

Enhancing Science Interest Through the 4-H Science Extravaganza Program



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Literature Review



- Changes in the global job market for science and engineering workers is eroding US dominance in science and engineering (**Freeman, 2005**)
- “Our nation is falling behind other countries in the fields of science, technology, engineering and math. That’s why it’s more important than ever for young people to be engaged in and excited about scientific exploration.” -**Donald T. Floyd, National 4-H Council president and CEO**
- Curriculum infusion efforts by Extension should be more than simply sharing instructional materials (**Smith, Hill, Matranga, & Good, 1995**)

Purpose of the Program



- The goal of Science Extravaganza is to expose youth to science in order to increase their level of understanding of how science can solve everyday problems and therefore making science-related careers viable options.
 - 6 week program
 - Focused on different STEM-related topics
 - Activities involved a hands-on curriculum
 - Took place during an existing after-school program for 5th and 6th graders in Fishers, IN

Purpose of Study

- To assess 4-H youth participants' interest in science and their science-related career goals



Background Information

Total Population: 76,794 (+103% from 2000)

White (non-Hispanic): 85.6%

Hispanic: 3.4%

African American: 5.4%

Asian: 5.5%

Total Housing Units: 28,511

Fishers Median Household income:
\$75,638

Indiana Median Household Income:
\$44,616

For population 25 years and over:
High School Diploma or Higher:
98.2%

Bachelor's Degree or Higher: 60.1%

Graduate or Professional Degree:
15.7%

13.77% of the land is **Agricultural**

Indiana



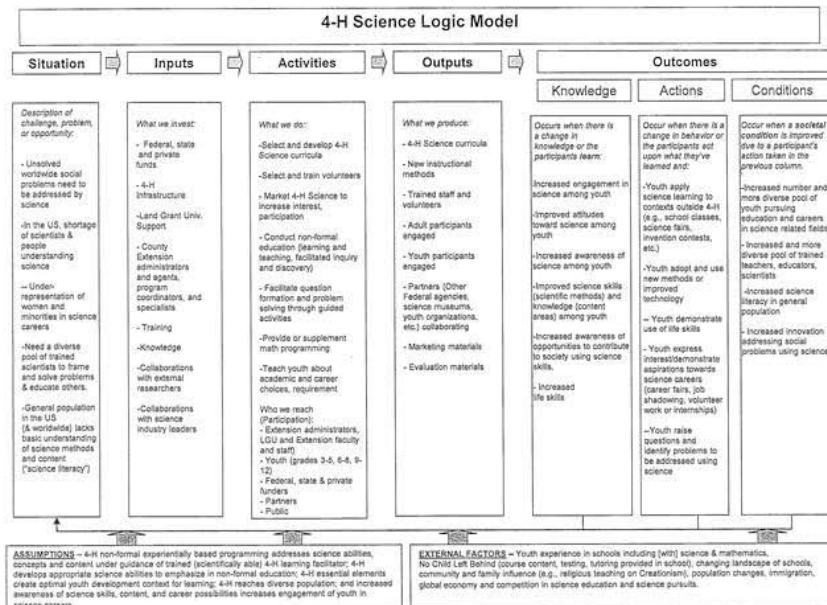
Science Extravaganza Curriculum

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Environmental Science	Plant Science	Animal Science	Food Science	Engineering	Combination of all Sciences

- Most lesson plans were adapted from existing 4-H curriculum
- Utilized the Wired for Wind kits from the 2011 4-H National Youth Science Day
- All topics were connected to science-related careers



4-H Science Logic Model



Note: 4-H Science encompasses science, engineering, technology and applied math.

Updated November 1, 2010

Methods: Design and Participants

- Descriptive study
- Post-program survey administered to youth who participated in the program on the last day
- $N=30$; 23 surveys were completed



Methods: Instrument & Reliability



- 4-H Science Youth Engagement, Attitudes and Knowledge (YEAK) Survey (**4-H Science Instrument Design Team and Policy Studies Associates, 2009**)
 - 33 Likert-type items (4-point scale)
 - ✦ Strongly Disagree, Disagree, Agree, Strongly Agree
 - Two open-ended questions
- Youth were also asked to identify their three favorite things about the program from a list of eight

Findings

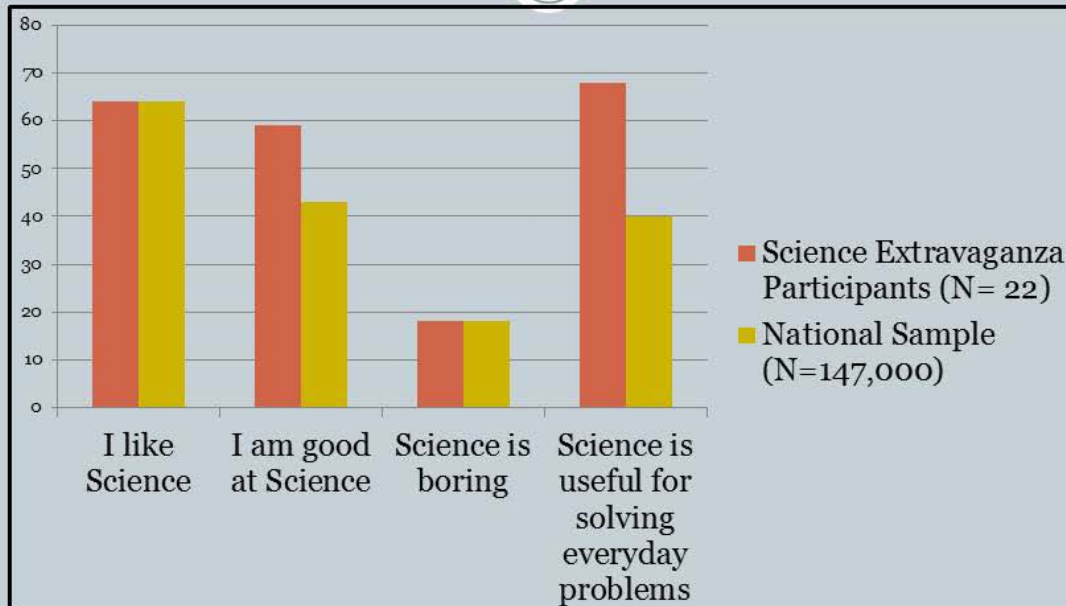
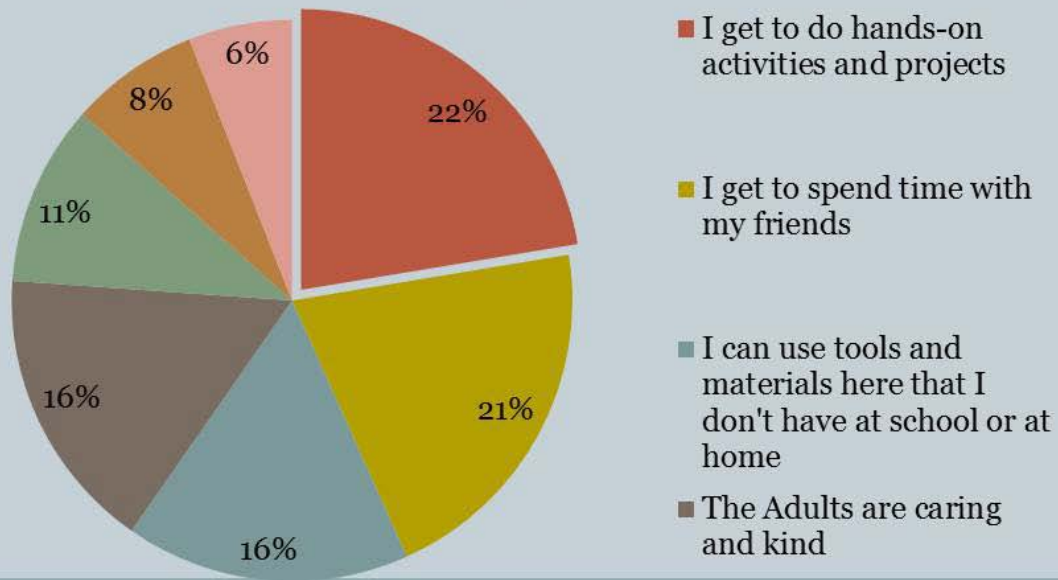


Exhibit Reads: Sixty-eight percent of Science Extravaganza participants agreed with the statement “Science is useful for solving everyday problems” compared to 40 percent in the national 4th grade sample.

Findings

Three Favorite Things about Science Extravaganza



Conclusions



- Findings indicate that Science Extravaganza has the potential to bolster participants' interest in science.
- Early interest in science could influence youths' career choice.
- Science Extravaganza exposed the youth to activities and tools they do not have available to them in the classroom or at home.

Recommendations



- **Programmatic:**
 - Future continuation of this program is planned
 - Introduce several more science-related topics
- **Research:**
 - Administer a pre- and post-test to measure the level of increase from before to after the program
 - Use a larger, more diverse population of participants

References



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