

A Novel Approach for Engaging Members in Community Activity

**2013 IEEE-USA Annual Meeting
August 3, 2013
Portland, Oregon**



What you will learn today

- **How to stimulate the interest of pre-university students in STEM related careers.**
- **How to use your local public library as a STEM partner.**
- **How to engage your members in a “Make a Difference” community activity.**

Speakers

- **John Zulaski, Chicago**
- **Bernie Sander, Chicago**
- **Anthony D'Amato, S.E. Michigan**

- **Special Thanks to:**
- **Kimball Williams, S.E. Michigan**

Science Kits for Public Libraries

SKPL

A project originated by the IEEE-Chicago Section

What is SKPL?

A program to provide science kits for loan to public library patrons.

SKPL Objectives

- **Provide math and science materials to pre-university students**
- **Educate students about how math and science is used for the benefit of humanity**
- **Make a lasting impression on the community**
- **Demonstrate the skills required for a career in electrical engineering.**

The Chicago SKPL Experience

Bernard Sander

2012 Library Project in Chicago



Participating Libraries

- **Crystal Lake Public Library**

- In 1999, the Crystal Lake Public Library was ranked #10 among public libraries serving communities of 25,000-49,999 across the United States

- **Frankfort Public Library**

- Recently ranked 36th in the nation's fastest growing suburbs by Forbes Magazine, Frankfort is thriving. Known as the "Jewel of the South Suburbs." Frankfort has been recognized with the Southland's Reader's Choice award for "Best Community."

- **Mt Prospect Public Library**

- MP -Named Best Place in the U.S. to Raise Kids- Businessweek
- MP -Named Top 100 Places to Live -Money Magazine



Science Kits

- **Crystal Lake (K-12)**
 - **Early Simple Machines (Lego)**
 - **Tech Machines (Lego)**
 - ****Video Game Creation (Clickteam)**
 - **Electricity (Lakeshore)**
 - **Magnetism (Lakeshore)**
 - **Simple Machines (Lakeshore)**

Science First Kit



Science Kits

- **Frankfort – (K-5)**
 - **Simple and Powered Machines (Lego)**
 - **Renewable Energy (Lego)**
 - ***Pneumatics (Lego)**
 - ***Early Simple Machines (Lego)**
 - **Simple Machines (Lakeshore Learning)**
 - ***Basic Electricity (Snap)**
 - **Snap Rover (Snap)**

Snap Electronics Kit



Project #3 **Sound Activated Switch**
OBJECTIVE: To show how sound can turn "ON" an electronic device.

Build the circuit shown on the left by placing all the parts with a black 1 next to them on the base grid first. Then, assemble parts marked with a 2. Finally, lay the speaker (SP) on the table and connect it to the circuit using the jumper wires as shown.

When you close the slide switch (S1), the music may play for a short time, and then stop. After the music has stopped, clap your hands close to the whistle chip (WC) or tap the base with your finger. The music should play again for a short time, then stop. Blow on the whistle chip and the music should play.

You could connect the speaker using snap wires instead of the jumper wires, but then the speaker may create enough sound vibrations to re-activate the whistle chip.

Project #4 **Adjusting Sound Level**
OBJECTIVE: To show how resistance can lower the sound from the speaker.

Build the circuit shown on the left. When you close the slide switch (S1), the music may play for a short time and then stop. After the music has stopped, clap your hands close to the whistle chip (WC) or tap the base with your finger. The music should play again for a short time, then stop.

In this project, you changed the amount of current that goes through the speaker (SP) and reduced the sound output of the speaker. Resistors are used throughout electronics to limit the amount of current that flows.

Science Kits

- **Mt Prospect (K-6)**
 - ***Van de Graaff Generator (Science First)**
 - **75 in One Electronic Lab (Elenco Electronics)**
 - **Green Alternative Energy (Snap)**
 - **Energy Lab (Tree of Knowledge)**
 - ***Straw Rocket Launcher (Pitsco Education)**



How did we do?

- **Introduction Programs Oversubscribed requiring scheduling of additional events**
 - **Mad Scientist at MP and Frankfort**
 - **Hands on Science at Crystal Lake**
- **Feedback from students and parents very positive overall.**
- **Successful examples of packaging and cataloging.**
- **Some concern about maintenance of kits – particular those with lots of parts.**

Library Project Funding

- **Source of Funding**
 - **IEEE Foundation**
 - **IEEE Sections, Companies and Private Donors**



Library Project Funding

- **Libraries Applied for Grants < \$2000**
 - **Advertised to Public Libraries in Region 4**
 - **Libraries selected by Science Kits Board**
 - **Funds distributed in 2 phases**

Future Plans

- **Libraries Science Kits Will Continue**
 - Maintenance of existing kits?
- **Build awareness with Principals, Scout Troops and Home Schoolers**
- **Growth Beyond Region 4?**
- **Funding and Management of Larger Effort?**

Library Science Kit: Southeastern Michigan Section Experience

Kimball Williams
Past Section Chair

Presented by:

Anthony D'Amato
R4:SEM Director PACE

2012 IEEE-USA Annual Meeting

August 3, 2013

Portland, Oregon

Caroline Kennedy Library: Dearborn Heights, Michigan





Science Kits for Public Libraries Grant
Project
with the Caroline Kennedy Library

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IEEE Southeastern Michigan Section (SEM)
Presentation
October 22, 2011

Funding & Manpower:

- **SEM Section ExCom authorized \$500.**
- **Eaton Corporation donated \$1,000.**
- **The call went out for volunteer instructors:**
- **Responses were gratifying from:**
 - **GOLD & LIFE members as well as**
 - **University of Michigan - Dearborn Student Branch**

Volunteer Instructors

Whole Name	Last Name	First Name	e-mail
Bahare Naimipou	Naimipou	Bahare	b.naimipour@ieee.org
Bassel Atallah	Atallah	Bassel	abougeorge@gmail.com
Bowofola Fadojutimi	Fadojutimi	Bowofola	bowofola@gmail.com
Brian Farmer	Farmer	Brian	Brian.Farmer@mathworks.com
Daniel Ryan	Ryan	Daniel	InHomePcRepair@gmail.com
Don Price	Price	Don	donprice22@gmail.com
Edward Kuligowski	Kuligowski	Edward	edward@kuligowski.com
Glenn Keates	Keates	Glenn	gkeates@dymaxengineering.com
Hongyu Ma	Ma	Hongyu	hma@oakland.edu
John Pye	Pye	John	jl620@live.com
Julianne Boyle	Boyle	Julianne	jmboyle@oakland.edu
Nagini Devarakonda	Devarakonda	Nagini	nagini.devarakonda@gm.com
Neron Nesmith	Nesmith	Neron	nesmith@wideopenwest.com
Qasim Chaudhary	Chaudhary	Qasim	isdnhb@umd.umich.edu
Subra Ganesan	Ganesan	Subra	ganesan@oakland.edu
Valarie Thomas	Thomas	Valarie	mayamiela@aol.com
william merrick	merrick	william	merrick.73@hotmail.com
Kimball Williams	Williams	Kimball	k.williams@ieee.org
Jim Moir	Moir	Jim	jmoir@ci.dearborn-heights.mi.us

Schedule & Announcements:

- **Schedule 2012:**
- Kickoff 'Reception'-students & parents:
- Instructors Preparation Meeting:
- 4 Classes, one each month: Oct.–Dec.

- **Announcements:**
- Library Posters & Newsletter
- Library 'Flyers'
- **86 attended the reception.**

The library is offering this free series to all 1-8 grade students as a thrilling and challenging way to explore science kits and have a good time learning. This program will encourage children to hunt for answers and challenge themselves.



Wind Power 2.0 Kit

"The most exciting phrase to hear in science, the one that heralds the most discoveries, is not "Eureka!" (I found it!) but "That's funny..." ~Isaac Asimov



Caroline Kennedy Library

24590 George Street
Dearborn Heights, MI 48127

Phone: 313-791-3800
Web: dcl.michlibrary.org
E-mail: mhoward@ci.dearborn-heights.mi.us



Dangerous Book for Boys Kit

Science and Engineering...For Kids ONLY!

A 4 part series aimed at teaching 1-8 graders STEM (Science, Technology, Engineering and Mathematics) principles in an engaging and friendly atmosphere.

All programs will be held at the Caroline Kennedy Library.

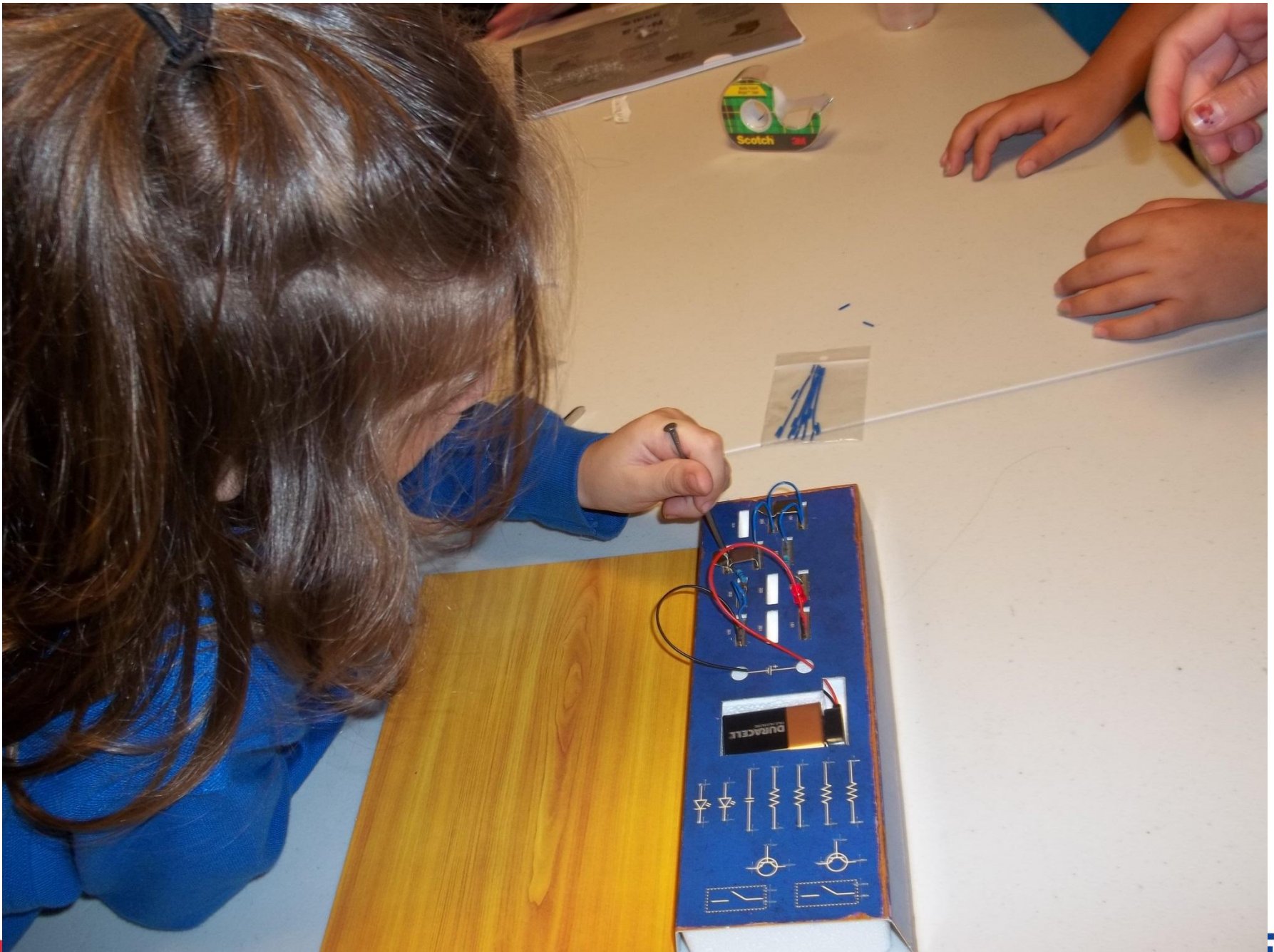


Advanced 500 & 1 Electronic L















Lessons Learned:

- **Have IEEE volunteers select the kits.**
(Library folks are wonderful but, don't have a clue!)
- **Ideally no more than 5 students for each instructor.**
- **An introductory presentation before the 'hands on' helps set the stage.**
- **Have instructors 'play' with the kits to determine what parts are more fragile.**
- **Have someone who is not teaching do the 'head count'.**

Next Step Planning

- **Set up “Kit” selection committee.**
- **Expanding to 6 more SEM libraries.**
- **SEM Chapter VIII – ‘Seed’ funding.**
- **Seeking long term funding from neighborhood groups and industries.**
- **Seeking ‘local’ IEEE members (from ‘zip’ codes around library) to form library teams at each location.**

Follow on 'classes' for interested students:

- **Expose students to “Hobbies” that can continue their involvement in technology:**
 - **Electronic Experiments**
 - **RC Cars, Boats, Planes**
 - **Radio Astronomy**
 - **Ham Radio**
 - **Model Rocketry**
 - **Etc...**

Current Status:

- **Initial committee organization is in place now.**
- **First funding by our EMC-Society Chapter has just been approved.**
- **We expect the kit ‘selection’ committee meetings to begin in late July.**
- **First classes are planned for September.**
- **We will let you know next year how this expanded plan ran.**

Happy IEEE & Eaton representatives:

- **Special thanks to Rajeve Verma and Eaton Corporation for their generous support!**



Summary:

- The program reaches many student that might otherwise have fallen 'through the cracks' in traditional educational settings.
- The audience for these programs is diverse and enthusiastic.
- There may be a place for something like this for adults.
- **Everyone will have fun!**

Thank You!

Getting your own project started.

John Zulaski

What SKPL offers your Section

- **Creates Collaboration Opportunities**
- **Engages Local IEEE Members in Community Betterment**
- **Creates Favorable Publicity and Recognition for IEEE, the Profession and its Members**
- **Generates Enthusiasm for Math and Science in K to 12 Students**

How to get started

- **Do Your Homework**
- **Get the approval of your Section**
- **Contact a local Public Library**

Do Your Homework

- **Read the white paper on the history of the project.**
- **Find out what your library offers.**

Get the approval of your Section

- **Where will the money come from?**
- **Who will lead the project?**

Contact a local Public Library

- **Tell the SKPL Story**
- **Develop a letter of Understanding**
 - Fund raising
 - Kit selection
 - Kit maintenance
 - Participation in programs
 - Other
- **Call for Volunteers**

Questions?

IEEE-Chicago Science Kits for Public Libraries

John A Zulaski- Project Director

Phone: 847-259-8135

E-Mail: jazulski@yahoo.com

**Project Information:
www.ieeechicago.org**