



Alabama 4-H Enhancing Science and Technology Literacy

Impact Statement

The Problem/Issue:

According to the Alabama Kids Count 1997 and 1998 Data Books, the number of students in the state that graduate on time declined, from 71.6 percent in 1987 to 63.1 percent in 1995 and 60.8 percent in 1997. Further, the number of college graduates reported in the 1997 Alabama County Data Book is less than 16 percent of the general population. Less than 10 percent of the general population holds college degrees in 35 counties.

This data indicates a clear need to find ways to encourage young people in Alabama to better prepare for a meaningful and rewarding career. As our society becomes more science and technology oriented, there is a need to motivate our youth to consider technical areas of study and to develop a better understanding of what the 21st century workplace will be like.

The Alabama 4-H program is in a position to engage young people throughout the state. It is well-established and well-respected by the citizens of Alabama for its contributions to the community. 4-H reaches more than 100,000 students in various programs such as classroom based clubs, camps, nutrition education and school enrichment programs. Extension staff are located throughout the state to work with youth in and through 4-H.

What's Been Done:

In order to better prepare young people for a future that is inevitably highly technological and complex, 4-H provides innovative and engaging learning experiences in science and technology. Many youth have limited opportunities for exposure to the sciences and technologies of today's society beyond the classroom. Practical, hands-on experiences for these youth are offered through 4-H. In summary, these areas are important to planning of science and technology education programs in 4-H:

- Providing innovative and engaging learning experiences
- Recognizing some youth have limited opportunities for exposure beyond the classroom
- Providing practical, hands-on experiences
- Developing programs targeting underserved youth

Approximately 960 work days were devoted by 56 individual Extension staff to programs in the science and technology literacy area in 2003. Programs presented in 2003 varied throughout the state. Examples are summarized below.

Community Club

Greene County 4-H supported a community-based club in science and technology. Working with volunteers, the Extension agent implemented an aerospace program with an emphasis on model rockets. Twenty youth ages 10 to 15 learned to build and launch rockets. Skills practiced included team work, organization and task completion. Participants gained knowledge regarding the science of rockets through hands-on experience of building and launching rockets.

Space Camp Programs

A long-standing partnership with the U.S. Space and Rocket Center in Huntsville attracts several hundred young people and their leaders from throughout Alabama and several other states. Three programs are offered at different participant fee levels - AstroTrek one-night, AstroTrek two-night, and Pathfinder. Examples of county involvement are described below:

Marshall County 4-H Astrotrek Program

The Marshall County 4-H Club attended the AstroTrek program sponsored by the U.S. Space and Rocket Center in Huntsville. The purpose of the program was two-fold. First, it provided 4-H'ers in grades 4 through 8 an opportunity to participate in a three-day, two-night educational adventure that allowed them to explore the world's largest interactive space education classroom. It also provided a hands-on aerospace adventure that guided students through a total space experience. Secondly, the program offered junior 4-H'ers a chance to go on an overnight trip, an aspect of 4-H that had earlier been indicated as a component to keep younger 4-H'ers excited about 4-H. During the three-day program, the 4-H'ers participated in flight simulations, museum scavenger hunts, real astronaut training, G-Force simulations, hot air balloon construction, and space station simulations. Forty-five students from across Marshall County participated in the 2003 program. The AstroTrek program resulted in 4-H'ers learning about our nation's space program and caused the young people to come home more excited about science and mathematics. By the end of the experience, several of the 4-H'ers were considering careers in these fields of study.

Other Sci-Tech Program Examples:

Blast-Off!

Team discussions were conducted with more than 3,000 youth and adult resource leaders in 4-H clubs. Teams answered questions on space related to blast off, orbit and return to earth. Participants worked in teams,

exercised leadership, processed information, and gained knowledge about space and the space industry.

Space Projects!

A total of 804 youth worked on individual projects related to the space industry including reports, posters, models, videos and interviews. Participants practiced skills in utilizing scientific methods, processing information, completing a project, and developing a positive sense of the future.

Farm Safety Day Camp

An area-wide session was conducted that included 50 youth and 16 volunteer leaders from Clay, Cleburne, Calhoun, Talladega, Chambers, Coosa, and Randolph Counties. Nine resource leaders, six sponsors and 12 Extension agents conducted the Farm Safety Day Camp. Workshops, minisessions and a group demonstration were used in presenting topics on large and small animal safety, survival skills, simple first aid, bicycle rules and riding skills, electrical safety, gun safety, fire ant safety and skin protection from the sun. Participants learned to practice safety in a variety of areas.

ATV Safety

Basic all terrain vehicle safety was presented via video, brochures and group and personal discussions on the practice of operating ATVs. There were 160 males and 278 females who participated in the ATV safety program presented in school clubs in Jefferson County. Youth learned how to choose an ATV for their body size, where ATVs can be used, what equipment and clothing to wear and basic rules and regulations. The objective was to help prevent personal injury by improving knowledge and awareness of safe ATV operation.

Electrical Applications and Safety

Let the Light Shine Through was presented to 4,700 youth in grades 4 through high school in 82 school clubs and four community clubs. Using hands-on experiments, participants discussed electrical safety and the uses of electricity in the home. They learned how and where electricity is generated and how to read an electric meter. Youth improved their understanding of technology, safe choices and systems.

Electric Energy Demonstrations

Alabama Power Company is a sponsor of competitive programs in electrical energy at the district and state levels. Local events attract a few hundred participants with as many as 100 participants at district and state levels. A single state-level winner participates in the National 4-H Engineering, Science and Leadership Event at Purdue University in Indiana.

Wood Science Projects

Morgan County involved 216 youth in individual wood science projects utilizing blueprints and assistance from a resource person. Youth learned to manage resources, make decisions, keep records, manage their time and

complete a project. They learned proper measurement skills, how to apply a finish to wood and safe use of equipment.

Why We Care:

Young people o today will enter a 21st century workplace that requires a significant understanding of and appreciation for the sciences, math and technology.

In a time of significantly reduced funding to the Alabama's schools, 4-H has the opportunity to help young people develop a basic understanding of the body of knowledge (sciences) and how that knowledge can be applied (technology).