



The Root of all STEM: **Family Engagement**

An ACT Now STEM Webinar
November 2nd, 2021

Agenda

- 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

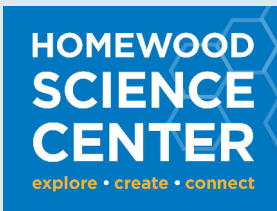
Develop whole family STEM activities



Introductions



Lesley Fisher Chapman
she/her
Program Coordinator
Moderator



Edie Dobrez
she/her
Executive Director



Shonali Ditz
she/her
Co-Director

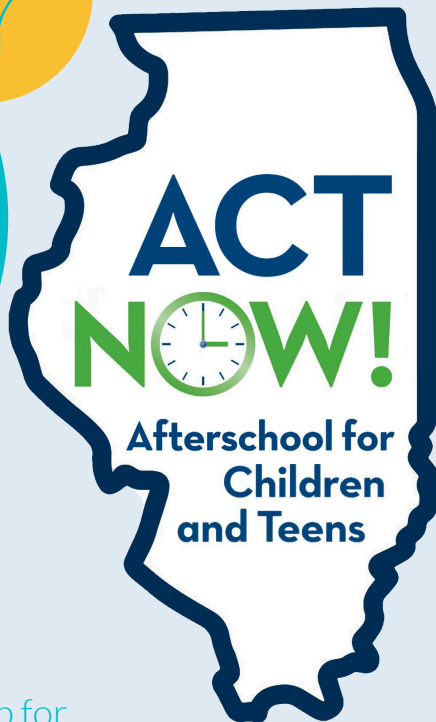


Chimere Fox
she/her
STEM Learning Center Program
Manager



Rachel Carpenter
she/her
Education Manager

ACT Now



[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



What is **Family Engagement**?

The process by which afterschool and summer programs build meaningful, impactful, lasting relationships with families to support them and their children.



ACT Now Family Engagement Toolkit

Family Engagement Toolkit

A Guide for
Afterschool and
Summer Program
Providers



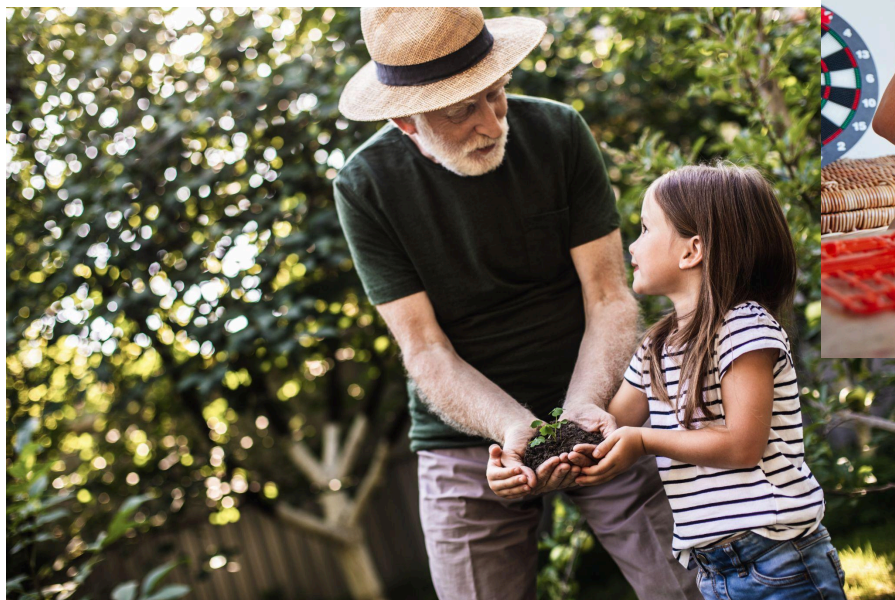
ACTNOW!
Afterschool for Children and Teens

*Including specific
examples of ideas
and resources!*





Put it all together!



HOMEWOOD SCIENCE CENTER

Homewood Science Center inspires scientific wonder, learning, and pursuit.





Edie Dobrez

Executive Director

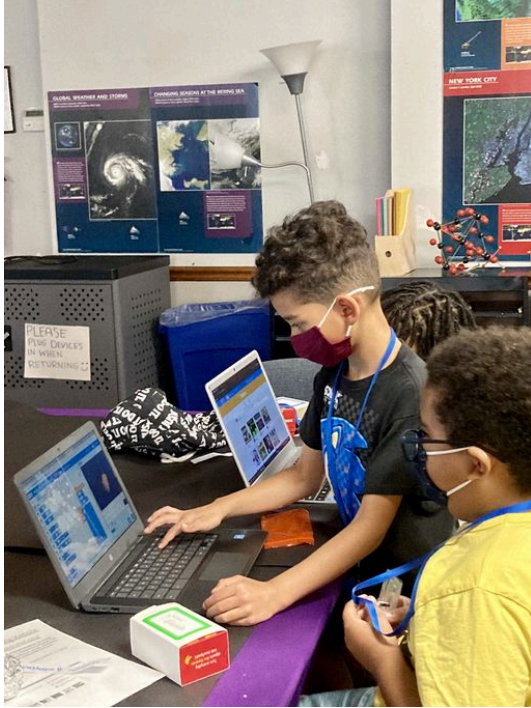
Homewood Science Center

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Homewood, IL 60430

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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>

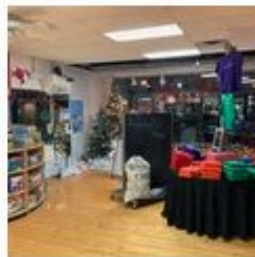
Unleashing the Power of Parents with Programs

- Accessible & Comfortable
- Community Based
- Relevant
- Fun & Engaging



STEM Saturdays

HOMWOOD SCIENCE CENTER



Sponsored by

DOBER

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



We are back in the building!
Visit us on Dixie Highway!

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



Friendly staff make everyone feel welcome!



Early math is everywhere & its fun!



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

CHEMICAL SCIENCE

Discovering Density

Science Question

What happens when you add salt to a container of oil and water?

What Do You Know?

Ask children: Have you ever poured oil in with water? What happens?

Have you ever tried pouring salt into water? What happens to the salt?

Scientists do investigations to answer scientific questions

Plan. To answer the science question, these are the materials we need!

Materials

1 clear, tall glass or plastic bottle; water; vegetable oil; salt; and a tablespoon (T)

*Optional: food coloring, glitter, flashlight



Procedure. To set up the investigation, gather your materials

Prediction. From any experience you have with oil, water, and salt, what do you think will happen when you put oil and water in the same container and then add salt?

Test. 1) Fill the glass or bottle $\frac{3}{4}$ full of water 2) *Optional: add 1 tablespoon of glitter and/or food coloring 3) Fill the rest of the glass with the oil 4) Add about 1 tablespoon of salt 5) *Optional: Turn off the lights and shine your flashlight through the glass

Results. Record your observations on the back of this page, and then your conclusion. What do you think was the cause of what happened?

For Younger Children: Pour the water and oil in the glass and ask them to draw or describe what they observe happening in the glass. Let them add the T of salt. Ask them to describe what they observe is happening now. Why do they think this is happening?

For Older Children: Encourage them to think about what happens when you put together oil and water, or water and salt. Help them process through what might happen when the three are put together in a glass. Ask them to try and explain what they observe. What happens when you add more or less oil to the water, or more or less salt?



PopUp
SCIENCE
@HOME!

Simple STEM Activities that can be done at home with multiple children of varying ages.

Printed materials and supplies included.

**HOMEWOOD
SCIENCE
CENTER**

explore • create • connect



Chicago Southland
STEM
Network

**Fall 2021
Virtual Meeting**

NOVEMBER 16, 2021 5-6PM

Featured Speaker: Beth Dykstra VanMeeteren, Ed.D.,
Director, Regents' Center for Early Developmental Education &
Associate, Professor, Literacy Education



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.



The RoundUp

Homewood Science Center's
News Digest:
Taking STEM to a higher level

[Subscribe](#)



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!



Equity



Students at the
Center

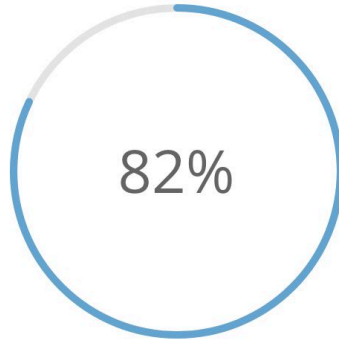


Authentic +
Meaningful Work

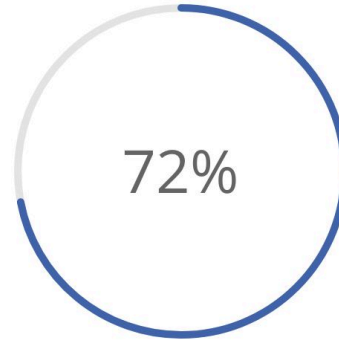
Who We Serve



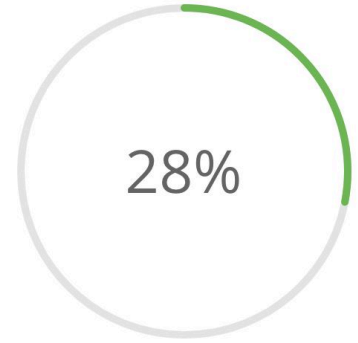
of students come from
low-income families



identify as female



are African American



are Latino

- **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.



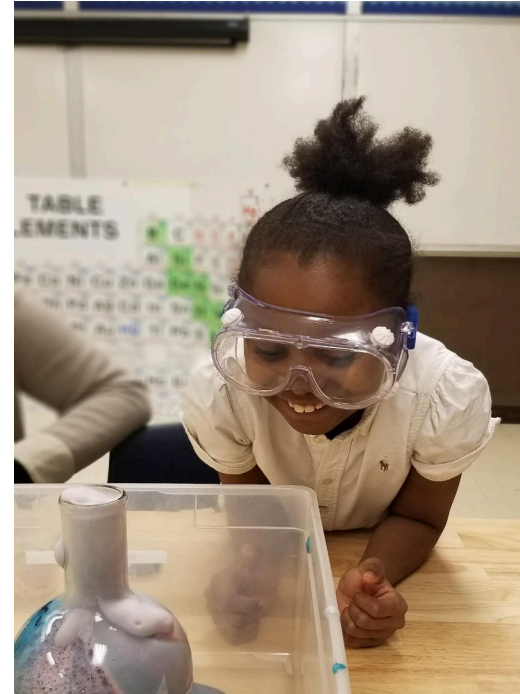
School-Based Programs

- 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

STEM POP - UP EVENTS

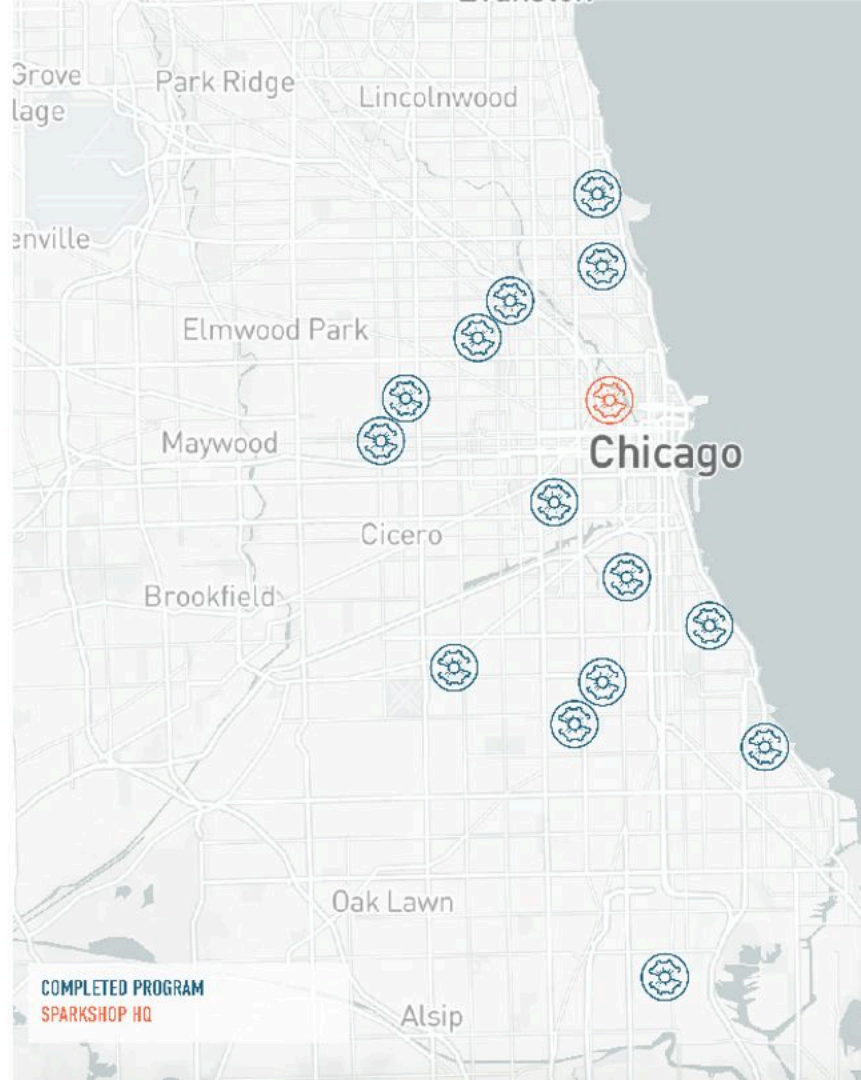
Program managers & STEMBassadors as well as some partners went to various elementary schools engaging in STEM activities such as:

- 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

SPARK  SHOP

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

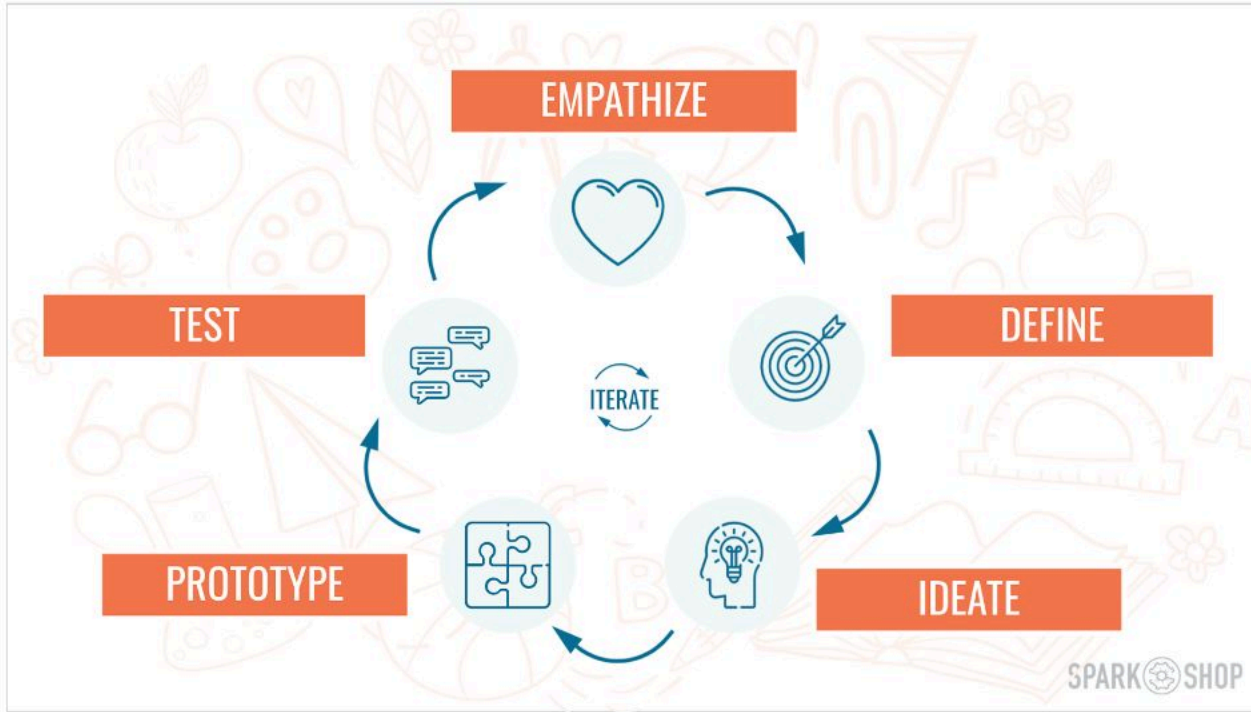


FAMILY ENGAGEMENT TIPS

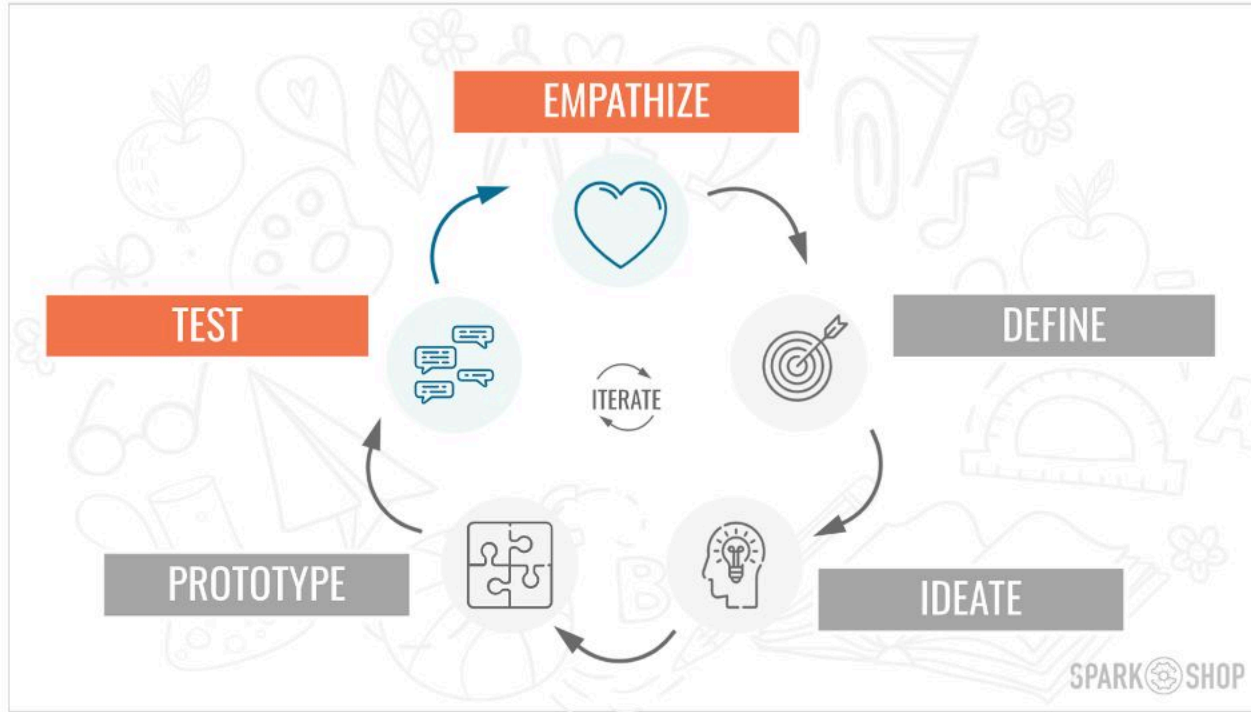
- Spark organic **conversations** at home
- Support intergenerational **information sharing**
- Elevate **STEM skills** practiced by family members



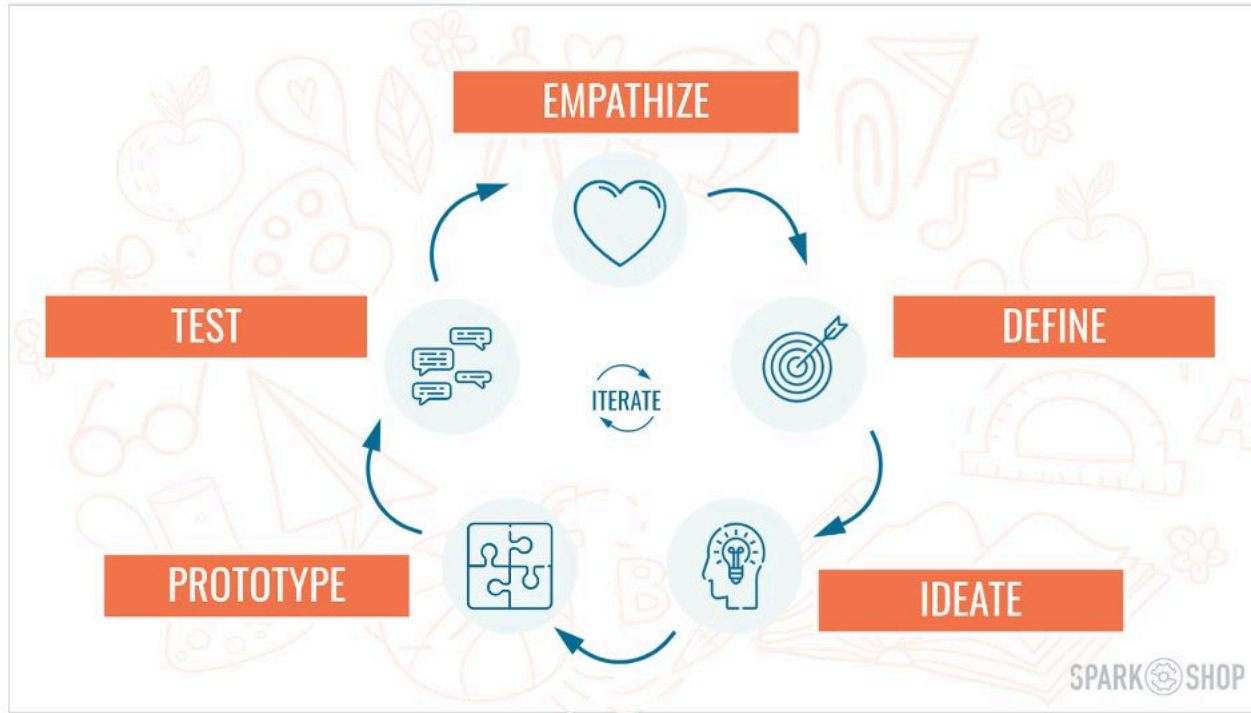
THE ENGINEERING DESIGN PROCESS



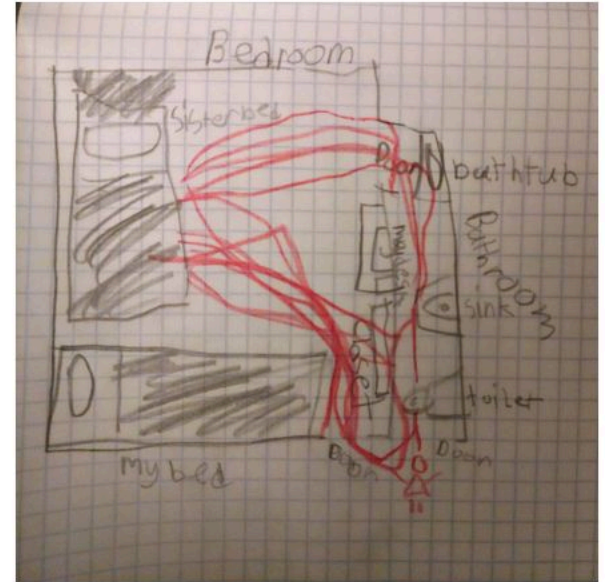
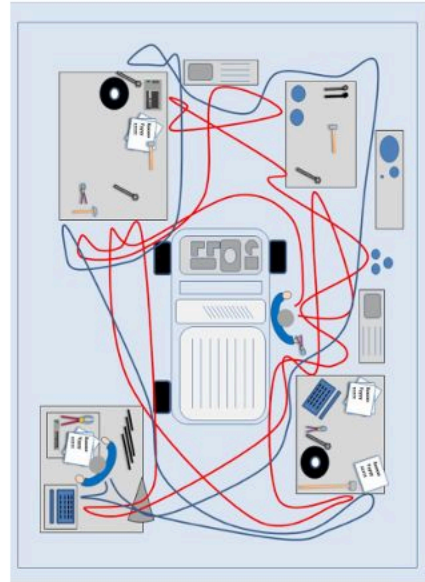
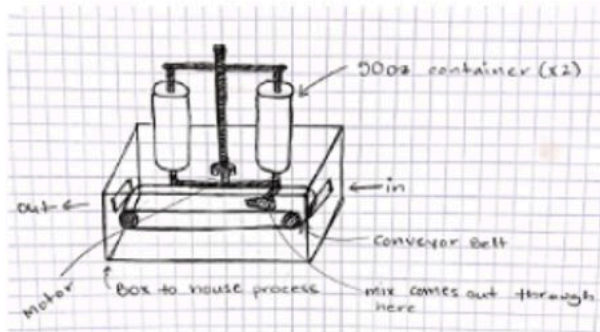
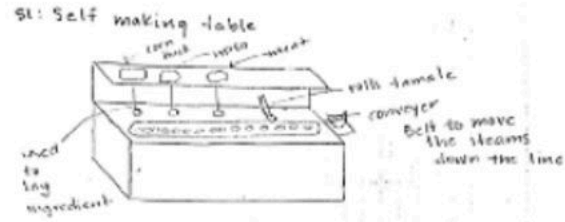
THE ENGINEERING DESIGN PROCESS



HOW DO FAMILIES PRACTICE THESE SKILLS



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!



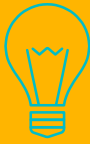
Questions for
our presenters?



**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?**





Upcoming ACT Now Events

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

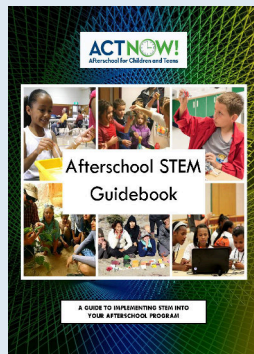
NOTE: Quality Standards Training 101 is a prerequisite

December Membership Exchange

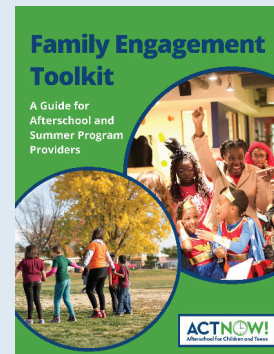
Thursday, 12/16 from 10 am - 11 am on Zoom



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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