

Lincoln Foundation – Executive Summary 2011 Math and Science Summer Program

Program Description and Participants

- “The Lincoln Foundation's summer Math & Science Program provides an educational enrichment experience for high school students in mathematics and science with technology integration. An interdisciplinary, hands-on, inquiry-based, rigorous curriculum engages students in laboratory and field-based learning that help them apply mathematics and science as they study the global issues of biodiversity, water quality, and energy in their community. The curriculum also prepares students for their next mathematics and science courses in school and for college readiness with a focus on research skills, critical thinking, problem-solving, project design and presenting sustainable solutions. Each student will develop an independent science research proposal.” (Lincoln Foundation Website)
- There were 75 participants that completed the four-week program at the University of Louisville.

Evaluation Results

- Attendance** - Of the 75 students there were 27 participants (36%) that were present 100% of the days. An additional 11 participants (15%) attended 90% or more of the days.
- Knowledge Growth** - 56 participants completed both the pre- and post-tests. There was a statistically significant ($p < .001$) gain from the pre-test to the post-test. The average gain was approximately 32%. Approximately 96% of the participants made gains. Attendance was a statistically significant ($p < .05$) predictor of gains (i.e. the more days in attendance, the larger the gain).

Pre-test Average (Number Correct) :	12.45/27
Post-test Average (Number Correct):	21.11/27

Percent of Students Making a Gain

GOAL	75%
All Participants (64 students)	96%

- Survey Feedback** – The statements that had the highest percentage of participants mark “agree” or “strongly agree” were: 1) “I believe my participating in the Math & Science Program will help in my science classes this upcoming year” (89.4%), 2) “The Math & Science Program contributed to my understanding of how our decisions impact the environment” (86.3%), 3) “The Math & Science Program contributed to my awareness and understanding of environmental issues” (81.8%), 4) “I believe I can make a difference in my community” (78.8%), and 5) “I feel a sense of belonging to my community” (78.8%).

	TOTAL #
<u>Gender</u>	
Female	41
Male	33
<u>Race/Ethnicity</u>	
African-American	48
White	14
Other/Multi-Racial	5
Asian	5
Hispanic	3
<u>WYSP Scholar</u>	
Yes	48
No	27
<u>Grade (2010-2011)</u>	
8 th	27
9 th	19
10 th	16
11 th	5
Unknown	8

Recommendations

- 1) Add a math component back into the camp. Numerous students mentioned that it was desired.
- 2) The focused topic, developing a research question, seemed to work very well for the students that were “into” their question.
- 3) Continue focusing on increasing attendance. This was a significant factor in students increasing their post-test score.
- 4) Have food or snacks available.
- 5) The University of Louisville Honors students were very well received.
- 6) Try to find a way to recruit students, many felt compelled to come by parent/relative.
- 7) Try to keep as interactive as possible.

Summary

Primary Goal 1: Of all students who attend, at least 75% will indicate an increase on the post-test as compared to the pre-test.

Outcome 1: Of the 64 students that completed both the pre- and post-tests, 96% made a gain from the pre-test to the post-test. This goal was met and the post-test score was statistically significantly higher ($p < .001$) than the pre-test.

Primary Goal 2: 70% of students will indicate knowledge growth in math and science concepts as measured by a retrospective survey.

Outcome 2: The areas that met the goal of having 70% of the students indicate growth were Biodiversity (85%), Water Quality (85%), Energy Use (76%), Independent Science Research (74%), and Development of an Essential (Research) Question (71%).