

Coalition of
Academic
Supercomputing
Centers

Alabama Supercomputing Authority
Huntsville, Alabama

Arctic Region Supercomputing Center
Fairbanks, Alaska

Arizona State University
Tempe, Arizona

Boston University Center
for Computational Science
Boston, Massachusetts

Center for Advanced Computing Research
Caltech
Pasadena, California

Center for Computational Sciences
Lexington, Kentucky

ORNL Center for Computational Sciences
Oak Ridge, Tennessee

Center for Innovative Computer
Applications at Indiana University
Bloomington, Indiana

Center for Research on
Parallel Computation
Houston, Texas

Cornell Theory Center
Ithaca, New York

High Performance Computing
Education and Research
Albuquerque, New Mexico

National Center for
Atmospheric Research
Boulder, Colorado

National Center for Supercomputing
Applications at UIUC
Champaign, Illinois

National Energy Research
Scientific Computing Center
Berkeley, California

National Supercomputer Center
for Energy and Environment
Las Vegas, Nevada

North Carolina Supercomputing
Center at MCNC
Research Triangle Park, North Carolina

Ohio Supercomputer Center
Columbus, Ohio

Pittsburgh Supercomputing Center
Pittsburgh, Pennsylvania

Purdue University
West Lafayette, Indiana

San Diego Supercomputer Center
San Diego, California

Supercomputer Computations
Research Institute
Tallahassee, Florida

Texas A&M University
Supercomputer Center
College Station, Texas

Texas Advanced Computing Center
Austin, Texas

The Pennsylvania State University
University Park, Pennsylvania

University of Florida
Gainesville, Florida

University of Maryland
College Park, Maryland

University of Southern California
Information Sciences Institute
Marina del Rey, California

University of Utah, Center
for High Performance Computing
Salt Lake City, Utah

University of Wisconsin
Madison, Wisconsin



HIGH PERFORMANCE COMPUTING --
A COMMITMENT TO K-12 EDUCATION

America's high performance computing community continues to play a vigorous and creative role in preparing students at all levels of education to function and flourish in our technologically advanced society -- one in which words like Internet and Web site have become as commonplace as baseball and Beanie Babies.

Because of the escalating demand for top level scientists and engineers, a primary emphasis of CASC Centers is on identifying and nurturing elementary and secondary students who excel in science and math. Also of major concern is ensuring that every student leaves high school with the skills needed to participate in our increasingly high tech work force.

Academic supercomputing centers and national research labs, with support from federal agencies, are sponsoring programs to meet these goals. A high priority is to recruit among groups that are under represented in high-tech fields such as young women, rural residents and minorities. K-12 teachers also learn classroom applications of technology and are introduced to the array of resources available via the Internet to enhance education in all subjects, not just math and science:

Minority Scholars Program -- Co-sponsored by the San Diego Supercomputer Center (SDSC) and the Girls Scouts of the U.S., this program encourages young girls to pursue careers in the sciences. Instructors bring portable computer classrooms into the schools, while students design projects with SDSC staff mentors and receive personal computers for home use. The goal for the 1997-1998 school year is 2,000 girls, grades four through six. Previously the National Science Foundation - funded program focused on grades seven through twelve.

Supercomputing for Los Angeles Area Schools -- Caltech's Center for Advanced Computing Research (CACR) is providing Los Angeles teachers and students with access to never-before-available high performance computing resources for the 1997-98 school year. Parallel computers and advanced simulation and modeling techniques developed by CACR and the Center for Research of Parallel Computation (CRPC), enable students to study such subjects as air pollution, neural systems, cosmology and AIDS research in unprecedented depth. In a summer institute aimed at reaching minority classrooms, teachers previewed the program, sharing ideas on classroom use.

Adventures in Supercomputing (AiS) -- The Department of Energy funds pre-college program aimed at inspiring future computational scientists and engineers. The programs are sponsored by supercomputing centers and national labs in five states -- Alabama, Colorado, Iowa, New Mexico and Tennessee. In the Alabama Supercomputing Authority's ASPIRE program, students learn to use the Internet for project-based research in the applied sciences and to model and solve problems on supercomputers. The program also targets under-served rural and minority students, building in them the competence and confidence to continue their computational studies.

Summer Institute for Students -- The Ohio Supercomputer Center annually holds a two-week summer program on supercomputing and visualization for 15 talented ninth and tenth grade students. Participants produce team projects, and learn how computing is revolutionizing other fields such as chemistry, physics, environmental science, mathematics, industry and the arts.

Web-based Workshops for Science Teachers -- With funding from the National Science Foundation and equipment donated by Sun Microsystems, Inc., the Utah Supercomputing Institute and the University of Utah Department of Physics are working with science educators in the upper elementary grades through high school to develop World Wide Web-based lessons in the fields of cosmic rays and astrophysics.

World's Fair on the Web -- The National Center for Supercomputing Applications (NCSA) in Urbana-Champaign, Illinois, made it possible for fifth and six graders at a local elementary school to communicate electronically with their counterparts in a foreign country. These students learned about each other's cultures and traditions while discovering the Internet. At the end of the school year they were taught to create a Web page and thus able to share their accomplishments with the entire world.

Online Learning -- NCSA sponsors several other online projects for students by taking advantage of resources to which they could only gain access to via the World Wide Web. One such project, **Chickscope**, enables participants to learn about chicken embryology by operating a Magnetic Resonance imaging (MRI) microscope on the Internet. It also offers pictures, videos and relevant print materials via links to other Web sites.

GirlTECH -- This National Science Foundation-funded program is aimed at encouraging minorities and women to pursue careers in mathematics and science. Co-sponsored by the Center for Research on Parallel Computation at Rice University in Houston and the RGK Foundation of Austin, this series of workshops for K-12 teachers and administrators is planned as a model which can be replicated by other supercomputing facilities throughout the country.

KidScience -- The Maui High Performance Computing Center (MHPCC) in collaboration with the Hawaii Department of Education is providing K-12 students with the opportunity to "travel" under water to study coral and rocky reefs. Using the Internet and special seaworthy cameras, they will be able to track the man-made reefs as they develop over four months of the school year.

E-School -- The Maui Center also received a U.S. Department of Education Challenge Grant for Technology Education to develop an E-School -- a virtual learning laboratory of courses in sixteen areas of study, that use the Internet and interactive multimedia technology as key instructional components. Subjects range from Shakespeare and journalism to 3-D animation and design and, of course, computing.

EarthRISE -- Participants in this student-run project have collected more than 100,000 photos taken from the space shuttle and compiled a Web-accessible database for searching and viewing the collection. Sponsored by the University of California's California Space Institute and the San Diego Supercomputer Center, the EarthRISE database provides understanding of supercomputing, networking and digital library technology, as well as teaching about the Earth's surface.