TEKLAB: EXCITEMENT IN THE ELEMENTARY SCHOOL: Mike Edwards, Sour Lake Elementary School, Hardin-Jefferson ISD, P. O. Box 340, Sour Lake, TX 77659 and Space Science and Technology Educational Program, Department of Geology, Lamar University, Beaumont, TX 77710

The idea behind establishing the technology laboratory (TekLab) in our school was to provide a learning environment that would excite and motivate the students to learn. Unlike earlier generations, children today are very savvy about technology and want to know as much as they can about it. Therefore, in the TekLab we provide access to current technologies that fourth through sixth graders will play and learn by hands-on experience. We notice that the hands-on activity in the Teklab is a good motivator for students to learn mathematics and science. Other factors that enhance learning in the TekLab are:

1. Students work in teams which promotes cooperative learning,
2. The hands-on experience encourages non-verbal students to contribute, and
3. Students will use problem solving skills necessary in their future work places.

We enlisted the aid of community members, the NASA Partnership Center, and local business people to build this laboratory. These people provided labor, funds, materials as well as ideas. For example, the room for the lab was totally remodeled with labor provided by skilled trustees from the county jail at no cost to the school. A local architect donated time to come up with an ergonomic design that stimulates the learning environment of the laboratory. The TekLab is equipped with the following activities/facilities:

RADIO COMMUNICATIONS: This is an exciting activity where students learn basics of amateur radio communication. Some of the students participating in the program are earning their FCC licenses to operate radios. Many students enjoy learning Morse code which they practice at home. Subjects taught include VHF, UHF, HF, packet radio, and satellite communications. This enables the local HAM radio community get involved in the program. Equipment at this station include a fifty feet tower with antennas, dual band two meter radio, high frequency transciever, 100' dipole HF antenna etc.

EARTH STATION: This program introduces students to our changing atmosphere via computer generated images captured from orbiting weather satellites and a digital weather station. We focus on events like 'HURRICANES' that usually have impact locally. Students learn basic tracking skills of hurricanes (using longitude and latitude) and as to how a hurricane develops and works. Hardware for this activity includes an APT polar orbiting satellite receiving station and a Davis digital weather station with a computer interface.
TEKLAB: Edwards Mike

LASERS AND FIBER OPTICS: Today there is a revolution occurring in communication that most of our students do not know about. Light wave communication is a low power, high reliability method of transmitting impulses by laser through optical fibers. The future of telecommunications and computers is being changed by fiber optics. With a small modulated laser and some inexpensive electronic parts students explore optical communication. They see and hear how modern optic systems work by assembling various components and doing experiments. Materials at this station are an 0.8 mW laser, voice transmission electronics, and optical fibers.

ROBOTICS: In this module students learn about robots "that go where no man can go" and also about robots that will assist man in space and on earth. This program will introduce students to basic robotics by allowing them to construct, program, and operate their own robots. This activity allows different students with differing abilities to work together on a common project. The hardware for this station includes Lego-Logo, a complete system that lets students make up to six different machines with sensors. It uses the popular Lego building blocks for construction and Logo computer language to control the machines. Other equipment includes free running robots such as the Copycat and Heat Hero.

PLANTS IN SPACE: At this station students will become aware of the role of plants in the space environment. With hands-on experiments the students will explore the many variables of plant growth including soil, light, nutrients, and moisture. Students will learn why plants will accompany man to future colonies in orbit and on to other planets. Equipment at this station includes a Grow-lab module, hydroponic fixtures, and controllable lighting.

SPACE STATION: To many of our students living and working in space may be a real possibility in their life time. At this station we stress the hazards of space by conducting experiments that will help the student understand the importance of space medicine and the special problems effecting human health in space. Using physiological probes connected to a computer, students will measure base line body parameters such as muscle activity, heart rate, and brain activity. The focus here is fitness and being prepared for living and working in space. Hardware includes a computer, an interface, and the BIO-LINK physiology set.

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