

Mathematics & Science Center Annual Report 2001-02



The Mathematics & Science Center delivers educational programs that lead and support area school divisions in developing all students' math and science skills. The seven member school divisions provide the operating budget of this educational consortium: Chesterfield, Goochland, Hanover, Henrico, King William and Powhatan counties and the city of Richmond. Other school divisions also participate through special lessons-on-a-fee basis or Institutional memberships: Prince George and Charles City counties, the city of Hopewell, and St. Bridget's and the Steward School.

Students, teachers, and parents learn in the Center's uniquely designed, award-winning facilities, in regular school classrooms equipped with special materials and visiting staff, and in special Saturday and summer programs on campus and at a variety of locations throughout the community.

An electronic report available at
<http://mathsciencecenter.info>

Metro Richmond Science Fair. The Center fosters the development of future scientists through sponsorship of a regional fair for students in grades 7-12.

Instructional Kits. The Center lends the equipment, materials, and software needed to implement cutting-edge programs or to enrich the divisions' core curricula.

Professional Development. The Center "teaches the teachers" through courses, workshops, field experiences, and model classroom lessons.

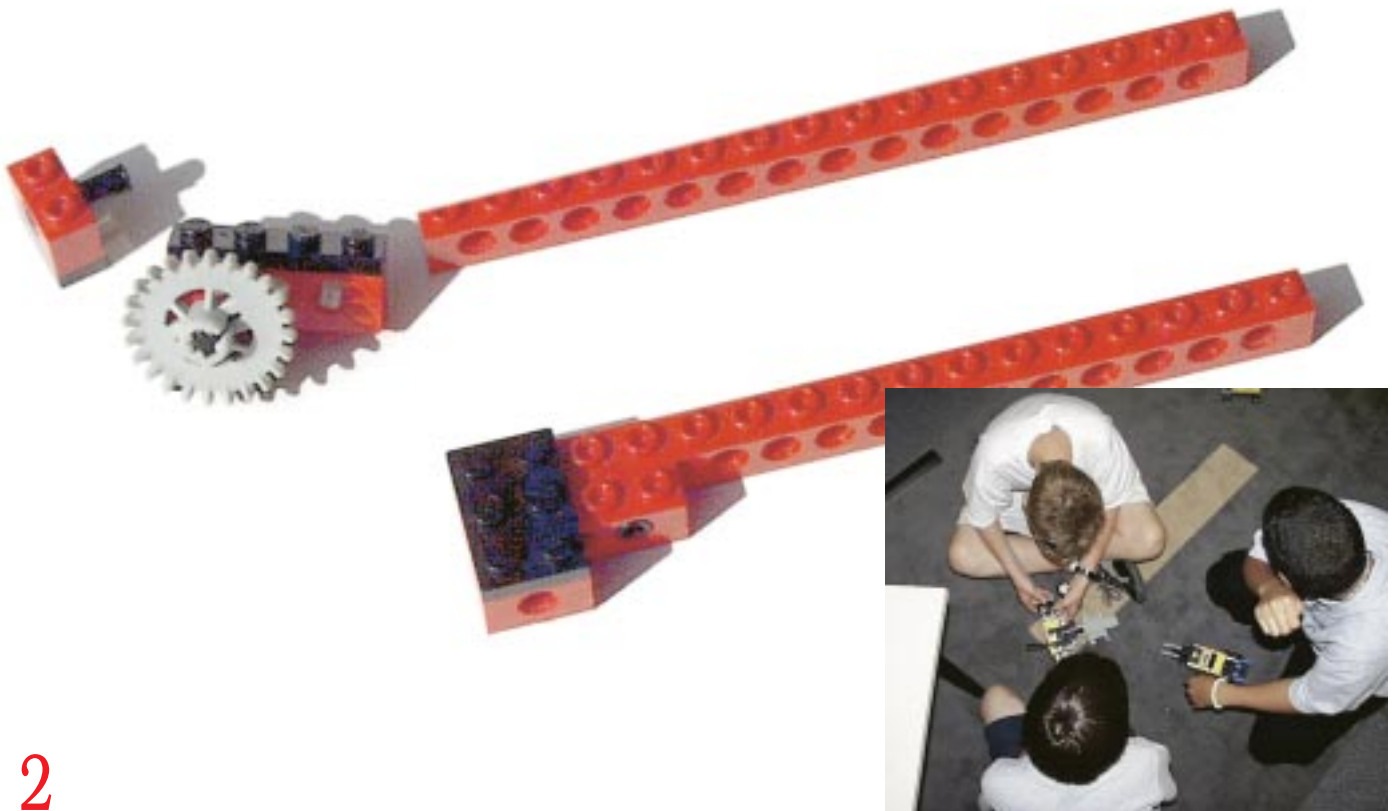
Saturday and Summer Programs for Students. The Center provides state-of-the-art programs and opportunities for students and parents on Saturday and during the summer such as programs for K-4 students and parents, courses for students in grades 5-12, and special summer courses for students including the Regional Summer Governor's School for Middle School Youth.

Web-Based Programs. The Center is developing a new on-line informational web site and on-line educational materials for students and teachers.

Weekday Lessons for Students. The Center staff teaches lessons in the Center's designed classrooms, mobile facilities, or area classrooms.

Metro Richmond Science Fair

- 624 students submitted papers to be screened for presentation at the 10th Annual Metro Richmond Science Fair.
- 292 papers were selected for presentation at the Fair held at Atlee High School.
- 14 of the Fair's winners participated in the Virginia Science and Engineering Fair, winning 6 awards.
- 16 students were selected to participate in the Discovery Channel Young Scientists Challenge program and 1 student was recognized as a national finalist.
- The MSC Foundation provided cash prizes for 15 first place winners in the senior and junior divisions.
- Over 150 volunteers and 13 businesses provided cash, in-kind donations, and volunteer hours to make the Fair successful.



Instructional Kits

- The Center lent the equipment, materials and software needed to implement cutting-edge programs or to enrich the divisions' core curricula. Over 43,700 students received lessons based upon the Center's equipment and materials.
- New loan equipment focused on new Spec 20's and a flurometer funded by the Circuit City Foundation.
- *Spiderology*, an instructional kit for elementary students, was developed to accompany the Center's renovated Spider Room and associated web site. The Mary Morton Parsons Foundation, Memorial Foundation, Midlothian Rotary Club, Virginia General Assembly, and Windsor Foundation provided support for the project.



Professional Development

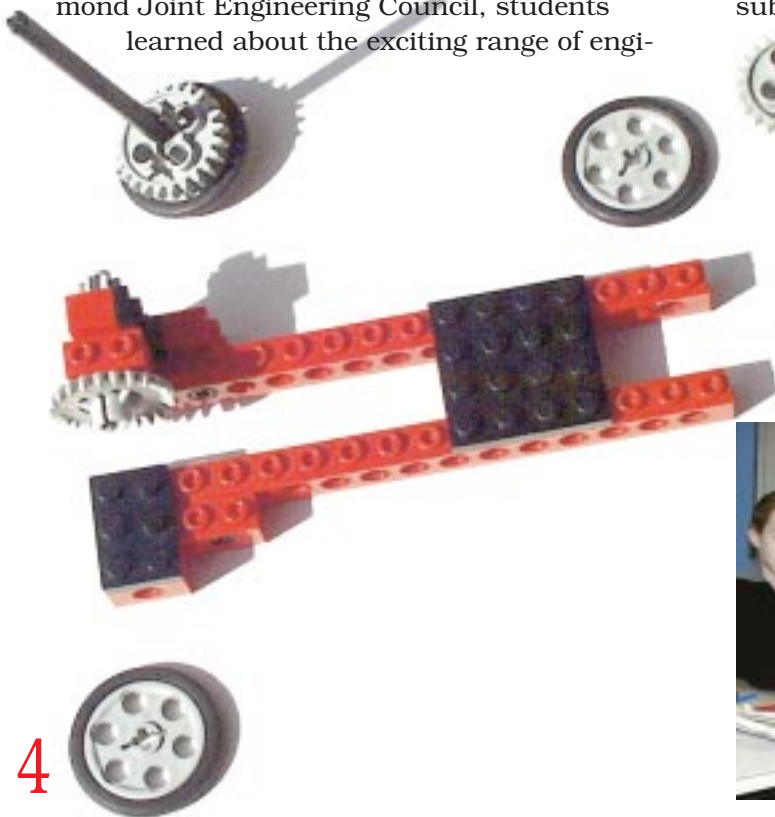
- The Center "taught the teachers" through 35 different workshops, field experiences, and courses. More than 890 teachers received 11,654 contact hours of instruction.
- A multiyear sequential training program for teachers pursuing middle school mathematics or Algebra I Add-On endorsements continued. Nine courses were taught in partnership with Virginia Commonwealth University and Norfolk State University. Six of the courses focused on mathematical content and three on the applications of various calculator and computer-based technologies to the teaching of mathematics.
- Educators learned to design web lessons in the graduate course, *Dataweb: Using the Web to Make Integrated Math & Science A Reality*, funded by the Dwight D. Eisenhower Program, State Council of Higher Education for Virginia. The course was a cooperative project of the Center, J. Sargeant Reynolds Community College, and Virginia Union University.
- In *Macromedia Dreamweaver 4*, a graduate course funded by the Virginia General Assembly, educators learned the fundamentals and began to create products.
- Upper elementary and middle school teachers participated in a two week institute, *Improve Your Odds: Teach Probability & Statistics with Calculator & Computer Technology*, sponsored by Capital One Financial Services, Inc.
- Eleven students began coursework for an Interdisciplinary Master's Degree offered through Virginia Commonwealth University, the University of Virginia, and the Center. As part of their fellowship, participants taught in the Center's educational programs. Funding was provided by the GK-12 Program of the National Science Foundation.
- Middle and senior high educators learned to use a variety of modern scientific instruments including an ALTA multichannel reflectance spectrometer, a Spec 20, and various CBL probes to be lent by the Center during the academic year. The Gwathmey Trust, Circuit City Foundation, Kinder Morgan Energy Partners, LP, and the Richmond Chromatography Discussion Group provided funding for the instruments and training.
- Senior high educators increased their understanding of real-world applications of math and science through a two-week institute sponsored by the Center and the Greater Richmond Business Education Partnership.
- In addition, teachers from the prior summer's institute returned to learn simple web programming and to develop an industry-based lesson.

Saturday & Summer Courses for Students

- 5,506 students received 46,151 contact hours of instruction through a variety of special programs outside the regular school day.
- 3,852 adults and children, grades K-5, participated in special classes offered at the Center and in area schools including special PTA programs. The Center introduced a series of six new courses for rising third through fifth graders and their parents during the summer.
- 599 students participated in the Center's Saturday Morning Discoverers Program, a series of five week courses offered to fifth and sixth graders in the fall and spring.
- 492 middle and senior high students participated in the Saturday Morning Questers Program with offerings at the Center, MCV, and the VCU School of Engineering. Four new courses were offered with support from the community. Verizon sponsored *The Age of Light*, a course in which seventh and eighth graders explored holography. Three new courses were added for ninth and tenth graders. In *Careers in Engineering*, sponsored by the Richmond Joint Engineering Council, students learned about the exciting range of engi-

neering careers students are being trained for at the new VCU School of Engineering. The Tuckahoe Lions Club sponsored *The Gift of Life: Organ & Tissue Transplants*. Participants discovered what really goes into making the miracle of organ and tissue transplantation possible. The Retail Merchants Association of Greater Richmond sponsored *Retail Reality* in which students learned how businesses determine prices, how much to pay employees, what products to sell and where to advertise.

- 140 students participated in the Regional Governor's School for Middle School Students which provided four courses in the areas of space exploration, exploration, web programming, and biotechnology.
- 109 gifted fourth and fifth graders explored advanced mathematics through fall and spring sessions of *Topics in Math*.
- 314 students learned through a new series of one-week summer courses at the Center. Learners ranged from rising fifth to rising twelfth graders. Among the courses were unique courses sponsored by local businesses and foundations. In *Modern Chemical Detectives*, sponsored by the Robins Foundation, rising tenth to twelfth graders used modern scientific instruments to analyze chemical substances, identify environmental contaminants, and solve crimes. Rising seventh and eighth graders benefited from two community sponsored courses: *The Age of Light* supported by Verizon and *Wildlife Explorers* supported by the MSC Foundation. In addition, rising eighth and ninth graders participated in *Retail Reality* which was funded by the Retail Merchants Association of Richmond.

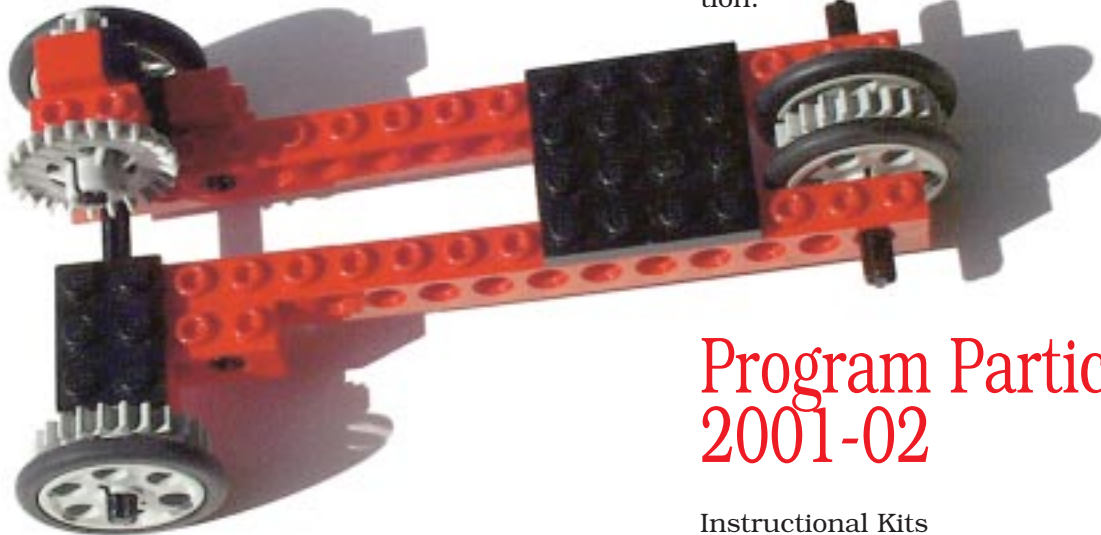


Web-Based Programs

- The Center began development of <http://mathsciencecenter.info>, a new general web site to contain information and registration materials for the Center's programs for teachers, students, and schools.
- The Center developed its first educational web site, SpiderRoom.info, and introduced the site at the MSC Foundation Community Briefing Breakfast held in May of 2002. The site contains interactive lessons, on-line surveys, hands-on experiments, and on-line quizzes and rewards. The Memorial Foundation and Virginia General Assembly provided funding.
- The Center began development of a series of web-based lessons to introduce students to modern scientific instruments including gas chromatographs, ALTA reflectance spectrophotometers, and a variety of calculator-based sensors and problems. These materials were funded by the Virginia General Assembly and the Mathematics & Science Center.

Weekday Lessons for Students

- The Center taught 147,972 students, with 29,449 taught in the Center's designed facilities and 118,523 taught in regular school classrooms. These participants received 215,756 contact hours of instruction.
- Twenty-three new classroom lessons were added including 9 new biological and earth science lessons, 7 new physical science lessons, 5 new mathematics lessons, and 2 new computer science lessons. New lessons introduced elementary students to arthropods and amphibians, used the web to investigate cinema profits, and involved students in using computer technology to investigate groundwater and weather patterns.
- The LEGO-Logo Room was renovated to include updated computer hardware, furniture, and remote controlled programmable LEGO components. The Marietta McNeill Morgan and Samuel Tate Morgan, Jr. Foundation and the Mathematics & Science Center Foundation provided funding for the renovation.
- Renovation of the Spider Room occurred and a new lesson for third graders was piloted. The Mary Morton Parsons Foundation, Midlothian Rotary Club, and Windsor Foundation provided funding for the renovation.

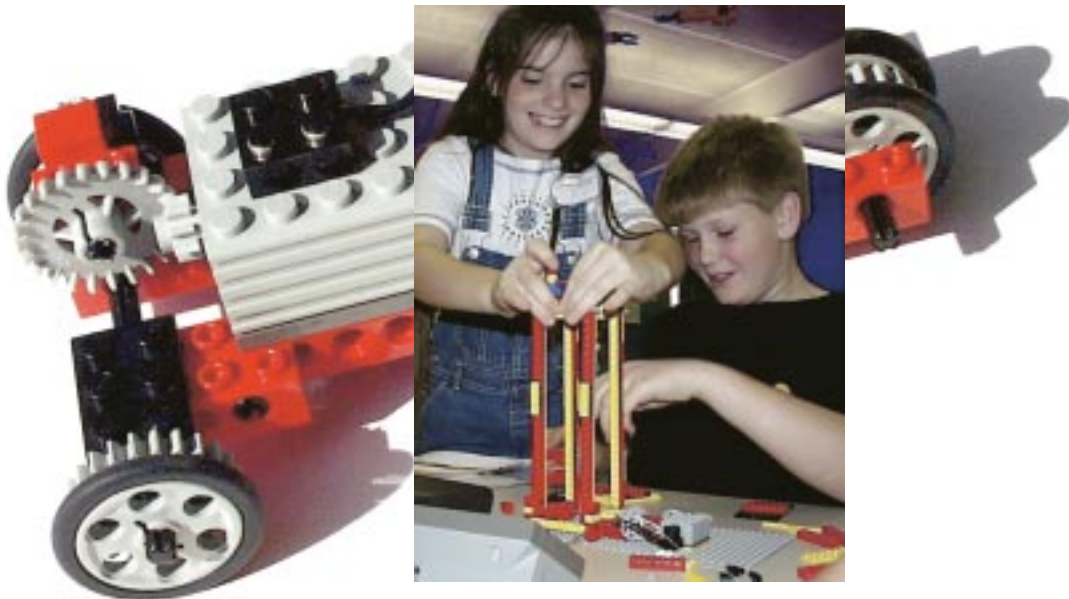


Program Participants 2001-02

Instructional Kits	43,706
Lessons at the Center	29,449
Lessons in the Classroom	118,523
Metro Richmond Science Fair	624
Saturday & Summer Programs	5,506
Professional Development	890

2001-2002 Staff

Julia H. Cothron	Executive Director	Bill Jeffords	Associate Educator
Sam Albert	Maintenance, Henrico	Beth Kappus	Weekday Instructor
Vicki Armentrout	Weekday Instructor	Drew Keller	Educator
James Beasley	Educator	Paula Klonowski	NSF Scholar in Residence
Juliana Beatty	Weekday Instructor	Mitzi Leighty	Administrative Assistant
Alia Bey	Weekday & Saturday Instructor	Brenda Levy	Weekday Instructor
Monica Brown	NSF Scholar in Residence	Beverly Lewis	Business Manager
Layah Bruce	Weekday Instructor	Chris Lundberg	Coordinator
Janice Bryson	Coordinator	Melinda Mace	Office Assistant
John Bunting	Coordinator	Betty May	Weekday Instructor
Gayle Bynum	Educator	Debbie Mitchell	Operations Assistant
Elaine Chapman	Weekday Instructor	John Nachman	NSF Scholar in Residence
Doug Childers	Weekday Instructor	Jennifer Newcomb	Weekday Instructor
Tina Copeland	Weekday Instructor	Donna Newman	Operations Assistant
Marla Crawford	NSF Scholar in Residence	Robin Newton	Director of Development
Margaret DeLoach	Part-time Custodian, Henrico	Lisa Phillips	Associate Educator
Marilyn Elder	Educator	Mike Phillips	Custodian, Henrico
Barbara Ellis	Weekday Instructor	Rebecca Pittman	Educator
Vicki Farlow	Weekday Instructor	Bill Portlock	Consultant
John Fink	Work-Study	Pat Priestas	Educator
Tawana Gilyard	Operations Assistant	Jerome Randolph	Assistant Educator
Joan Giovannetti	Educator	Martha Rogers	Coordinator
Wendy Griffin	NSF Scholar in Residence	Sea Clear	Consultant
Frank Gulla	Educator	Doris Smith	NSF Scholar in Residence
Ivery Hall	Weekday Instructor	Toni Sorrell	NSF Scholar in Residence
Nancy Hall	Educator	Sandie Stargardt	Weekday Instructor
Norbert Hamm	Specialist, Graphic, Facilities and Web Design	Martha Vogel	Associate Educator
Rhonda Hawley	Educator	Gail Warren	Educator
Carolyn Hunter	Sr. Account Technician	Joyce Watson	Educator
Courtney Hunter	Educator	Mark Webster	Specialist
Kirsten Inocencio	Educator	Bobby Wyche	Weekday Instructor
Nannie Isler	Custodian, Henrico	Denise Young	Weekday Instructor
		Don Young	Weekday Instructor



Mathematics & Science Center Board

Mrs. Virginia Lee Baldwin	School Board Member	King William County Public Schools
Dr. Billy K. Cannaday, Jr.	Superintendent	Chesterfield County Public Schools
Mr. Harold E. Costley, PE	Vice President, Engineering	Carpenter Company
Dr. Harold Cothorn	Superintendent	Goochland County Public Schools
Dr. Brenda Cowlbeck	Superintendent	King William County Public Schools
Mr. Donald Cuthrell	School Board Member	Goochland County Public Schools
Mrs. Elizabeth B. Davis	School Board Member	Chesterfield County Public Schools
Dr. Mark A. Edwards	Superintendent	Henrico County Public Schools
Mr. William B. Fisher	Retired Technology Director	Honeywell
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Ms. Kelly Kain	School Board Member	Powhatan County Public Schools
Dr. Henry A. McGee, Jr.	Founding Dean Emeritus & Professor Chemical Engineering	School of Engineering, Virginia Commonwealth University
Dr. Margaret S. Meara	Superintendent	Powhatan County Public Schools
Mr. Stuart Myers	School Board Member	Henrico County Public Schools
Dr. Stewart D. Roberson	Superintendent	Hanover County Public Schools
Mrs. Sue F. Watson	School Board Member	Hanover County Public Schools
Dr. Albert J. Williams	Superintendent	Richmond Public Schools
Dr. Julia H. Cothron	Executive Director	Mathematics & Science Center



Mathematics & Science Center

2401 Hartman St.
Richmond, VA 23223

804-343-6525

<http://mathsciencecenter.info>

"In accordance with federal laws, the laws of the Commonwealth of Virginia, and the policies of the School Board of the City of Richmond, the Richmond Public Schools does not discriminate on the basis of sex, race, color, age, religion, disabilities, or national origin in the provision of employment and services. The Richmond Public Schools operates equal opportunity and affirmative action programs for students and staff. The Richmond Public Schools is an equal opportunity/affirmative action employer. The Section 504 Coordinator is Dr. Renee Archer, Richmond Public Schools, 301 North Ninth Street, Richmond, Virginia 23219, 804-780-7911. The Title IX Officer is Ms. Willi A. Williams, Richmond Public Schools, 301 North Ninth Street, Richmond, Virginia 23219, 804-780-7716."