Promoting parental involvement and participation in out of school time (OTS) activities

- “Scientists for Tomorrow”

November 20th 2015
Scientists for Tomorrow (SfT) serves to address the opportunities articulated by the Informal Science Education as well as to promote urban youth in Chicago to be aware of, engaged in, and to develop skills related to STEM.

The main goal of this initiative is to expand STEM learning opportunities through Out of School Time (OST) activities and programs, in underserved and underprivileged communities in a sustainable process.
Scientists for Tomorrow provides:

1. Academic enrichment within the existing after school program structure.

1. Modules and professional developments to enlarge site’s capacity and motivate communities to engage in STEM-related content and endeavors.

1. Events at museums and conservatories that will promote the use of these facilities by community members.

1. A framework where community members can involve their youth in:
   a. learning STEM concepts
   b. communicating STEM concepts to the public at large
Scientists for Tomorrow could not have been possible without the collaboration of:

- Columbia College Chicago (CCC) faculty and staff of the Dept. Science and Mathematics
- Selected Community-Based Organizations (CBO)
- Selected Informal Science Education (ISE) providers
- A 2011 National Science Foundation (NSF) Informal Science Education (ISE) grant.

**2015-2016 COMMUNITY PARTNERS**

Museum of Science and Industry  
Lyric Opera  
Peggy Notebaert Nature Museum,  
Northeastern Illinois University, Center for College Access and Success, TRIO Upward Bound and Math and Science, 21st Century  
Family Focus Inc.  

YMCA Chicago  
Brighton Park Neighborhood Council (BPNC)  
Center for Community Arts Partnerships (CCAP),  
Frida Kahlo Community Organization  
Urban Gateways  
Three Rivers Public Library District  

Union League Boys and Girls Club  
Enlace Chicago  
Erie Neighborhood House  
Metropolitan Family Services  
Boys and Girls Club of Northwest Indiana  
Project Syncere,  
CPS Local School Councils  
Center for Higher
Scientists for Tomorrow Programs

- Scientists for Tomorrow
  Secondary 6-8th grade
- Parents of Scientists for Tomorrow
- Junior Research Scientists
- ComEd Youth Ambassadors
- Professional Development for Educators
Parent Workshop

The Parents of Scientists for Tomorrow is a program designed to promote parents to understand what STEM is all about and be able to share learning experience with their children.

This initiative is made possible through the collaboration between our Community Partner Organization, Frida Kahlo Community Organization.

- The main goal of the Parent Workshop is to give the parents the opportunity to become agents of change in their community.

- Parents explore hands-on STEM activities in the same way that their children are learning at school with the intention to promote them to be actively involved in changing their community attitudes towards learning STEM.

- With their commitment to learning and attending the classes, we would like to see parents become STEM leaders and instructors in their communities.
Some comments from parents

"It's really engaging, the work we do here. We're remembering mathematics that we haven't used in years. I have never used any of the tools that my husband uses, but here, we're learning how to use them."
- Delia Vera

“I am assisting the SfT workshop and is mainly motivated with the intention of supporting my kids and helping them with the homework. The difference between this and any other workshop is that you get more involved in the projects. They make you reason more, they take you back to your student days, to remember exactly how kids focus on their studies. To refresh your knowledge, what you used to know and put it into practice all over again."
Youth and Parent Participation

In 2015, Scientists for Tomorrow (SfT) completed its first year of Parents of Scientists for Tomorrow program with the mission to enhance parents' education, and prepare them to become leaders in their community, and in their children's education.

SfT parent and youth programs by year presented below:

**Year 1** - NSF Funded 14 Sites, with 10 instructors and 545 youth participants.

**Year 2** - NSF Funded 14 sites, 21 sites were self-sustained with 34 instructors and 767 youth participants.

**Year 3** - no cost extension, SfT was running the program in 32 sites, 7 sites were partially funded by NSF, 33 instructors and 958 youth participants.

**Year 4** - Scientists for Tomorrow had 35 self sustained sites, 44 instructors and 732 participants. From those 732 participants, 26 of them were parents.

**Fall 2015** - Scientists for Tomorrow currently has 33 self-sustain sites, 29 instructors and 476 participants. From those 476 participants, 23 of them are parents.
Scientists for Tomorrow Parent Schedule

10-12 weeks; once a week in 90-minute activities

(Program Schedule is the same for the youth programs)

- Fall (October-December): Alternative Energy Module and Basic Robotics (Started: September 21, 2015- Present)

- Winter (January- March): Physics of Sound and Mathematics of Music Module (Tentative Start Date: January 25, 2016)

- Spring (March– June) Ecology and Conservation/People & Plants Module (Tentative Start Date: March 8, 2015)
To implement the program Community Organization partners will need:

➢ Provide adequate space for module implementation.

➢ Provide financial support to cover expenses for materials and instruction.

➢ Including a secure storage place for required materials.

➢ Inform the program coordinator of any scheduling changes as soon as possible.

➢ Coordinate the final “end of module” symposia/presentations.

➢ Recruit participants’ parents to be involved in the final presentations as well as in the Museum/Conservatory Events.

➢ Provide transportation for Family Science Day Events

➢ Collaborate in facilitating the program evaluation process (*Surveys and Activity Logs*)
Content Modules/Curricula

- The STEM content modules consist of 10-12 weekly meetings of 75-90 minutes.

- The final meeting will consist of a family showcase event at their site. The objective of the end of the module event, is to engage families to promote STEM in their communities.
Family End of the Module Showcase

- The End of Module EVENT will be hosted by the organization’s community site. Showcase can be done at a school event, after school or at a community event.
- Participation of the parents is required.
- Plan the activity in advance and notify the parents periodically.
- Make the activity an integral part of the module.
Family Science Days

■ At the end of the module, Scientists for Tomorrow partners, with informal science education (ISE) providers are to bring all of the community sites and their families to these venues for a unique family science experience.

■ ISE for this year is the Museum of Science and Industry, the Lyric Opera and the Peggy Notebaert Nature Museum.
The STEAM Conference is an event developed/designed to provide middle school and high school students with the opportunity to attend and participate as practitioners in a conference setting. Founded in 2010, the conference was developed through the collaboration between the TRIO Upward Bound Math and Science program at the Center for College Access and Success from Northeastern Illinois University and the National Science Foundation (NSF) Scientists for Tomorrow program from the Department of Science and Mathematics at Columbia College Chicago. The STEAM Conference provides activities that foster Science, Technology, Engineering, Art/Architecture/Agriculture and Mathematics (STEAM) learning through project-based and career-oriented workshop sessions led by students. This unique student led conference, connects a variety of communities in the region to explore STEAM together as peers in a professional setting. To become a sponsor or present a workshop for the 2016 STEAM Conference on May 14, 2016 contact mcaplan@colum.edu
PARENTS CONDUCTING WORKSHOPS AT THE STEAM CONFERENCE 2015
We, as parents, have the opportunity to learn and develop as leaders and motivate other parents to participate for the good of our children’s education.

As a presenter I take home the satisfaction of how so many parents were attentive while we were explaining the projects. They have the capacity, all the parents have the capacity of learning. ...
… We [parents] sometimes say ‘I can’t do this’, but it’s so simple. If all parents knew about it it would be another part of our children’s education. The parents’ involvement is the best because it’s the base of our children’s education.

Before I thought it was more complex, but it’s a game, science is game based,” said 46-year-old, Josefina Chavez, STEAM conference presenter and member of Frida Kahlo Community Organization Parents Program.
Partnerships in Action: expanding educational opportunities

UV LED Night Light

Scientists for Tomorrow
Step One

Test your battery and your LED! Watch it light up!

If it doesn’t light up, make sure the LED is touching the right sides.
Step Two

Cut the aluminum tape in half. This will be our *conductor*.

Each person needs two halves.
Step Three

Apply the tape to each of the popsicle sticks. The popsicle sticks are made of wood, they will be our insulator.
Step Four

Take one of the popsicles. Cut the excess tape off the side. Hold on to that strip for later.
Step Four

One side of the popsicle stick should be clean wood, the other side should be covered in aluminum tape.
Step Five

Take the other popsicle stick and cut off half of the excess tape.
Step Five

Fold over that piece of tape, covering half of the popsicle stick.
Step Five

Now we have two popsicles.
Step Five

Next we take our 3v coin battery and apply the doublesided tape. Place half of the battery on the tape.
Step Seven

Place the coin battery on the popsicle stick where the wood and the aluminum tape meet. Make sure the battery is touching the aluminum tape half.
Step Seven

Sandwich the battery with the other popsicle stick. The second popsicle stick should have the aluminum tape side facing up.
Step Eight

Add a rubberband to hold it together.
Step Nine

Add the LED! Mount it at the top, with each leg touching each aluminum side.
Step Nine

Tape it in place!
Step Ten

Finally all that’s missing is the paper clip which will bridge the circuit and get our light working!
Step Ten

Slip in the paper clip. Make sure it’s touching both the battery and the aluminum tape on the other side.
Step Eleven

All that’s left now is to add the bracelet! And then try light up the beads!
Thank you for participating!
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