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GREATEST HITS FROM IN-TOUCH SCIENCE

Charlotte W. Coffman*, Maureen E. Hosty and Leanne Moorman

ABSTRACT:

What's the connection between solubility and clean water? cat's eyes and pedestrian safety? highways and plant nutrition? removing stains and making desserts? In-Touch Science trains adults and teens to help children in grades 3-5 link the science they live to the science they study. In-Touch Science encourages hands-on exploration and allows time for children to think and talk about what they observe. Adults guide the experience and conversation while doing the activities with the children. The program works best with groups of 5-10 children and is ideal for promoting voluntary science experiences that are hands-on, cooperative, inclusive, and flexible. Each In-Touch Science publication contains 10 activities and was approved by the National 4-H Curriculum Jury. The program is partially funded by the National Science Foundation and received the National Extension Association of Family & Consumer Science Award for Program Excellence through Research. In-Touch Science includes these titles: Chemistry & Environment; Fibers & Animals; Foods & Fabrics; Plants & Engineering. This hands-on workshop highlights eight FAVORITE activities, two from each publication. Workshop participants will experience different delivery methods as they do the activities alone, with a group, and with a leader. Participants receive one free In-Touch Science publication.

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SCIENCE SIESTA: ENCOURAGING YOUNG FEMALE SCIENTISTS

Johnna Jennings*, Robin Vargas, Sara Hankemeier, Debbie Moser, Kim Christman, Cindy Enzler, Lisa Woessner and Sandy Stiles

ABSTRACT:

The overnight program, Science Siesta involved lots of Science, and not much Siesta! University of Illinois Extension staff in northwestern Illinois teamed up to create a unique science education program in a slumber party setting for girls in grades 4-6. Science Siesta is based, in part on the WonderWise curriculum created at the University of Nebraska. Staff initiated Science Siesta to stimulate interest in science among girls. Although jobs requiring advanced degrees in science and math continue to flourish, unfortunately women remain underrepresented in these careers. Research has shown that girls continue an interest in science when they are able to (1) become involved in a science enrichment program in a gender neutral setting; (2) meet female scientists who could serve as role models: learn in an environment where hands-on learning is encouraged. Staff incorporated all these features into the Science Siesta event. Through this program, staff were also able to establish partnerships with local scientists, schools, and museums. Evaluations revealed that the girls were beginning to question some of the stereotypes they had about scientists and an interest in pursuing science-related careers in the future was sparked. Participants in this session will get a chance to try out some of the hands-on activities used at the overnight and will take home a packet of information they could use to replicate the event back home.

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I SPY ... SCIENCE

Kevin J. Mitchell*

ABSTRACT:

Youth are not aware of or do not always have the opportunity to explore the "miniature world of science". The I Spy ... Science program introduces youth to the exciting world of science through the use of magnifying glasses and microscopes. An interactive display has been utilized at school enrichment programs, library programs, and County 4-H Fairs to provide youth (and adults) the opportunity to learn about and explore "the miniature world of science". Utilizing the "Scientific Method of Inquiry" youth are encouraged to micrographs and electron microscope micrographs identify light microscope blood, ticks and other specimens. More than 500 youth and 60 adults have participated in this program, with extremely positive comments about how much they learned and that science can be fun. This seminar will include an "abbreviated" I Spy ... Science program that will include interactive discussions and the opportunity to identify Participants will also receive information developed for this program including the scanned images of micrographs of blood, ticks, and other specimens and copies of the handouts.

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THE GENOMIC ANALOGY MODEL FOR EDUCATORS: A NEW TOOL FOR TEACHING BIOTECHNOLOGY

Dr. Kathryn Orvis*, Rebecca Rothhaar and Barry Pittendrigh, Ph.D.

ABSTRACT:

Research in biotechnology is rapidly advancing; everyday new and exciting discoveries are made, but with this new technology also come many safety and ethical questions as well as the need for education. Many people feel that alternative teaching methods will help to increase students understanding of difficult concepts in all aspects of schooling including math, science, genetics, and biotechnology. The Genomic Analogy Model for Educators (GAME) is a teaching tool currently under development, made up of three different pieces: a CD-ROM, a Website, and laboratory exercises. The GAME model uses simple analogies of easily understandable concepts to explain the technical and scientific aspects of modern genomics; the first module is The Lego(c) lesson which focuses on DNA sequencing using the Sanger method and electrophoresis. The purpose of this study was to evaluate, through pre/post survey, the effectiveness of the GAME model on high school students at seven rural high schools, as well as evaluating the effect of the GAME model on high school students' attitudes about biotechnology. The Lego(c) lesson was presented along with the accompanying laboratory exercise and was followed with the use of the CD-ROM to reinforce that same lesson. Results show a positive change in students' post-test scores after participating in the GAME model which would indicate the effectiveness of this new tool for biotechnology education.

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AN AFTER SCHOOL PROGRAM THAT IS FUN BECAUSE OF SCIENCE!

Penne L. Smith*

ABSTRACT:

Have you ever wondered what would happen to the Earth if there were no sunlight? Have you thought about where magnetism comes from, or what life would be like without electricity? What about why a submarine can both sink and float? This session will introduce participants to some of the science experiments that fit well into an after school program. Even a lecture has to be designed to involve the participation of the learner and, at times, can be replaced by one of several methods that facilitate more direct acquisition of information. Still other methods place even greater premium on active, participatory learning. The session will include several "hands-on" activities and a brief explanation of the science involved. The Fun With Science program is designed for pre-teens, but teens enjoy the projects also. Most activities involve minimal cost, but the session will include a discussion on how to fund the supplies, how lessons have been received and perceived changes in science knowledge, skills, attitudes and aspirations.

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NAVIGATING YOUR WAY WITH GPS

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ABSTRACT:

GPS Educational Kit E-SET has a kit based on the science and applications of GPS, Global Positioning System, for educational use. The kit is an exciting kit that can be used by formal and non-formal educators alike. GPS is a valuable tool that is growing at a rapid rate in application. This seminar will be a hands-on session where the educational use of GPS will be demonstrated. The workshop will allow hands-on use of GPS receivers and compasses. The learning targets for GPS include information available from a compass and how to use a compass addressing appropriate applications and limitations. How GPS can be used to determine location and elevation with appropriate applications and limitation of GPS. Users also need to demonstrate the ability to navigate with both a GPS and Compass with maps. The Iowa State University Extension-Science, Engineering, and Technology's GPS kit will be highlighted. Activities from the curriculum such as the trilateration and navigation exercises will be demonstrated with the GPS units and compasses. The Curriculum includes 6 hours of activities designed for 4-H on GPS and 6 hours on the use of a compass and maps for navigation. The activities cover topics on how the GPS works and GPS applications including agriculture, urban, and hobby. The Compass activities allow users to work with a compass and maps for basic navigation. The seminar will be a practical time for users to acquaint themselves with GPS and navigation basics for use in the formal and informal educational setting.

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ARTIFICIAL INSEMINATION: AN EMERGING TOOL FOR YOUTH SWINE PROJECTS

Dennis R. Worwood*

ABSTRACT:

Artificial Insemination (A.I.) can complement or replace traditional breeding programs for youth swine projects. A.I. provides instant access to the nation's top boars and allows rapid improvement of breeding stock and show pigs. It eliminates inbreeding problems, along with most of the health risks associated with buying a new boar. Even young or inexperienced producers can easily learn swine A.I. techniques. Extension introduced principles of swine A.I. to Emery County 4-H'ers in 1997 after a judge commented on the extremely poor quality of local swine. A review of show records revealed that no Emery County swine had been AUTHOR: d Grand or Reserve Champion at any show since 1970. Eleven County 4-H clubs have since adopted A.I., with the following results: Local youth have raised and exhibited four Grand Champion and three Reserve Champion market hogs at State livestock shows, along with numerous class winners. This impressive show record has created new market opportunities for 4-H youth, who have been able to sell breeding animals and show pigs into neighboring counties and states. Extension developed materials that teach beginners basic A.I. principles such as boar selection, semen handling and storage, heat detection, the insemination process, and sow care.

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