
Family Engagement Toolkit for Out-of-School-Time STEAM

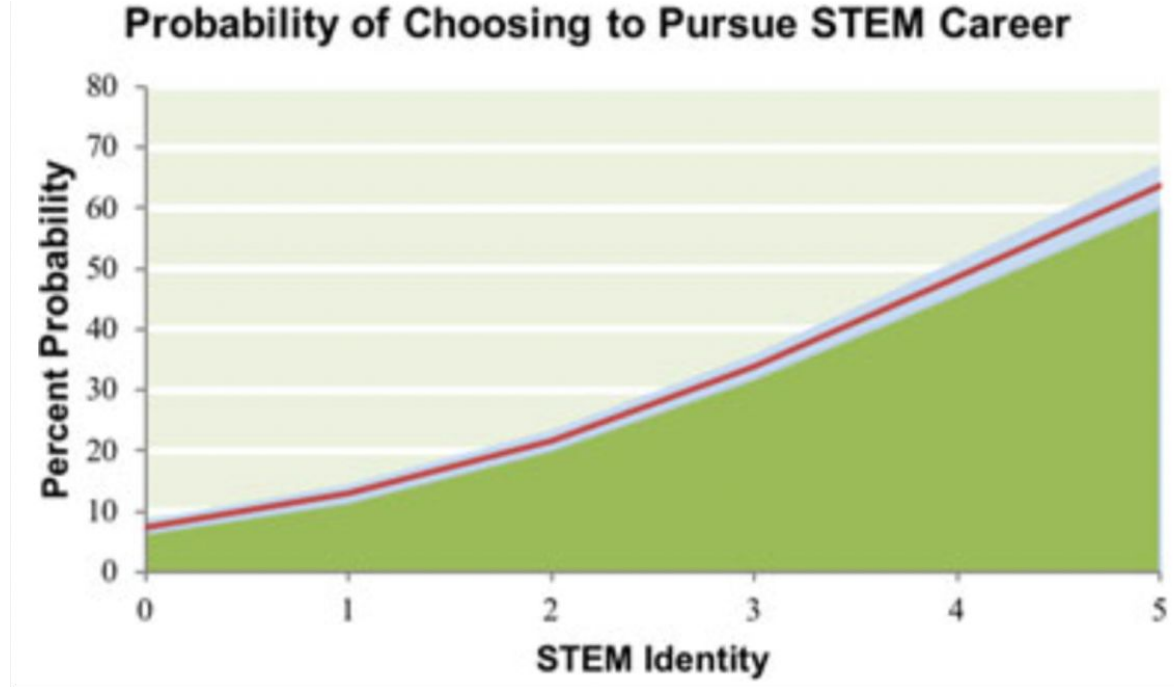


Marshfield Clinic
Health System



Family-Centric STEAM Engagement - What do we mean by this?

- Family-centric = student -centric with a *focus* on family AND/OR familial networks.
- Goal: to provide students with a support network to help build their STEM identity and increase their probability if pursuing STEAM-related activities.



(Dou et al., 2019)

What role do families play in STEAM engagement?

99%

In a national survey, 99% of parents said they **want** to be involved in their child's education; however, they don't understand the role they can play in their child's learning.

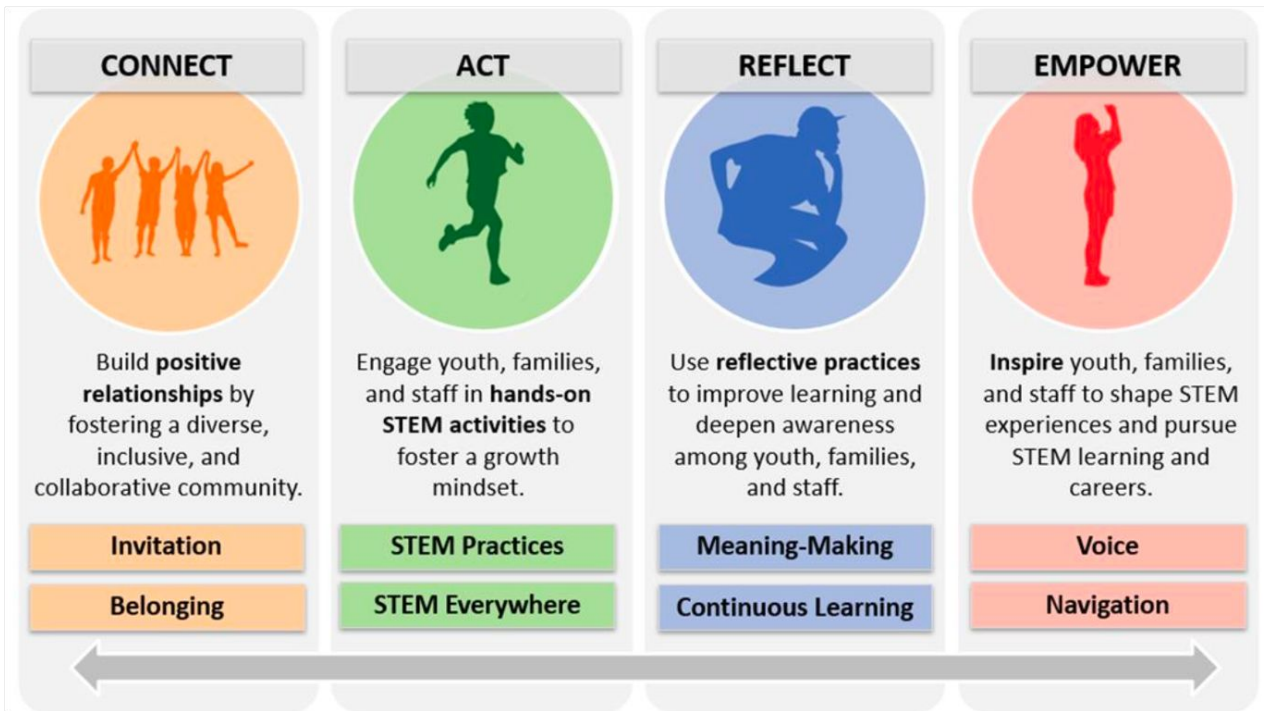
Family engagement is a dynamic process



(STEM Next Opportunity Fund, 2019)

Purpose of this toolkit: assist in creating opportunities for STEAM-based family engagement using an established model and best practices.

The CARE Framework - Developed by ISRY & the STEM Next Opportunity Fund for K-12 and OST Partners



This toolkit will break down each aspect of the framework while providing real-life application examples, including potential obstacles and ways to adapt the framework to individual situations.

(ISRY & STEM Next Opportunity Fund, 2021)

Who were/are our partners behind the real-life application examples included in this toolkit?



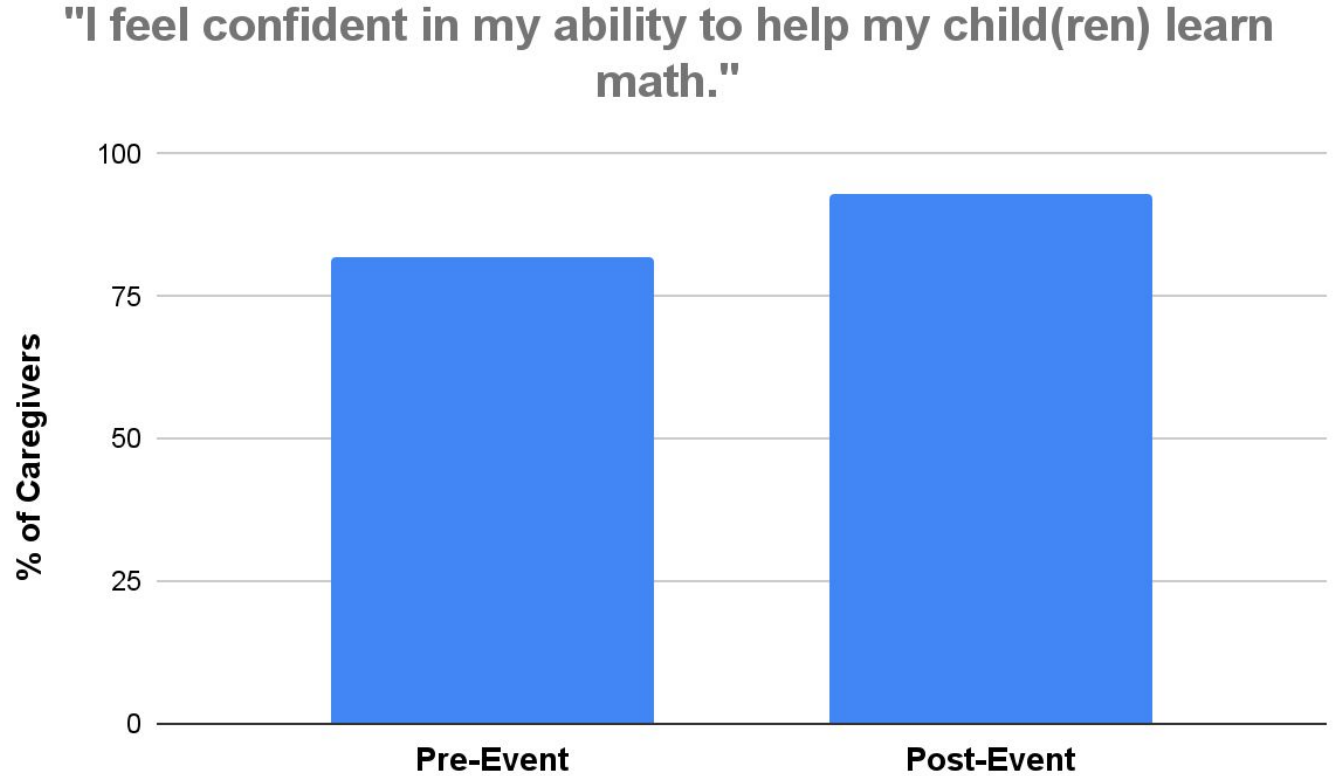
- Organized three (3) family engagement nights in 2023/24 with Stellar families and students in grades K-5. We focused on Math as our central theme.
- STEAM Expert: Dr. Gabriella Pinter from UW-Milwaukee's Mathematics Dept.
- Funding: \$1,500 grant from the Wisconsin Society for Science Teachers.



**MILWAUKEE
PUBLIC SCHOOLS**

- Organized two (2) family engagement nights in 2023/24 with MPS families and students in grades K-5. We focused on Math as our central theme.
- STEAM Expert: Dr. Gabriella Pinter from UW-Milwaukee's Mathematics Dept.
- Funding: Limited; some funding for materials from MPS' Javits Grant Program.

**Does the toolkit work?
YES! Survey results show that our Math Nights raised caregiver confidence in math by >10%.**



CONNECT



Goal: Build positive relationships by fostering a diverse, inclusive, and collaborative community.

Key Idea #1 - INVITATION: Reach out with intention to diverse families and staff



Example: We created flyers in both English and Spanish for Stellar Families, given the school’s predominantly Hispanic population.



ELEMENTARY MATH EDUCATION PROJECT!

PROGRAM INFORMATION




Do you think learning math can be challenging? Are you looking for ways to engage in math education as a family? If so, this program is for you! Through a collaboration with the Wisconsin Afterschool Network and the Wisconsin Society of Science Teachers, Stellar Elementary is excited to introduce our Elementary Math Education Project! Join us for a series of family-based sessions on math education, featuring games, activities, lesson plans, and take-home kits designed by **Dr. Pintor** and **Dr. McLeod** from UW-Milwaukee!

This program is **FREE** and open to Stellar families with children in grades K-5. Participating families will be encouraged to attend all three program sessions and volunteers will be present to assist with childcare as needed.

DATES & TIMES:
 Sesión #1: Nov 14th (5:00-7:00 pm)
 Sesión #2: Jan 24th (5:00-7:00 pm)
 Sesión #3: April 9th (5:00-7:00 pm)
(Dinner will be provided)


LOCATION:
 Stellar Academy
 2431 S 10th St, Milwaukee, WI 53215
(Transportation services to-and-from the sessions will be available by request)

QUESTIONS? EMAIL
 jmack@carmenschools.org
 QR
 Bernardo Traversari
 bernardo.traversari1@gmail.com



PROYECTO DE EDUCACIÓN PRIMARIA EN MATEMÁTICAS!

INFORMACIÓN DEL PROGRAMA




¿Crees que aprender sobre matemáticas es desafiante? ¿Te interesaría adquirir recursos educativos para ti y tu familia en cuanto a las matemáticas? ¡Si contestaste “sí” a una de estas preguntas, entonces este programa es para tí! A través de una colaboración con la Red de Programas Extracurriculares de Wisconsin (WAN) y la Sociedad de Profesores de Ciencia de Wisconsin (WSSST), la Primaria Estelar está emocionada de introducir nuestro Proyecto de Educación Primaria en Matemáticas. Únete a nosotros para una serie de eventos interactivos enfocados en las matemáticas y liderados por la Dra. Pintor y el Dr. McLeod de UW-Milwaukee!

Este programa es **GRATIS** y abierto a familias Estelares con estudiantes en grados K-5.

FECHAS & HORAS:
 Sesión #1: 14 de Nov (5:00-7:00 pm)
 Sesión #2: 24 de Enero (5:00-7:00 pm)
 Sesión #3: 9 de Abril (5:00-7:00 pm)
(Cena incluida)

UBICACIÓN:
 Primaria Estelar
 2431 S 10th St, Milwaukee, WI 53215
(Servicios de transporte estarán disponibles por solicitud)

PREGUNTAS? COMUNICARSE CON
 Joshua Mack
 jmack@carmenschools.org
 o
 Bernardo Traversari
 bernardo.traversari1@gmail.com



Gabriella Pintor
Profesora
UW-Milwaukee



Kevin McLeod
Asesor Profesor
UW-Milwaukee

Scan the QR code to register for the program



Usar el código QR para registrarse para el programa





Learn Deep
MILWAUKEE



WSST
WISCONSIN SOCIETY OF SCIENCE TEACHERS

CONNECT



Goal: Build positive relationships by fostering a diverse, inclusive, and collaborative community

Key Idea #2 - BELONGING: Nurture connections within and across program community and ecosystem



Dedicate time and space to building a caring & compassionate culture

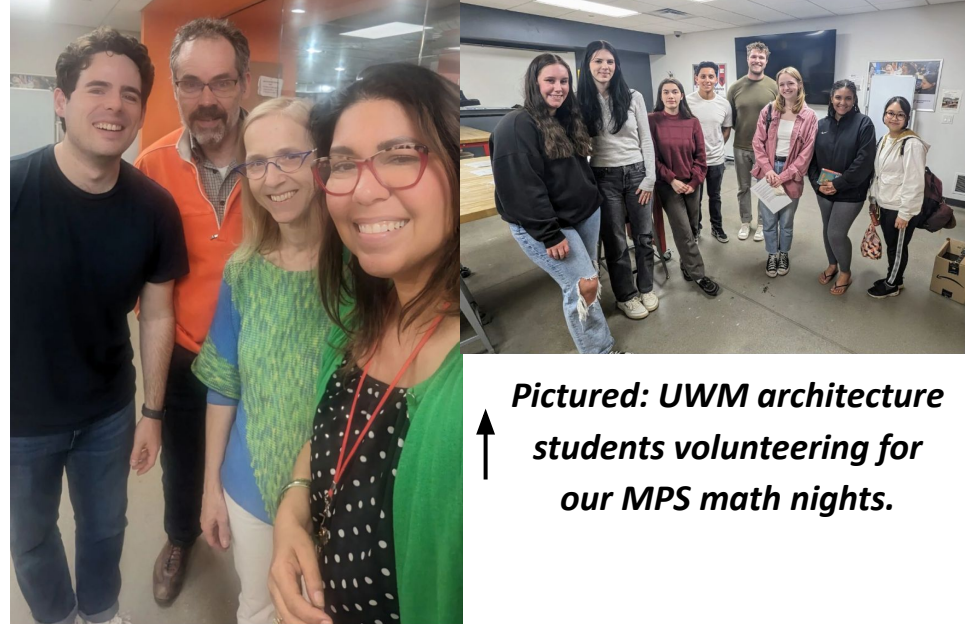


Acknowledge, respect, & celebrate diversity in STEM



Develop partnerships to grow capacity to support families

Example: We developed a close relationship with MPS' Javits Program to obtain funding for each night, while also collaborating with UW-Milwaukee students for volunteer support.



Pictured: UWM architecture students volunteering for our MPS math nights.

Pictured: Bernie Traversari with project partners, including Dr. Martha Lopez from MPS' Javits Program (rightmost).

ACT



Goal: Engage youth, families, and staff in hands-on STEM activities to foster a growth mindset.

Key Idea #1 - STEM PRACTICES: Provide opportunities for families to practice STEM skills and apply STEM knowledge together



Design STEM activities that engage youth & families together



Show that STEM experience or expertise is not needed to learn/succeed



Broaden understanding of modern STEM skills & workforce

Example: We integrated math activities that were fun and engaging for both caregivers and students, like the Maze Mat from the [Julia Robinson Math Festival](#). →



ACT



Goal: Engage youth, families, and staff in hands-on STEM activities to foster a growth mindset.

Key Idea #2 - STEM EVERYWHERE:

Promote STEM anywhere, at any time



Provide free or affordable resources for at-home collaboration



Encourage engagement in STEM beyond your program and outside the home



Provide activities that fit with families' everyday lives

Example: After each event, we gave out premade kits with math-centric games for continued engagement at home (with friends, other family members, etc.).



REFLECT



Goal: Use reflective practices to improve learning and deepen awareness among youth, families, and staff.

Key Idea #1 - MEANING MAKING: Help families reflect jointly together to deepen their STEM learning



Example: During each of our events, caregivers and students engaged individually with Math while in the same space, allowing for mutual encouragement.



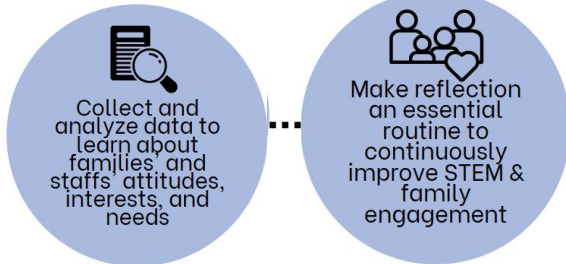
REFLECT



Goal: Use reflective practices to improve learning and deepen awareness among youth, families, and staff.

Key Idea #2 - CONTINUOUS LEARNING:

Listen and learn with families, continuously



Example: We asked caregivers to complete both a pre and post event survey to gauge the impact of our family nights on learning and confidence in math.

Pre-Event Survey | Encuesta Previa al Evento

Please indicate how much you agree with the following statements |
acuerdo está con las siguientes afirmaciones.

1. My child is confident in his/her ability to learn math | Mi hijo/a
capacidad para aprender matemáticas.

1 2 3 4
(Strongly disagree |
Totalmente en desacuerdo)

2. I am able to help my child learn math | Puedo ayudar a mi hijo/a
matemáticas.

1 2 3 4
(Strongly disagree |
Totalmente en desacuerdo)

3. I am not a "math person" | No soy una "persona de matemáticas"

1 2 3 4
(Strongly disagree |
Totalmente en desacuerdo)

4. My child often struggles with math | Mi hijo/a a menudo tiene
matemáticas.

1 2 3 4
(Strongly disagree |
Totalmente en desacuerdo)

5. My child has access to out-of-school/after school (extracurricular
education | Mi hijo/a tiene acceso a recursos fuera del colegio (ex
aprendizaje de las matemáticas.

1 2 3 4
(Strongly disagree |
Totalmente en desacuerdo)

Post-Event Survey | Encuesta Posterior al Evento

Please indicate how much you agree with the following statements | Por favor indique qué tan de
acuerdo está con las siguientes afirmaciones.

1. This event offered useful resources for my child's math education | Este evento ofreció
recursos útiles para el aprendizaje de las matemáticas de mi hijo/a.

1 2 3 4 5
(Strongly disagree |
Totalmente en desacuerdo) (Strongly Agree |
Totalmente en acuerdo)

2. I feel more confident in my ability to help my child learn math | Me siento más seguro/a
de mi capacidad para ayudar a mi hijo/a a aprender matemáticas.

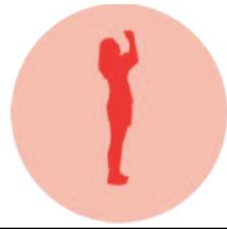
1 2 3 4 5
(Strongly disagree |
Totalmente en desacuerdo) (Strongly Agree |
Totalmente en acuerdo)

3. I would like to attend more of this type of events in the future | Me gustaría asistir a más
eventos de este tipo en el futuro.

1 2 3 4 5
(Strongly disagree |
Totalmente en desacuerdo) (Strongly Agree |
Totalmente en acuerdo)

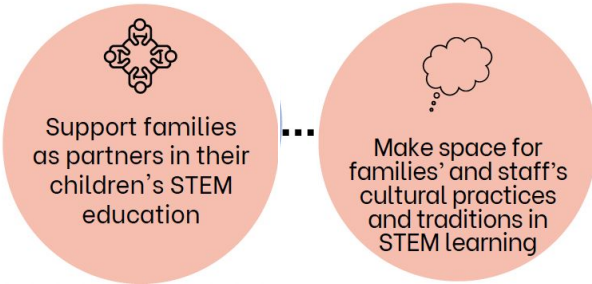
Please feel free to write down any additional comments regarding your experience tonight | Por
favor, siéntase libre de escribir cualquier comentario adicional sobre su experiencia hoy noche.

EMPOWER



Goal: Inspire youth, families, and staff to shape STEM experiences and pursue STEM learning and careers.

Key Idea #1 - VOICE: Create pathways for caregivers to lead and decide



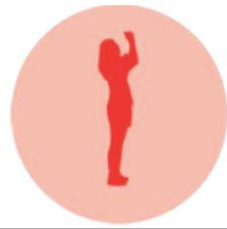
Support families as partners in their children's STEM education

Make space for families' and staff's cultural practices and traditions in STEM learning



Example: We provided dinner prior to each of our events to encourage connection amongst family and staff. This was particularly important for our Hispanic families given the role of meal-sharing in Hispanic culture.

EMPOWER



Goal: Inspire youth, families, and staff to shape STEM experiences and pursue STEM learning and careers.

Key Idea #2 - NAVIGATION: Help families negotiate and advocate for their children, in and through STEM pathways



Make it easier for caregivers to find and access STEM tools & resources



Help caregivers network with other families interested in STEM



Help caregivers find opportunities to build STEM skills and abilities

Example: By having caregivers engage with math independently - and not as their kids' supervisors - we created an opportunity to connect with other adults.



Important elements to consider when using this toolkit...

- The CARE Framework is based on years of research on family engagement and OST STEAM programming. However, it is meant to be a *general guide*, meaning that you should complement it with other tools & information as needed.
- The framework is not meant to be the *end-all-be-all* approach to OST family engagement. Adapting it to your individual situation is *key*, and you may sometimes have to try different approaches to see what works (and what doesn't).
- It is completely *OK* if you do not meet all of the CARE elements right away. Focus on one at a time and build on your successes.

You *will* encounter obstacles when designing your own family engagement events - what are some potential solutions?

<i>Obstacle</i>	<i>Solution</i>
Lack of funding or insufficient funding for materials, food, etc.	Focus on low-cost activities & gauge interest in hosting a potluck as part of your event(s).
Lack of STEAM Experts from higher ed institutions or similar organizations (e.g., our typical go-to experts).	STEAM is everywhere! Look for Experts from local companies, manufacturing centers, and government/Tribal agencies.
Lack of volunteers to lead events and activities.	Empower STEAM high school clubs/students to lead events.

Stuck? Consider reaching out to WOSTA for support (including specialized Technical Assistance)!

OST Resource Center: <https://linktr.ee/WOSTA>



Other Helpful Links/Resources

<https://spaceplace.nasa.gov/menu/activities/>

<https://www.jpl.nasa.gov/edu/learn/>

<https://www.nasa.gov/nasa-at-home-for-kids-and-families>

<https://oceanservice.noaa.gov/kids/>

<https://www.rasmussen.edu/degrees/education/blog/simple-science-activities-for-kids/>

<https://www.sciencebuddies.org/stem-activities>

<https://www.youtube.com/channel/UCRFIPG2u1DxKLNuE3y2SjHA>

<https://kids.nationalgeographic.com/>

<https://www.pbs.org/show/science-kids/>

<https://pbswisconsineducation.org/meetthelab/about/>

<https://www.si.edu/kids>

https://www.startearly.org/app/uploads/2021/10/REPORT_Designing-Family-Math_Early-Learning-Lab_ENGLISH.pdf

https://stemnext.org/wp-content/uploads/2019/10/Changing-the-Game-in-STEM-with-Family-Engagement_Final_.pdf