The Root of all STEM: Family Engagement

An ACT Now STEM Webinar
November 2nd, 2021
Welcome and Introductions

Level Setting
  - Who is ACT Now?
  - What is STEM? Why STEM in OST?
  - What is Family Engagement?

Panelists’ Presentations

Panel Discussion + Q&A

Breakout Room Activity

Closing and Evaluation

Chat!
React!
Engage!
Learning Goals

1. Identify family engagement opportunities
2. Experiment with possible family engagement events
3. Develop whole family STEM activities
Introductions

Lesley Fisher Chapman
she/her
Program Coordinator
Moderator

Edie Dobrez
she/her
Executive Director

Chimere Fox
she/her
STEM Learning Center Program Manager

Shonali Ditz
she/her
Co-Director

Rachel Carpenter
she/her
Education Manager

Homewood Science Center
explore • create • connect

Project Exploration

Spark Shop

ACTNOW!
Afterschool for Children and Teens

Children’s Discovery Museum
ACT Now

ACT NOW! Afterschool for Children and Teens

Click here to sign up for our newsletter!
Why focus on STEM?

Science, Technology, Engineering, and Math

Life Skills
College & Career Prep
Job Growth
Economic Sustainability
The process by which afterschool and summer programs build meaningful, impactful, lasting relationships with families to support them and their children.
Family Engagement Toolkit
A Guide for Afterschool and Summer Program Providers
Including specific examples of ideas and resources!
Homewood Science Center inspires scientific wonder, learning, and pursuit.
Edie Dobrez
Executive Director
Homewood Science Center
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https://www.homewoodsciencecenter.org/
Homewood Science Center is a regional hub for STEM in Chicago’s culturally and economically diverse south suburbs.

https://www.homewoodsciencecenter.org/
We provide programs, events, and exhibits for students, families, educators, and the community.

https://www.homewoodsciencecenter.org/mission
Unleashing the Power of Parents with Programs

- Accessible & Comfortable
- Community Based
- Relevant
- Fun & Engaging
STEM Saturdays at 18022 Dixie Highway
Drop in from 10am-1pm / FREE
Nanoscience / Legos / PopUp SCIENCE @Home kits
Imagination Playground / Dinosaur Bones / STEAM Studio Making

SPECIAL TOPICS
Oct 30/ Frog Dissection, HF Science Ambassadors
Nov 13/ Acorn Hide & Seek: Red Headed Woodpeckers, Forest Preserves of Cook County
Nov 27/ Down to the Bone, HF Science Ambassadors
Dec 4/ Holiday Chemistry Fun, Jessica Kask, Dober
Dec 11/ Birds on the Move, Forest Preserves of Cook County

We are back in the building!
Visit us on Dixie Highway!
Friendly staff make everyone feel welcome!

Colorful, organized spaces appeal to families. Supplies are repurposed or recycled materials.

Early math is everywhere & it's fun!
Simple STEM Activities that can be done at home with multiple children of varying ages.

Printed materials and supplies included.
How can we improve?

We need to provide better communication about what is happening at STEM Saturdays and why. Parents are encouraged to register for this Chicago Southland STEM Network meeting.
Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences — particularly students of color and girls — by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning.
A Brief History

1999 - 2021
Over twenty years of history on Chicago’s South and West Sides!
Who We Serve

- Employ STEAMbassadors, young people 18-24 years old, to facilitate our programs
- Join us from the communities we serve and are STEM and/or Education majors at 4- or 2-year colleges in the Chicagoland area
- Receive training and mentorship from PE and our partners
Out-of-School Time Programs

- Opportunities for middle and high school youth to work alongside STEM mentors and develop STEM skills and competencies, at no cost to students or families.
School-Based Programs

- **Middle School Programs**
  - Sisters4Science
  - Brothers4Science

- **High School Programs**
  - Forensic Investigators
  - Environmental Adventurers
  - Explore Engineering
  - Sports Science
  - Coding
  - Internship Opportunities
  - Research Opportunities
STEM Learning Center Programs

- STEM Learning Center
  - Building Blocks Club
  - Sisters4Science
  - Brothers4Science
  - Robotics
  - Mini Medical Lab
  - Lego Lab
  - FUSE / FUSE Remix
  - Coding
  - Engineering
  - First LEGO League
Pathways

**LAUNCH**
- Builds natural curiosity in STEM among K-3 learners
- Mentors help foster, guide, and build on interests to ensure positive early STEM experiences
- Use visualization to promote STEM learning that leads to a generalization of essential concepts and practices
- Build student self-efficacy around their ability to learn and do STEM

**DISCOVER**
- Entry level programming
- Survey a broad range of scientific disciplines
- Introduce the basic principles of the nature of science & scientific inquiry
- Build student confidence and lay the foundation for long-term relationships amongst students and STEM professionals and Project Exploration

**EXPLORE**
- Exploring STEM subjects and disciplines in-depth
- Focus more specifically on discrete disciplines and inquiry methods
- Reinforce critical thinking, collaboration, public speaking, and investigative approaches
- Empower students to articulate their interests and create their personal STEM identity

**PURSUE**
- Preparation to pursue STEM pathways beyond high school
- Equip students with skills and experiences to pursue science, engineering, technology and math in higher education and the workforce
- Provide an in-depth investigation in a research-based setting
- Build advanced STEM proficiencies, leadership, and decision making skills
Program managers & STEMbassadors as well as some partners went to various elementary schools engaging in STEM activities such as:

- Planting Milkweeds and learning about butterflies (Chicago Botanic Garden)
- Launching rockets
- Melting soap in the microwave
- Sinking boat
- Constellations
- Cellular biology (zebrafish)
- Molecule engineering
- Chicago Mobile Making - students were able to design thinking and problem solving
ABOUT SPARKSHOP

• Founded in 2017 by engineers
• Elementary school engineering curriculum provider
• Focused on equitable access to STEM opportunity for Chicago youth
• Interdisciplinary & culturally responsive
FAMILY ENGAGEMENT TIPS

- Spark organic conversations at home
- Support intergenerational information sharing
- Elevate STEM skills practiced by family members
THE ENGINEERING DESIGN PROCESS

- EMPATHIZE
- DEFINE
- IDEATE
- PROTOTYPE
- TEST
THE ENGINEERING DESIGN PROCESS
HOW DO FAMILIES PRACTICE THESE SKILLS

EMPATHIZE
TEST
DEFINE
PROTOTYPE
IDEATE
EXAMPLES
THANK YOU

shonali@sparkshop.org
Children’s Discovery Museum

Rachel Carpenter, Education Manager
How We Define Family Learning

▪ Family Learning is any program that is multigenerational.

▪ This includes any program where an adult and a child attend a program together.

▪ This adult does not need to be from their household

▪ Examples we typically see:
  ▪ Parents
  ▪ Grandparents
  ▪ Aunties & Uncles
  ▪ Childcare providers
  ▪ Family friends
Family STEAM Programing

- Early Childhood Classes
  - Currently 2-4 year old programs with child and caregiver. Programs intended to help model hands on STEAM learning for our youngest learners. Promoting parents as a child’s first teacher. Help them understand that how they feel and act about STEAM will affect their child’s engagement with these topics.
Family STEAM Programing

- Family Fun Nights
  - Intended for the whole family to attend and play.
    - Halloween Hoopla
    - Jammies and Jingles
    - Noon Year’s Eve

- Learning Labs (kind of)
  - Chaperones and teachers attend labs and hopefully learn new ways to engage with their children in STEAM content.
Family STEAM Programing

- Family Workshops
  - Family Paint Nights
- Family STEAM Challenges
  - These are intended to challenge both the adult and child
  - Cover a specific topic and offer challenge
  - Examples:
    - Marble Run
    - Leprechaun catchers
    - Spider web engineering
    - Build a bridge
    - Natural disasters
    - Sound challenge
    - Chemistry challenge
Application

- Help adults understand that they are their student's teacher
- Empower them with knowledge but also teach them that it is ok to learn together
- Model good scaffolding techniques for parents
- Model growth mindset language for everyone
- Have fun!
What have you learned doing these programs/events that you wish you knew when you started?
What are some of the most popular topics/themes you’ve used?
How do you market these programs/events?
What is your key takeaway for programs doing whole family STEM learning?
Breakout Activity!

Staff members of an afterschool program

- 1 virtual OR 1 in-person STEM-related family engagement event
  - What is the hands-on activity and its connection to STEM? (i.e. what are they learning about?)
  - What age group(s) are you targeting?
  - What family group(s) are you targeting?
  - How will you spread the word?
Q2 Community Schools Virtual Regional Convenings
- **Downstate, Family Engagement** on 11/3 from 10 am - 12 pm
- **Chicago, Bullying/Restorative Justice** on 12/1 from 10 am - 12 pm
- **Suburbs, Advisory Boards** on 12/8 from 10 am - 12 pm

**Tips For Grant Writing**
Friday, 11/19 from 10 am - 11 am on GoToWebinar

**Quality Standards Training 102**
Tuesday, 12/7 from 10 am - 2 pm on Zoom
*NOTE: Quality Standards Training 101 is a prerequisite*

**December Membership Exchange**
Thursday, 12/16 from 10 am - 11 am on Zoom
Additional Resources

Afterschool STEM Guidebook

Family Engagement Toolkit

Equity and Inclusion Assets for Afterschool and Summer Programs

Access code: MGM2021
THANK YOU!

Don’t forget to fill out the evaluation so we can continue to offer free PD and training opportunities to our members!

Questions?
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