



Ready? Get SET to Explore Forensics!

Abstract

Ready? Get SET to Explore Forensics! is a new youth development initiative launched during the 2010 program year by the Alabama Cooperative Extension System's Urban Affairs and New Nontraditional Programs unit at Alabama A&M University (AAMU). Through implementation of the initiative, youth participants engaged in a series of short lectures and laboratory activities on forensic science at the statewide youth conference and with groups in the local urban centers.

The program engaged minority, low-income and at-risk youth in group discussions, experiments and activities to better develop their awareness and understanding of the main concepts of forensic science. More than 90% of the youth in the workshops were exposed to concepts for the first time. Previously, students could only marvel at concepts presented in television shows such as *CSI*, *Law & Order*, *Criminal Minds*, and so forth.

The June 2010 Teens and Tweens (TNT) Empowerment Conference held on the campus of AAMU in Normal, Alabama was an ideal forum. It introduced several essential elements of the 4-H SET initiative to a diverse urban audience. The conference focused primarily on forensics, and also gave insight into other SET curricula areas such as engineering, environmental science, plant science, and family and consumer science. While dialoguing with professionals at the conference's career expo, youth also learned about various careers in disciplines centered on science, engineering, and technology.

Subsequent workshops were taught at a high school in West Montgomery, Alabama to provide introductory information about the study of forensic science. Twenty-three teens learned about crime scene investigation and analyzed a crime scene from a mock robbery that took place unexpectedly at the conclusion of the workshop.

Workshops taught at the TNT conference and concepts taught in the classroom discussions introduced the applications, techniques and processes used to examine an actual crime scene, which eventually leads to solving a crime. *Ready? Get SET to Explore Forensics!* helps urban youth gain hands-on experience to make career aspirations and dreams more realistic and attainable.

Program Needs

It is becoming increasingly important to ensure that youth develop the skills and abilities needed to remain competitive in the 21st century. Future leaders and professionals will be those who possess the critical thinking and problem-solving skills that prepare them to respond to problems at home, on the job, and in their communities.

The launch of the 4-H SET initiative is timely, and offers support to local and state Extension educators who want to provide science outreach that includes life skills and career development. The programs offered present a supportive environment and a strong foundation for youth to realize their ambitions.

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Targeted Audience

The target audience for the *Ready? Get SET to Explore Forensics!* program is new, nontraditional, underserved, un-served and at-risk youth, ages 9-18. This initiative is expected to reach urban youth in the nine Urban Centers throughout the state.

As with all urban Extension programs, agents are charged with the task of implementing programs to educate youth from varied socioeconomic backgrounds. Several youth participants in the SET initiative were residents of the housing authority, a children's home, and relative caregiver households.

The local forensic science workshops were taught in a traditional school setting with students attending George Washington Carver High School in West Montgomery, Alabama. The area in the city is a growing urban region where there are high rates of substance abuse in the community.

The greater percentage of the West Montgomery population is low income and has low educational attainment. Thirty-six percent of this population is below poverty level. This is significantly higher city overall rate of 17.7%. The median household income in 2009 for West Montgomery was \$33,359, and the city of Montgomery as a whole was \$40,568.

Program Goals and Objectives

The project goals and objectives were to: (a) enhance the understanding of scientific concepts in science, engineering and technology; (b) facilitate the application of scientific knowledge to daily living; and (c) foster the development of proficiency in SET skills that encourage scientific pursuits for personal and career development.

The overall 4-H SET initiative was developed to:

- Increase knowledge, skills, and competencies and improve the attitudes of youth in science, engineering and technology.
- Increase the knowledge, skills, competencies and comfort level of youth and adult 4-H volunteers and staff for offering hands-on, experientially-based 4-H SET learning experiences to youth.
- Work with Urban 4-H/Youth Development volunteers and staff, land-grant college and university faculty, SET content experts and other partners (museums, SET organizations, SET associations, industries, foundations, etc.).

The urban Extension team used the forensics discipline to hone science and laboratory skills. Participants were:

- Introduced to forensic science.
- Shown how science is applied to police work and crime investigations.
- Introduced to the use and care of microscopes.
- Provided an opportunity to apply problem-solving techniques using a microscope.
- Allowed to explore career opportunities in science, engineering and technology.

Program Design/Curricula and Materials

Living in the technology and information age, the approach to reaching youth needs to be more innovative and appealing. Youth are taking notice and interest in the growing number of police procedural television series like *The First 48*, *CSI Miami/New York*, *Criminal Minds* and *Law and Order*. Youth are fascinated with the process of forensic investigation. Therefore, Extension introduced the study of forensic sciences to teach the core principles and elements of crime scene investigation.

The discipline of forensic science connects youth to the science of crime scene investigation. It reinforces the idea that science is everywhere, from growing foods to curing diseases and solving crimes. Also, the initiative helps youth build confidence in their abilities, develop problem-solving skills, and gives them the opportunity to interact with leaders and professionals from SET industries.

There was no specific curriculum used during the TNT EmPOWERment program; however, expert volunteers conducted hands-on workshops to teach science concepts. Curriculum used for the local workshops included both online resources, in particular The Science Spot and activities from *A Crime*, *A Clue* and *Biotechnology* published by the Office of Biotechnology and Extension Youth and 4-H of Iowa State University.

Knowledge and Research Base

The field of science, engineering and technology is becoming increasingly essential for economic stability. The United States is dependent on science and technological advances.

According to the National Association for Gifted Children, all children, minority students in particular, need to know the importance of science and mathematics in their daily lives. Knowledge of these subjects helps them to develop intellectually and socially. Science is a way of thinking, a way of understanding the world. Minority students need to understand that early involvement with the substance of science and mathematics can open gates into all the domains of knowledge and employment. Science and mathematics are shaping the future; studying these subjects prepares youth for a place in that future.

Partners

The primary partner for the 4-H SET initiative through the Alabama Cooperative Extension System's Urban Affairs New and Nontraditional Programs unit is the land-grant institution Alabama A&M University. Several educational departments have joined Extension in conducting workshops and disseminating information to youth. The faculty and staff assisting with this project represent the Departments of Physics, Natural Resources and Environmental Sciences, and Family and Consumer Sciences.

Other contributing agencies include the Marshall Space Flight Center of the National Aeronautics and Space Administration, the Unmanned Aircraft System, the Defense Intelligence Agency, the Alabama Department of Forensic Science, and Alabama Science in Motion.

Funding

Youth participants were charged a registration fee to attend the TNT EmPOWERment Conference, and agents used program development funds to implement forensics workshops. In some cases, regional agents procured funds





from community leaders to assist students with registration fees and transportation. Urban Regional Extension Agents (UREAs) host local forensics workshops utilizing allocated program funds and in-kind contributions.

Staffing

"Ready? Get SET to Explore Forensics!" is delivered as a collaborative effort among Extension staff at AAMU, UREAs, volunteers, and business partners. The TNT EmPOWERment Conference was created and is organized under the leadership of Extension Youth Development and Volunteerism specialist, Kimberly Burgess-Neloms. She works closely with agents to plan and implement the event.

There are UREAs in six of Alabama's Metropolitan Statistical Areas (MSAs) who currently conduct youth programs. Two of the seven UREAs are 100% committed to youth development programming. The remaining five UREAs have split appointments, with 50% of their time committed to youth development. UREAs recruit competent and confident volunteers who are committed to the delivery and evaluation of all areas of their programs.

Program Delivery

More than 160 youth and adults from Colbert, Lauderdale, Limestone, Madison, Mobile, Tuscaloosa, Montgomery, Lawrence and Morgan counties in Alabama participated in the youth conference, which was packed with educational and fun-filled activities. The conference theme was "Exploring Health and Fitness, Science, Engineering and Technology," and it opened with the Science, Engineering and Technology Expo. The conference highlighted a wide vary of SET related careers:

- The Marshall Space Flight Center in Huntsville provided information to encourage young people to consider careers in engineering and the aerospace industry. Their goal is to develop the next generation of explorers.
- Inventor, Dr. Frank Archer III, displayed his microwave autonomous copter system. His invention is the world's first unmanned aircraft system to be equipped and flown successfully with a microwave radiometer sensor. Dr. Archer is the interim director for Institutional Planning, Research and Evaluation at AAMU.
- Nutrition and Hospitality Management Program in AAMU's Department of Family and Consumer Science shared career information designed for students who possess a strong interest in the sociological, psychological, physiological, and economic aspects of food as it relates to nutritional status and world hunger. The program provides a broad education in the science of nutrition and preparation of food as related to lifestyles, cultures, and health. The program enables students to develop competencies in the ecological, socio-psychological, and economic aspects of apparel and interior design, production, distribution, and consumption.
- The Apparel, Merchandising and Design program, also in AAMU's Department of Family and Consumer Science, provided a general understanding of textiles, clothing, fashion, and related areas, while offering diversification through concentrations in fashion merchandising, fashion design, and interior design.
- Mr. Larry M. Davis, chief of the Applications Software Division represented the Office for Analytical Systems within the Defense Intelligence Agency's Missile and Space Intelligence Center (DIA/MSIC). DIA/MSIC shared their vision of the integration of highly skilled intelligence professionals with leading edge technology to discover information and create knowledge that provides warning, identifies opportunities, and delivers overwhelming advantage to our defense planners and national security policymakers.

- Dr. Colmore S. Christian, assistant professor in the Forestry, Ecology, and Wildlife Program in AAMU's Department of Natural Resources and Environmental Sciences, spoke with students about the fields of forest management, forest sciences, wildlife biology, fisheries, and remote sensing and Geographic Information Systems. Dr. Christian's research initiatives focus on small-and medium-sized private sector outdoor recreation enterprises, the application of agroforestry strategies in the wildland-urban interface, and on visitor use patterns on public lands in Alabama.

Conference workshops included an introductory study of forensic science and engineering. SET sessions presented included:

- DNA Extraction
- Fingerprint Analysis
- Forensic Science Defined

The workshops provided youth participants with the opportunity to get a closer look at and understanding of concepts by actively engaging in hands-on activities. Workshops were taught by Dr. Malinda Westbrook, Assistant Professor of Chemistry at AAMU; Jennifer Hutchinson, Biology Specialist with Alabama Science in Motion; and Dr. Lonnie Ginsberg, Laboratory Director for the Alabama Department of Forensic Science in Huntsville, Alabama.

Additionally, subsequent workshops were offered by UREAs focusing on problem-solving and analytical thinking through crime scene investigations. Youth were taught crime scene fundamentals, including CSI terminology, types of evidence, crime scene personnel, and protocol for investigations.

Youth studied testimonial evidence, followed by a crime scene challenge (mock crime). In brief, testimonial evidence discussed eyewitness accounts, reviewing factors that affect a person's memory and ability to identify a suspect. The workshop on the types of evidence concluded with Roosevelt Robinson, UREA in Montgomery. Students were challenged with examining the scene in order to solve the crime.

Recognition of Participants

The TNT EmPOWERment Conference concluded with a semi-formal awards breakfast for staff, students, and volunteers. They were recognized for their active program participation in the conference and contributions to workshops and activities. During the awards breakfast, youth were commended on having chosen to learn more about the disciplines of 4-H SET and challenged to continue their career pursuits.

Exhibitors and presenters were thanked following their workshop. Additionally, each volunteer, teen teacher, exhibitor, and presenter will be invited to the state level volunteer appreciation program.

Program Evaluation and Outcomes/Impact

As a result of participation in the Extension Team Project, participants were to:

- Enhance the understanding of SET concepts,
- Apply scientific knowledge to daily living, and
- Develop proficiency in skills that encourage scientific pursuits for personal and career development.

The state initiative evaluation assessments are required to be completed before and after programs (pre- and post tests). Evaluations reflect knowledge gained by program participants.





The classroom learning workshops evaluation results showed youth increased knowledge in the study of evidence, crime scene protocol, and factors that affect a person's ability to identify a suspect.

Evidence of Sustainability

The initiative has strong state level administrative support and effective collaborations with diverse organizations and agencies in science career fields. AAMU's faculty in the Schools of Agriculture and Environmental Sciences and Engineering and Technology continues to partner with urban youth development to enhance programming.

Awards or Other Recognition Received for Program

The TNT EmPOWERment Conference was featured in an article for the Alabama Cooperative Extension System's News Line, which is an online communication site that highlights ACES programs.

Considerations for Replication

Securing a funding source will allow the conference to be more affordable for the target audience. Including a tour of local/regional forensic laboratories or colleges with related coursework would enhance the program. At one time, the Alabama Department of Forensic Science allowed youth tours of the facility but has recently stopped due to potential contamination issues (if a participant sneezes it introduces foreign DNA into the laboratory). However, analysts or scientists are willing to make presentations at an off-site classroom.

Youth development staff wanting to offer programs in the forensics might consider hosting a summer day camp with parks and recreation. Potential speakers/presenters could include professionals who work in a forensic science field, such as the coroner, law enforcement officials, medical examiners, and so forth.

References

ACES News Line. (2010, Aug 17). 2010 TNT Conference Highlights. Retrieved from <https://sites.aces.edu/group/comm/newsline/Lists/Posts/Post.aspx?ID=204>

Alabama Department of Forensics Science. (2011, Feb 1). Crime Scene Examinations. Retrieved from <http://www.adfs.alabama.gov/>

City-Data.com (2010). West Montgomery.

Clark, J. (1999). Minorities in Science and Math. Retrieved from <http://www.ericdigests.org/2000-2/minorities.htm>

The Science Spot. Forensic Science Lesson Plans. Retrieved from <http://sciencespot.net/Pages/classforsci.html>

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