MISSION SCIENCE

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Many young children develop a negative attitude about science and mathematics before reaching the 7th grade. If the importance, excitement, and beauty of science and engineering can be impressed upon students while they are still in elementary school, the percentage of students continuing to pursue science and engineering will increase. Although science and industry museums can provide this type of experience, because of distance or perhaps a perceived "intimidating" atmosphere, museums are often not used by the inner-city community. Mission Science brings science and "the museum" to the community!

The School of Engineering at the University of Southern California has begun a new collaborative effort, called USC Mission Science. This collaboration among the university, local schools, county and state museums, private industry, and community based organizations provides local elementary and middle school students the opportunity to learn about science and technology after school, on an informal basis, by providing hands-on exhibits, simple experiments, and machinery to take apart and put together again. The university coordinates and administers the program; private industry provides surplus equipment and resources; and community organizations, museums, and schools provide space, help, and volunteers. Mission Science is made possible by a major grant from the National Science Foundation, through San Francisco State University to create such informal science centers.

The fundamental goal of USC Mission Science is to reinforce children's natural curiosity and to instill an excitement about science and technology by providing "hands-on" exhibits, demonstrations, projects, and experiments.

The focus of Mission Science is students doing things themselves. Instead of just pushing a button and *watching* a multimedia presentation or museum demonstration or computer simulation, students work in a real workshop, with real tools, on real projects.

Computer simulations and "whiz-bang" light shows are great, but they are not enough for students to be truly engaged. Students must also go through the thought process and do the work themselves. Planing, building, testing, and trial-and-error are important thought processes often neglected in education today.

The first thing students find at Mission Science are exhibits demonstrating science concepts. Our exhibits differ from typical museum exhibits in that they are "home-made" by us out of common, everyday materials and recycled equipment. And young students are encouraged to play with the equipment, observe what happens, and discover the underlying concepts. Since the exhibits are home-made from common materials, they are easily repairable. It is the concept that is important, not the exhibit.

More importantly, USC Mission Science also provides students the opportunity to work on projects such as robots, communications devices, airplanes, etc., also using common, every day materials such as wood, coffee cans, and popsicle sticks. Students use hand and power tools to make their projects. These projects give students an appreciation for "tinkering." Students get to take home what they build. Parents have been very excited about the enthusiasm their children bring home with them along with their projects.

In addition to the construction projects, students also have the opportunity to take things apart. Old telephones, radios, TVs, computers, and other similar devices are available for dismantling. This activity will not only allow students to take machines apart themselves, but students will see what things are made of, how they work, and how technology is related to science.

Though barely six months old, USC Mission Science has been extraordinarily successful. Demand for Mission Science has been enormous. Nearly 150 children, parents, and community members attended our Grand Opening celebration located at Hoover Intergenerational Care, Inc. September 19, 1996. This success and demand led immediately to the opening of our second site at Thirty-Second Street School. Participation continues to average between 25-30 students each day Mission Science has been open.

We're now in the process of opening a third Workshop site, in 1500 square feet of dedicated space on the campus of John Muir Middle School about three miles south of our other two sites. Our 1997 summer program will be held at the Muir site this July. With three sites operating next fall, USC Mission Science will be open every afternoon, Monday through Thursday.

We're also exploring ways to help train elementary school teachers in better ways to teach science. We've had initial discussions with principals, teachers, and Teach for America about using Mission Science to help teachers both to learn more science, and to help them with new ways of teaching.

Our challenge for the future is to find the resources meet the demand.