4-H Science in Urban Communities
Promising Practices for 4-H Science in Urban Communities

PARTNERSHIPS, RESOURCE DEVELOPMENT, STAFFING, AND RECOGNITION

Project Director - Chad Ripberger
County 4-H Agent, CEDH
Cooperative Extension of Mercer County
TRENTON, NEW JERSEY
VIDEO SEGMENT: INTRODUCTION

PROMISING PRACTICES FOR 4-H SCIENCE IN URBAN COMMUNITIES
HOW WE DID IT

• 4-H professionals nominated by SPL and science liaisons
• Each self-identified strengths in content areas
• Provided description, promising practices, and challenges in each of top 5 content areas
• Compiled info for each content area
• Conference calls in each content area
• Review
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<tr>
<th>Name</th>
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<tr>
<td>Nate Arnett</td>
<td>The Ohio State University</td>
<td>Dayton, OH</td>
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<td>Marianne Bird</td>
<td>University of California</td>
<td>Sacramento, CA</td>
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<td>Jackie Davis-Manigaulte</td>
<td>Cornell University</td>
<td>New York City, NY</td>
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<td>Beth Rasa Edwards</td>
<td>University of Missouri</td>
<td>Kansas City, MO</td>
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<td>Richard Enfield</td>
<td>University of California</td>
<td>San Luis Obispo and Santa Barbara, CA</td>
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<td>Dave Francis</td>
<td>Utah State University</td>
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<td>Janet Martin</td>
<td>Iowa State University</td>
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<td>Leon Moon</td>
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<td>Ashley Mullens</td>
<td>Louisiana State University</td>
<td>Baton Rouge, LA</td>
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<tr>
<td>Sheryl Nolen</td>
<td>Texas A&amp;M University</td>
<td>Houston, TX</td>
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<td>Jim Nichnadowicz</td>
<td>Rutgers University</td>
<td>Elizabeth &amp; Plainfield, NJ</td>
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<td>Bill Pabst</td>
<td>University of Missouri</td>
<td>Columbia, MO</td>
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<td>Lucinda Randolph-Benjamin</td>
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<td>Chad Ripberger</td>
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<td>Danielle Rudolph</td>
<td>Alabama A&amp;M University</td>
<td>Montgomery, AL</td>
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<td>Jessica Russo</td>
<td>University of Minnesota</td>
<td>Twin Cities, MN</td>
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<td>Steve Wagoner</td>
<td>University of Illinois</td>
<td>East St. Louis, IL</td>
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<td>Philson Warner</td>
<td>Cornell University</td>
<td>New York City, NY</td>
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SECTION 1: 4-H SCIENCE CORE PRINCIPLES

• 4-H Science Program Design – 4-H Science Checklist
• Inquiry Based Learning Approaches
• Providing Youth Authentic Opportunities to Practice and Share Science Abilities
• Training Others to Deliver Science Programs

PROMISING PRACTICES FOR 4-H SCIENCE IN URBAN COMMUNITIES
SECTION 2: PARTNERSHIPS

- Afterschool Providers
- Summer Program Providers
- City Government & City Parks and Recreation
- Universities & Campus-Based Scientists
- Science Centers & Museums
- State Level Practices to Advance Urban Programming
SECTION 3: STAFFING, RECOGNITION, MARKETING

- Content Rich Volunteers
- AmeriCorps Members
- Teenagers as Teachers
- Recognizing Youth & Showcasing Efforts
- Marketing & Branding 4-H Science in Urban Communities
Website and Publication

- [http://urban4hscience.rutgers.edu](http://urban4hscience.rutgers.edu)
- Available May 31, 2011
Eighteen 4-H Youth Development professionals from across the country contributed to the development of this guide of promising practices for 4-H Science in Urban Communities as part of a National 4-H initiative funded by the Noyce Foundation. The guide includes promising practices, case studies, and suggested resources in each of 15 content areas - all with a focus on expanding the quality and quantity of out-of-school science programming.
VIDEO SEGMENTS

- Introduction
- 4-H Science Program Design – 4-H Science Checklist
- Providing Youth Authentic Opportunities to Practice & Share Science Abilities
- Training Others to Deliver Quality Science Programs
- Partnering with Afterschool Providers
- Staffing with Teenagers & Teens as Cross-age Teachers
4-H Science in Urban Communities

4-H SLO SCIENTISTS
YOUTH/ADULT SCIENCE CLUBS
FAMILY SCIENCE IN CALIFORNIA

Richard Enfield
County Director &
4-H Youth Development Advisor
SAN LUIS OBISPO, CALIFORNIA
PURPOSE AND GOALS OF THE SLO SCIENTISTS

• Teach children how to BE scientists, giving them real experiences to help them learn how to observe, investigate and experiment (e.g., teaching skills of investigative science);

• Provide a fun, safe environment for adults to learn from children, children to learn from adults, & for everyone to learn from the world around them;

• Foster family dynamics of mutual respect;

• Provide a fun experience with hands-on investigative science!
SLO SCIENTISTS CLUB SET-UP

• Trained Facilitator
• Recruitment of Participants
• 8-10 Youth/Adult Teams per club
• 2 Dyad Groups
• Meetings once a week or once/2 weeks
• Community Activity
• Field trip(s)

PROMISING PRACTICES FOR 4-H SCIENCE IN URBAN COMMUNITIES
CONTENT RICH VOLUNTEERS

Promising Practices for 4-H Science in Urban Communities
TRAINING FACILITATORS

IT CAME FROM PLANTED EARTH

We all enjoy food, but where does it come from? You will take a journey in the world of agriculture and discover how soil, water, plants, and animals are important for your survival.

SCIENCING WITH SNAILS

You are the chief investigator in the world of snails as you embark on a journey of wonder, awe, and amazing feats!

FROM RIDGES TO RIVERS: WATERSHED EXPLORATIONS

Where does water come from? Where does it go? Go with the flow in activities that splash you with great ideas and fun!

OAK WOODLAND WILDLIFE

Explore trees and forests in a wonderful series of activities that looks at one of our most important natural resources.

BEYOND DUCK, COVER & HOLD

You will shake, rattle, and roll as you explore earthquakes, seismic waves, and seismograms. Discover if your community is ready for an earth moving experience!

Experiential hands-on activities
TRAINING FACILITATORS

SCIENCE PROCESSES

- Observing
- Communicating
- Comparing
- Organizing
- Relating
- Inferring
- Applying

Questioning Techniques
Inquiry
INQUIRY
PARTNERING WITH SUMMER PROVIDERS

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Promising Practices for 4-H Science in Urban Communities

PARTNERSHIPS, RESOURCE DEVELOPMENT, STAFFING, AND RECOGNITION

Jackie Davis-Manigaulte
Senior Extension Associate
NEW YORK CITY, NEW YORK
CURRENT AND FUTURE PROJECTS

PROJECTS
• NYC 4-H Science Day
• Environmental Stewardship
• CAUSE – College Achievement Through Urban Science Exploration
• HLM – Hydroponics Learning Model

UPCOMING
• 4-H Tech Wizards
• Toyota Leadership Event
National 4-H Science Day

- On October 5th & 15th, 2010 NYC 4-H launched the 3rd Annual 4-H National Youth Science Days to help build America's future science, engineering, & technology workforce.
- The National Science Experiment, 4-H₂O, focused on teaching youth about water quality and climate change.

- Held at PS 4 in Brooklyn and Food & Finance High School in Manhattan
- Students completed science day experiment and hands-on activities including carbon footprint pledge
- Learned about NYC 4-H and how to make community change regarding environmental preservation.
- Partnership with ACE - “Alliance for Climate Education”
STUDENTS AT PS 4 IN BROOKLYN LEARN ABOUT CARBON EMISSION DURING 4-H ELEMENTARY SCIENCE DAY

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STUDENTS LEARN HOW TO REDUCE THEIR CARBON FOOTPRINT AT SCIENCE DAY

Promising Practices for 4-H Science in Urban Communities
STUDENTS TRACE THEIR “CARBON FOOTPRINT” AND WRITE PLEDGES

PROMISING PRACTICES FOR 4-H SCIENCE IN URBAN COMMUNITIES
STUDENT PLEDGES TO REDUCE CARBON FOOTPRINT
NYC NATIONAL 4-H SCIENCE DAY EVENT

REDUCE YOUR CARBON FOOTPRINT

PROMISING PRACTICES FOR 4-H SCIENCE IN URBAN COMMUNITIES
CLIMATE CHANGE EXPERT & NYC 4-H ALUM VERNARD WILLIAMS

PROMISING PRACTICES FOR 4-H SCIENCE IN URBAN COMMUNITIES
CUCE-NYC 4-H took part in the MillionTreesNYC project, a citywide, public-private program enacted to plant and care for one million new trees across the five boroughs. NYC 4-H is promoting three components of the project:

**Tree Planting**
4-H joined citywide volunteer plantings in parks and abandoned urban areas, and partners with the NYC Parks Department to supply free trees to community residents and other 4-H clubs.

**Stewardship/Community Beautification**
4-H students became stewards over existing gardens and trees, adopting neglected community green spaces, maintaining tree pits, conducting community clean-ups and plantings, and building raised beds to plant flowers.

**Environmental Education**
4-H Groups learned about urban horticulture, community mapping & environment through 4-H Junior Master Gardener ® curriculum and MillionTreesNYC Educational Resources
STUDENTS PLANT TREES AS PART OF NYC 4-H ENVIRONMENTAL STEWARDSHIP

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4-H MEMBERS PARTICIPATE IN ENVIRONMENTAL STEWARDSHIP AT ST. JOHN’S NYC SUMMER 2010
CAUSE is a College-Community Partnership funded by the Teagle Foundation which seeks to improve the college readiness skills of minority youth from low-income communities, combining environmental studies, research, field study, and community service with intensive college preparatory services.

- Students design individualized research projects on science related topics
- Students were provided hands-on advising and workshops on public presentations and interviewing
- Student attend Cornell Summer Program to participate in rigorous environmental science curriculum
- Culminating symposium held for students to present their projects
CAUSE STUDENTS MEET WITH REPRESENTATIVES OF UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO)

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CAUSE STUDENTS EXPLORE HEALTHY FOODS IN THEIR COMMUNITIES

Promising Practices for 4-H Science in Urban Communities
CAUSE STUDENTS LEARN ABOUT CORNELL SUMMER COLLEGE PROGRAM WITH ABBY ELLER

PROMISING PRACTICES FOR 4-H SCIENCE IN URBAN COMMUNITIES
CAUSE STUDENTS PRESENT RESEARCH TOPICS - DIALOGUE WITH SCIENCE EXPERTS AND EXTENSION STAFF
CAUSE STUDENTS PRESENT AT 4-H PUBLIC PRESENTATIONS EVENT AT NEW YORK LIFE

Fluorescents
The Future of Energy Efficiency

Isabelle Fesale

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CAUSE STUDENTS TOUR COOPER UNION – NYC’S FIRST GREEN BUILDING

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The Hydroponics Learning Model and the Grow with the Flow projects were developed as vehicles to introduce students to high-tech sustainable agriculture and related disciplines via a hands-on applied science-learning environment.

- Year-long learning process involves developing, constructing and monitoring hydroponics units in classroom laboratories
- Students delve into interdisciplinary subjects such as marketing, economics & social implications of science and technology
- Project includes site visits to large-scale food production facilities (farms, greenhouses etc.)
STUDENTS MAINTAIN HYDROPONIC UNITS AS PART OF GROW WITH THE FLOW

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WARNER GIVES YOUTH TOUR OF GREENHOUSE & HYDROPONICS LABS ON TOP OF FOOD AND FINANCE H.S.
NEW INITIATIVES

• Toyota Leadership Development & Education on Careers in Science
• 4-H Tech Wizards / GPS Training
4-H youth met with Toyota executives to discuss leadership and career development.
GPS/GIS Training for Mentors of 4-H Tech Wizards Project

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GPS/GIS TRAINING FOR MENTORS OF 4-H TECH WIZARDS PROJECT

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4-H SET AFTERSCHOOL
SCIENCE, ENGINEERING, & TECHNOLOGY

Sheryl Nolen
County Extension Agent
HOUSTON, TEXAS
National and State initiative to impact science readiness, address achievement gaps, and further career development in related science fields.
4-H SET AFTERSCHOOL
HARRIS COUNTY 4-H

- National Institute of Food & Agriculture Grant
- Partnership Harris County Precinct 2 Youth Service
- Precinct2gether Inc. 501C
- Galena Park Independent School District
4-H SET AFTERSCHOOL

- Audience 3rd - 6th Grade
- Spanish-speaking families
- At risk for academic failure
- Impoverished areas of East Houston
- Highly industrialized Houston Ship Channel
Teams work on a 4-H Science Film about the Diet Coke Mentos Geyser Experiment.

**4-H SET Afterschool Science, Engineering, & Technology**

- 28 Sessions
- 82 youth
- 3 sites
- 24 Summer sessions
- 345 youth
- 6 sites

**Focus on SET Abilities**

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4-H SET Learning Experiences

- Scientific Method
- Hypothesis Testing
- 4-H Aerospace
- Aerospace Speed Labs
- 4-H Science Filmmaking
- Photography
- Engineering & Design Challenges

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PROGRAM DELIVERY

- Weekly (1-2 Hours)
- Extension Staff
- 4-H SET P.A.
- Pct.2 site staff
- Summer Site Staff Training
- Summer Teen Teachers

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PARTNERING WITH AFTERSCHOOL PROVIDERS

• Planning Team
• Site Staff Training
• Site Staff Meetings
• Develop Resources
• Co-teach sessions
• Prepare Teaching Plans
• Prepare Resources
• Conduct Evaluation

Stephane Calderon, 4-H SET P.A. facilitates lesson on Oil Spill Clean-Up assisted by site staff/teachers.

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TEENS AS TEACHERS

- Recruit from Feeder Schools
- Train as Project Mentors
- Partner Teens & Site Leaders
- Summer Programs
- Planning Meetings
- Involved & Engaged
- Evaluate each Session
- Recognize Teen Contributions
4-H SCIENCE FILMMAKING PROJECT

- 20 Hours 4-H filmmaking Studio
- Production Teams/Science Film
- Issues impacting community
- Cross-age teaching
- Teen Media Mentors
- Interview Experts
- Field trips
- 4-H Film Fest

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RECOGNITION & PROGRAM SHOWCASE

- Skill-A- Thon Contest
- Engineering Design Challenges
- Group Recognition
- Summer Showcase
- Field Day Innovator Challenges
- 4-H Film Fest Showcase
- Ready SET Go News
- Certificates, Ribbons & Prizes
- Site Recognition Events
4-H SET AFTERSCHOOL OUTCOMES
“FUN FACTOR”

- Pre/Post YEAK Survey
- Skill-A-Thon
- Video Interviews
- Focus Groups
- Admin. Staff Feedback
- Site Staff Interviews
- Established 4-H Clubs
- Authentic Evaluation
  - Lab books
  - Pod Reports

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Brought to you by 4-H

Through the generous support of

NOYCE FOUNDATION