summer Math Camp student scholarship:
\$1,250

Graduate Student Summer Fellowship:
\$2,500

Undergraduate Student Summer Fellowship:
\$1,500

One-time gifts to our program in any amount are always appreciated, and a variety of **program naming opportunities** are available.



$$a^2 + b^2 = c^2$$

KEY Initiatives

As a center of excellence and innovation in mathematics education, Mathworks develops programs that engage young students in doing mathematics at a high level. Through flagship programs with a 20-year record of success, we reach hundreds of students in annual summer math camps – the Junior Summer Math Camp for students in grades four through eight and, for high school students, the Honors Summer Math Camp, which is nationally recognized as one of the top six programs of its type in the country.

ENABLING STUDENT SUCCESS

Mathworks prepares students to succeed in algebra, a gatekeeper course to higher mathematics, with programs and curriculum that nurture one's creativity and imagination. Research shows that **“students who complete Algebra II are more than twice as likely to graduate from college compared to students with less mathematical preparation.”***

For many students, just passing Algebra I is a major hurdle. However, the long-term achievement gap among students of differing ethnic and socioeconomic groups can be significantly reduced or even eliminated if students increase their success in algebra and higher-level mathematics.

HOW MATHWORKS SUCCEEDS

The three pillars of Mathworks are **summer camps**, **teacher training** and **curriculum development**. Our flagship summer math camps continually set new standards of success for all students. The Honors Summer Math Camp recruits 60 of the most talented students both from Texas and throughout the world to attend a six-week residential program. The Junior Summer Math Camp is a two-week, multi-level commuter program for approximately 200 students that provides a mathematical foundation for rising 4th - 8th graders. A residential Junior Summer Math Camp for 32 students trains a team that competes in the Primary Math World Contest, while building a pipeline to the Honors Summer Math Camp. The camps prepare students to be leaders in their classrooms who can make significant contributions in math and science.

The summer math camps also serve as an important laboratory and testing ground for the other Mathworks pillars – teacher training and curriculum development.

Training teachers to use the Mathworks curriculum in a way that actively engages students in doing mathematics is the second pillar. Teachers observe summer math camps in action and attend graduate classes covering content and pedagogy. After training, teachers are prepared to use the Mathworks curriculum, and they are ready to instill mathematics skills and confidence in their students.

The third pillar of Mathworks is an exciting new curriculum that integrates learning from Mathworks' laboratory of summer math camps with a middle school curriculum that covers the TEKS through Algebra I. The curriculum weaves algebra and algebraic ideas with hands-on, inquiry-based explorations for students working independently and in groups. The curriculum is presented in carefully developed textbooks and supporting materials that are used in a growing number of pilot locations in Texas. The results are being rigorously tested, evaluated and prepared for broader adoption, even as Mathworks' flagship programs are sustained.

THE FUTURE OF MATHWORKS

With these activities and additional research and new initiatives still to come, Mathworks intends to serve as a national leader in dramatically improving mathematics education in order to positively affect the lives of students for generations to come. As a *center of mathematics excellence*, Mathworks will continually develop, explore and test new ideas and will bring together the most talented students, faculty and teachers to push the boundaries of what is possible. As other institutions preserve our nation's natural resources, so must we have mathematics centers that will nurture and develop perhaps our most precious resource – the abilities and potential of our young students to create and innovate in math, science and technology.

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*(Source: National Mathematics Advisory Panel)

SYNERGISTIC PROGRAMS DRIVING IMPROVEMENTS IN MATH EDUCATION

SUMMER MATH CAMPS

A recent survey of Honors Summer Math Camp (HSMC) alumni shows that more than 80% major in math, science or engineering.

More than 90 HSMC students have been semi-finalists or regional or national finalists in the Siemens Competition in Math, Science & Technology in the past nine years.

Over the past 15 years, more than 7,300 students have participated in the Junior Summer Math Camp, more than 75% of whom were Hispanic or African-American.

TEACHER TRAINING

Over the past decade, more than 650 Texas K-12 teachers have participated in summer training with Mathworks.

During the school year, Mathworks faculty work with teachers through Math Inquiry Groups, forming a learning community that continually develops better ways to teach.

The "Richardson Teaching Fellows" program gives Texas State undergraduates an early teaching experience in K-12 classrooms.

CURRICULUM DEVELOPMENT

Data shows the Mathworks curriculum to be effective in "closing the gaps," preparing students for Algebra readiness and beyond.

The Mathworks curriculum extends the Junior Summer Math Camp textbooks into a full school year program, covering the TEKS through Algebra I.

The Mathworks curriculum prepares all students for Algebra, enabling them to do math at a high level.

PROOF Points

Mathworks at Texas State University is a center of excellence and innovation in mathematics – created to develop model programs and self-sustaining learning communities that engage middle and high school students in doing mathematics at a high level. Our goal is to prepare students, undergraduate pre-service teachers, and in-service teachers from all backgrounds for success in learning, teaching and doing mathematics.

In December 2009, the **Mathworks Honors Summer Math Camp** team of **Kevin Chen, Sean Karson** and **Dan Liu** won the prestigious national *Siemens Competition in Math, Science & Technology* with their project, “*Relating Missing and Decycling Edges in Directed Graphs.*” They shared a **\$100,000 college scholarship**. Over the past nine years, 94 students involved with research projects and mentors from the Honors Summer Math Camp have been named semifinalists or above in the Siemens Competition, including 43 regional finalists and 11 national finalists.

In 2008, the Mathworks team from the **Junior Summer Math Camp** tied for the overall top prize in the *Primary Math World Contest* in Hong Kong, where 44 teams competed. Three team members also received highest honors with perfect papers. Since 2002, the Mathworks entry also has been the top non-Asian team almost every year, thereby winning the “*Po Leung Kuk Cup*” six times. In 2006, the team had a perfect score, while two student members also received highest honors in the individual competition with perfect papers.

Mathworks received the *Siemens Foundation Founder’s Award* in 2007 in recognition of efforts to promote math and science research by young students.

Mathworks has been recognized eight times by the *American Math Society Epsilon Fund* as one of the top six (6) mathematics programs in the nation. Over the past 20 years, the *Epsilon Fund*, the *National Science Foundation*, *Siemens Foundation* and numerous other benefactors have provided more than **\$5.4 million in external grants and donations** to support Mathworks programs.

Seven Honors Summer Math Camp alumni have been named *Presidential Scholars*. Two students from each state in the nation are recognized each year in the national recognition program.

In a recent survey of former **Honors Summer Math Camp** participants, more than **80 percent** indicated they are majoring in math, science or engineering. Universities with the most Honors Camp alums attending are **The University of Texas at Austin, Stanford, MIT, Rice, Harvard, Texas A&M, Yale, Cal-Tech and UC Berkeley.**

The **average SAT math score** for Honors Summer Math Camp participants is **755 out of a possible 800** – at the level of the best students at the top schools in the nation.

Over the past decade, more than **650 Texas teachers** have participated in summer training with the Mathworks curriculum.

In 2001, Mathworks was awarded the *Texas Higher Education Star Award for Closing the Gaps* by **Governor Rick Perry**.

Max Warshauer, now a *Texas State University System Regents’ Professor*, was honored by **President George W. Bush** with the *Presidential Award for Excellence in Science, Math and Engineering Mentoring* and by the **U.S. Department of Education** with the *Teacher Recognition Award* from its U.S. Scholars Program. Dr. Warshauer, founder of Mathworks, is currently Texas State University’s nominee to be a **Piper Professor**.

$$1 + 3 + 5 + 7 + \dots + (2n - 1) = n^2$$

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TEXAS MATHWORKS AT TEXAS STATE UNIVERSITY

Thousands of students have attended Mathworks camps or learned its curriculum in their own schools over the past 20 years. Young graduates of our summer math camps have traveled from San Marcos to great success in budding careers and advanced academic study. Here are the stories of a few of these students.

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Ken Baker attended the Honors Summer Math Camp in 1992 as a student, and served as a counselor from 1995-1998. Ken earned his doctorate in mathematics from The University of Texas at Austin in 2004 and received the Frank Gerth III Award in recognition of his dissertation. He is now in a tenure track position in the Department of Mathematics at the University of Miami.



Janet Chen was a counselor in 1996, 1997 and 1998 after attending Math Camp as a student from 1994 to 1996. She graduated from Stanford in 2001, receiving the Terman Scholastic Engineering Award as one of the university's top undergraduates. Janet later received her doctorate in mathematics from Harvard University, where she is now a lecturer.



Jenny Chen, a student at Math Camp in 1998-2000 and a counselor from 2001 to 2003, received a bachelor's in mathematics and a master's in computer science, both from Stanford University. Jenny is now a software engineer at Google.



Victor Cepeda was a Math Camp student in 2002 and 2003 and a counselor from 2004-2007. He graduated from Stanford in 2007 with a bachelor's degree in computer science, winning awards from Yahoo, Electronic Arts and Microsoft with his senior project. After joining Volition Inc. as a programmer, he was recognized as the company's "Programming Rookie of the Year."



Araceli Fernandez attended Math Camp six summers as a student and counselor, serving as Head Counselor in 2005-2006. Her team's entry was the 6th place National Winner in the Siemens Competition in Math, Science & Technology in 2003. A first generation college student, she received a degree in architectural engineering from The University of Texas at Austin. She now is employed by the Fluor Corporation and is an active member of the Society of Hispanic Professional Engineers.

At camp I learned there is more to math than what was taught in high school. Without these glimpses of the vastness and beauty of mathematics, I might not have ended up a mathematician.

Ken Baker

Math camp was the first time I was surrounded by people with so much intellectual enthusiasm. We were encouraged to discuss and debate mathematical ideas rather than just accept a teacher's assertion that following a certain recipe would give us the right answer. Now that I teach math to others, I am always trying to get my students to make that same shift in their thinking, and I often look to my math camp experience to help me out.

Janet Chen

Math Camp gave me the tools, confidence and patience to approach entirely new problems.

Victor Cepeda

Mathworks soaked my feet in a new world of math, logical thinking, and social networking. I left camp more inspired, ambitious, and driven to succeed in the world.

Araceli Fernandez

SUCCESS Stories (continued)

Math Camp students are prepared to be future leaders – with careers in teaching, finance, medicine, technology, computer science, engineering and other fields. Their creativity and innovation is critical to our country being competitive as a leader in the global economy of the 21st century.



Christopher Hillar attended Math Camp from 1995 to 1998 as a student and counselor. Receiving bachelor's degrees in mathematics and computer science from Yale, he was awarded the Anthony Stanley Memorial and John DeForest prizes for excellence in pure and applied mathematics. Chris finished his doctorate in mathematics at U.C. Berkeley in 2005, and is a co-author for more than 20 papers published in mathematics journals. He now works at the Mathematical Sciences Research Institute and is a recent recipient of an NSA Young Investigators Grant.



Phil Maywah attended Math Camp in 1997-1998 and then served as counselor and head counselor from 1999-2003. He attended Harvard on an honorary scholarship, receiving a degree in applied mathematics in 2004. Phil is now a financial analyst at a global hedge fund in Miami.



Helen Tang Paradise attended Honors Summer Math Camp in 1998 and 2000 as a student and was a camp counselor in 2001 and 2002. She received a bachelor's in biology from MIT in 2005 and is completing her medical training at the Texas Tech School of Medicine while also completing a Masters of Public Health degree in epidemiology at the Emory Rollins School of Public Health. Helen begins residency training in internal medicine this year and hopes to continue to apply epidemiology to the understanding of public health issues.



Jacques Pouhe was a Math Camper from 1996 to 1998 and served as a counselor from 1999 to 2001. He subsequently graduated from Yale with a bachelor's degree in economics. During college, Jacques helped to create and co-pilot a curriculum for America Counts, a program that provides free math tutoring to underserved middle school students. He is currently a vice president at Barclays Capital, an international investment bank.



Karen Vazquez began student teaching in the fall of 2009 while working on a math education degree at Texas State University. She attended Honors Summer Math Camp in 2005 and 2006, served as a counselor in 2007, and served as head counselor in 2008 and 2009. Her younger sister also attended the Honors Summer Math Camp in 2008 and 2009.

Math Camp was one of my most important experiences. It stimulated and nurtured my mathematical creativity within a community filled with warmth.

Christopher Hillar

My summers at Math Camp were some of the best and most fun times of my life. By teaching me the rigorous logic and thinking needed to do proof-based math, the camp provided me with great preparation for courses I took in college.

Phil Maywah

The daring spirit and critical thinking skills that I learned from Math Camp continue to help me on my journey to become a physician to better society and help those in need.

Helen Tang Paradise

Attending Math Camp opened my eyes to an environment where a diverse community of people can get together and have fun while learning and creating lasting friendships.

Karen Vazquez

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TEXAS MATHWORKS AT TEXAS STATE UNIVERSITY

The internationally recognized Mathworks program has brought recognition and acclaim to Texas through its innovative math education initiatives. Leadership of this unique program is provided by the faculty and administration of Texas State University, which has served as a nurturing home for the program and its dedicated team of educators for 20 years.



Dr. Max Warshauer, the founder of Mathworks, is a Regents' Professor of Mathematics, one of only a select few faculty members in the Texas State University System recognized in this manner. Dr. Warshauer has also been awarded the Presidential Award for Excellence in Science, Math and Engineering Mentoring by President George W. Bush, as well as the Teacher Recognition Award from the Department of Education's U.S. Scholars Program.

OTHER MATHWORKS FACULTY INCLUDE:



Dr. Terry McCabe, Associate Director of Mathworks and Assistant Director of Mathematics, 2002 recipient of the Texas State Presidential Award for Excellence in Teaching, co-author with Max Warshauer, Hiroko Warshauer and Alex White of the *Math Explorations* curriculum



Dr. Don Hazlewood, Professor of Mathematics, Mathematica Lab Coordinator, and co-founder of the Honors Summer Math Camp



Ms. Hiroko Warshauer, Senior Lecturer of Mathematics and co-author with Terry McCabe, Max Warshauer and Alex White of the *Math Explorations* curriculum



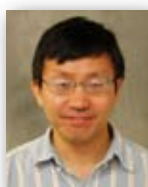
Dr. Alejandra Sorto, Assistant Professor of Mathematics, recipient of multiple grants from the Association for Women in Mathematics that support scholarships for young women to attend the Junior Summer Math Camp



Dr. Alexander White, Associate Professor of Mathematics, as well as co-author of the *Math Explorations* curriculum with Hiroko Warshauer, Max Warshauer and Terry McCabe



Dr. Nathaniel Dean, Professor of Mathematics, President of the National Association of Mathematicians, teacher and research project mentor for the Honors Summer Math Camp



Dr. Jian Shen, Professor of Mathematics, mentor of the Honors Summer Math Camp team that won the 2009 Siemens Competition in Math, Science & Technology, named a Kavli Frontiers Fellow by the National Academy of Sciences in 2007

The Mathworks program at Texas State University is an acknowledged center of excellence that is helping to create a better educated student body as it provides training for teachers and teachers-to-be at the leading edge of mathematics education.

Texas State itself is one of the largest public universities in Texas. Through its nine academic colleges, this major, multi-purpose university offers nearly 200 undergraduate and post-graduate degrees to serve the needs of students. Thanks to the increasing number of high-achieving students who choose Texas State, it also is home to one of the most exciting interdisciplinary university honors programs in Texas.

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TEXAS MATHWORKS AT TEXAS STATE UNIVERSITY

LEADERShip (continued)

Mathworks professors work directly with middle and high school students and teachers – preparing a team of middle school students to compete in the Primary Math World contest, mentoring high school students on research projects, and training teachers to engage students in learning mathematics at a higher level.

OTHER MATHWORKS FACULTY (continued):



Dr. Weizhen (Diana) Gu, Professor of Mathematics, mentor to Mathworks student research teams since 2003, director of after-school math enrichment classes at MTY Academy for gifted middle school and high school students



Dr. Carol Hazlewood, Associate Professor of Computer Science, and long-time teacher in the math camp Mathematica Lab



Dr. Eugene Curtin, Professor of Mathematics, long-time Mathworks teacher and two-time state Chess Champion of Texas



Dr. Qiang Zhao, Assistant Professor of Mathematics specializing in Survival Analysis and Bioinformatics, research project mentor to Honors Summer Math Camp students



Dr. Sharon Strickland, Assistant Professor of Mathematics, researcher in mathematics education of current and pre-service teachers, especially related to improving mathematics instruction for students



Dr. Joyce Fischer, Assistant Professor of Mathematics, provides professional development for K-12 mathematics teachers in Texas and Mexico and with a team of fellow researchers has developed the *Mathematics for English Language Learners Spanish Resource Guide*

$$\frac{x}{1} = \frac{1}{x-1}$$

$$x \approx 1.61803$$

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TEXAS MATHWORKS AT TEXAS STATE UNIVERSITY

ADVISORY Board

Support for the Mathworks programs is provided by a committed Advisory Board of individuals who believe in the critical importance of mathematics as a foundation for science and engineering, and as a key to our country's future in the global economy of the 21st century. We are grateful to the following members for their talent, support and guidance for Mathworks' growth and development, and for helping create a vision for how Mathworks programs can dramatically change mathematics education in Texas and beyond.



"I have been involved with many math and science programs for middle and high school students. Mathworks ranks among the very best."

Herb Carter

Herb Carter is the former executive vice president of Siemens Foundation, sponsor of the prestigious Siemens Competition in Math, Science & Technology. He also is an advisor to a charter school in Atlanta.



"With Max Warshauer's infectious enthusiasm and focus on quality, it's no wonder campers, school students and teachers alike are rallying to his programs."

Howard Falkenberg

Senior communications strategist and community leader Howard Falkenberg is president of Staats Falkenberg, a Texas-based marketing communications company.



"It's imperative that the methods and materials from the summer camps make their way into the mathematics curriculum so that everyone can benefit from a much higher level of mathematics understanding."

Jeffrey L. Kodosky

A co-founder of National Instruments Corporation, Jeff Kodosky is a respected mentor in the company's global research and development operations. He is a trustee of Rensselaer Polytechnic Institute.



"I am excited about Mathworks because of the demonstrated effectiveness of introducing algebra concepts in sixth and seventh grade math classes."

Robert G. Rutishauser

Formerly chief financial officer of the national research consortium, Microelectronics and Computer Technology Corporation (MCC), Bob Rutishauser is a veteran technology industry executive and education advocate.



"As we roll out the Mathworks curriculum to everyday classrooms, I foresee the day when young students will no longer be plagued by a deficiency in math skills."

Jim A. Smith, CPA

Financial advisor Jim Smith has extensive experience in executive and board leadership positions. He served 21 years as chief financial officer and a director of Tracor, Inc., a publicly traded commercial and defense manufacturer.

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