Lunch & Learn

Certificates

Certificates through Texas Early Childhood Professional Development System

- Have a TECPDS account? Make sure you can login at **tecpds.org** and you're all set!
- New to TECPDS? Visit **tecpds.org** to sign-up for your free account.

Come see our staff if you have any questions or need assistance

Broadening Access to High-Quality Early STEM Education in Houston to Address Social Determinants of Health

Tricia Zucker, Ph.D.
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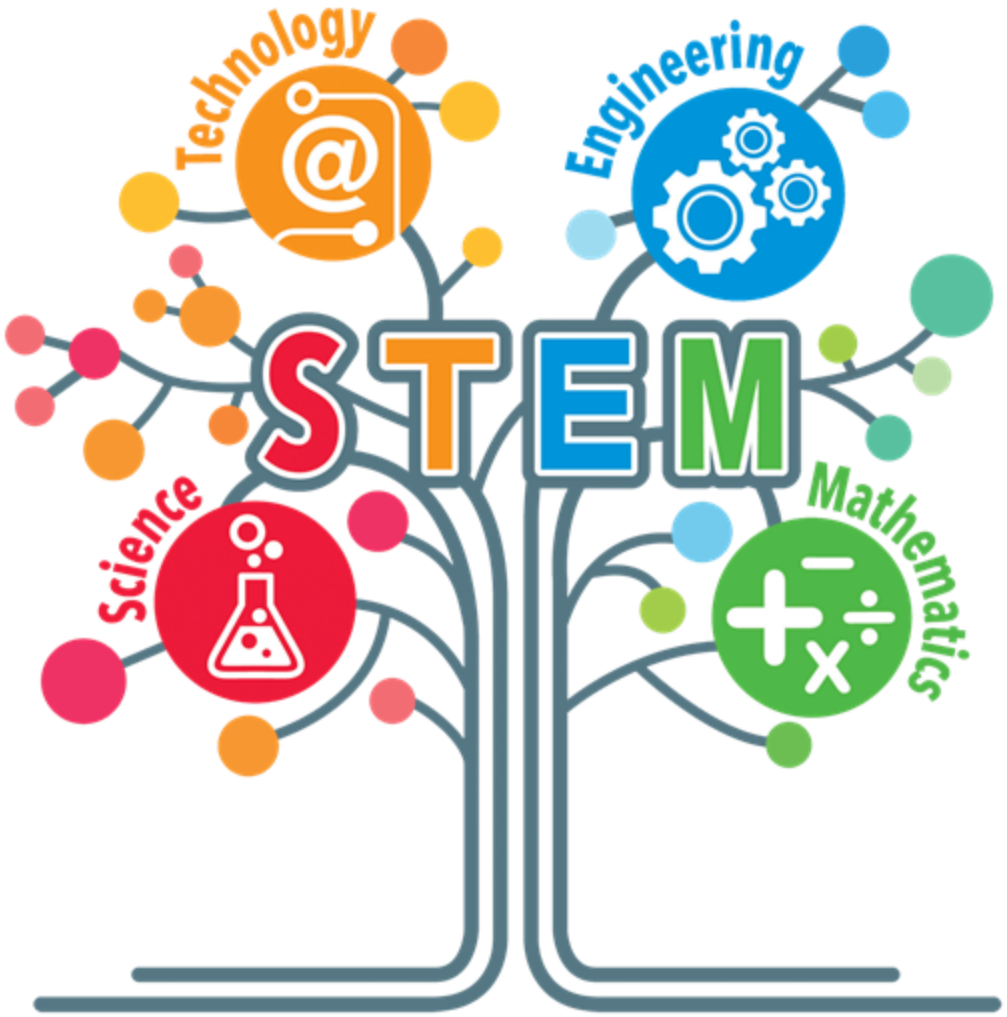
Director of Education, Children's Museum of Houston

Sponsor

This research is supported by the National Science Foundation under award number #1811356 and 2115579 to UTHealth.

National Science Foundation
WHERE DISCOVERIES BEGIN



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Research Practice Partnership (RPP)

Children's Museum Houston Educators

Children's Learning Institute Researchers

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History of Partnership Activities: 2010 to 2014

Family Literacy Involvement Program

Tot Spot at Museum Gallery

Para Los Niños Literacy Events

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Recent Partnership Activities: 2018 to Present

Breaking Stereotypes for Girls in STEM Grades K -5

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Potential Barriers to Families doing STEM at Home

EXPECTANCY
"I never did well in science!"

RESOURCES/COSTS
"I don't have time/money/materials to do STEM with my child."

VALUE
"Science is not important to get a job." or "Math is boring."

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Teaching Together Family STEM Events

- **Researchers** recruit and evaluate program
- Museum educators offer 6 family **"Fun*Shops"** at schools
  - Parent-child workshops designed to **educate parents**
  - Over 98% of students socio-economic disadvantaged
- **Strategies** parents use to do STEM during family activities
- **Text** message **reminders** and links to **extension** activities

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Experiment: Which Additive Conditions Support Outcomes?

STEM Family Workshops

- Facilitated by Children's Museum of Houston
- 6 STEM themed sessions with hands-on practice

Resources

STEM Workshops + Take-Home Materials

- Set of STEM activity kits that support STEM inquiry
- Represent typical commercially available resources

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Experiment: Which Additive Conditions Support Outcomes?

STEM Workshops + Take-Home Materials + Rewards

- $2.50 reward for each photo or video of a learning activity
- Motivation theory – overcome costs and negative stereotypes

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NOW RECRUITING: Participants for Next Partnership Study

Children's Museum Houston Educators

Children's Learning Institute Researchers

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Potential Barriers to Afterschool STEM for Students Experiencing Poverty

STEREOTYPES
"STEM is not for girls." or "Only boys do robotics."

EXPECTANCY
"I don't want to be a scientist when I grow up." or "I won't be smart enough to be a doctor."

STEM PATHWAYS
"There are no STEM clubs in my neighborhood."

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Afterschool Science, Technology, Engineering, Arts & Math (A'STEAM)

- Evaluating conditions for sparking interest in math and science
- Museum STEM programs open pathways to being a scientist or engineer

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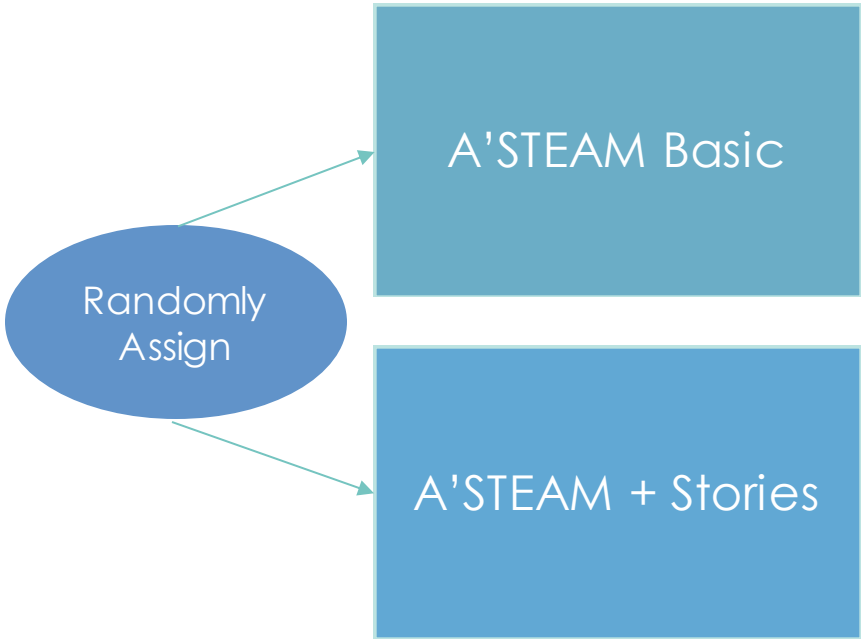
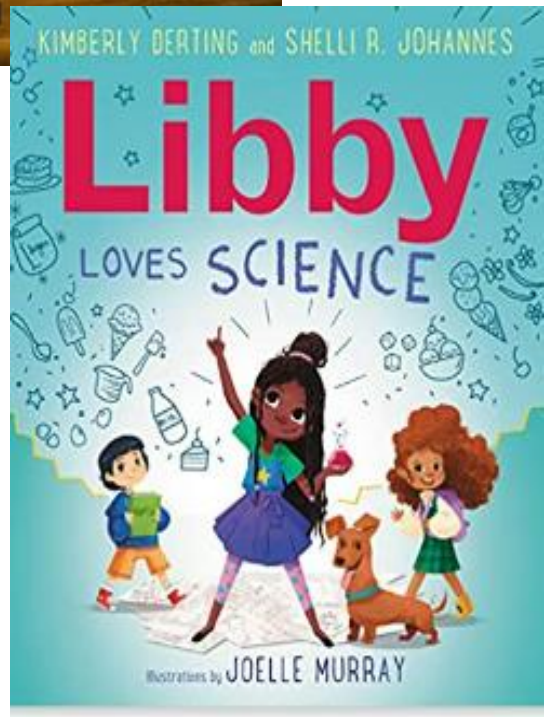
Purpose of the Study

- To **compare two approaches** for sparking interest in STEM for girls, alongside boys





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Using the Family Engagement Toolkit to Bridge Home and School

Family Engagement Toolkit

Our family engagement resources are designed to **fit into your existing programs and activities** that engage families

- Progress monitoring
- Homework
- Parent-teacher conferences
- Open houses

Family Engagement Approach and Topics

Partnering with Families

Encouraging Play-Based Learning and Responsive Interactions at Home

Promoting Two-Way Conversations with Families to Individualize Student Support

Hosting Family Events to Support Children's Development

Ongoing communication with families

Sending activities home

Parent-teacher conferences, progress monitoring

Open houses, family events

Parents as Teachers

- Use events to give families the opportunity to
  - learn an aspect of child development
  - observe a teacher modeling the related activity
  - engage in playful activities to practice skills and concepts

Strategies for Hosting Family Events

Engage families in planned, purposeful, playful events

Model and explain activities using family-friendly language and materials

Build engagement and understanding by moving around the room and offering guidance and support to families

Provide families with ideas or resources that extend family event content to the home

Professional Learning Session

Hosting Family Events to Support Children's Development

100% COMPLETE

- Introduction
- Key Teaching Strategies
- Practice These Strategies
- Extend Your Knowledge
- Resources
- Certificate of Completion

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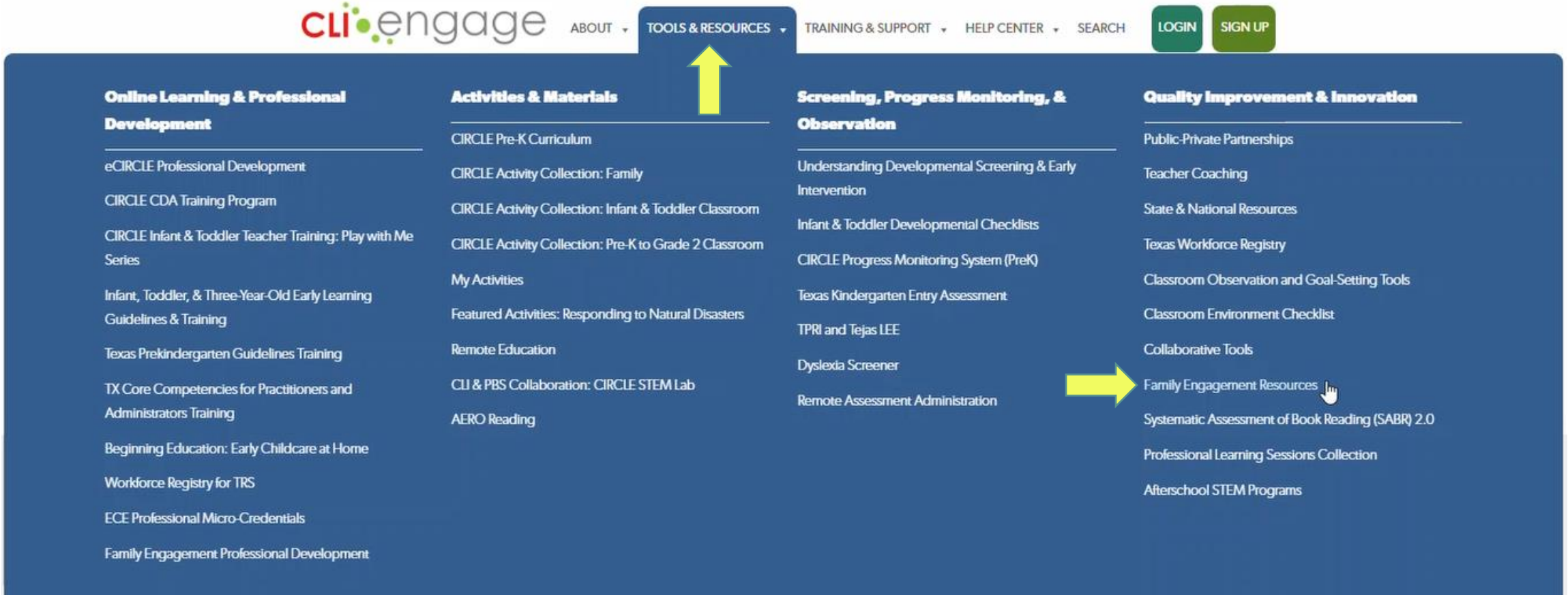
Locating the Toolkit on CLI Engage



Introduction to the CIRCLE Activity Collection

First published in 2002, the **CIRCLE Activity Collection (CAC)** translates research into practice through a variety of hands-on activities.

The CAC is made up of three smaller collections:

- Family
- Infant and Toddler classroom
- Pre-K to 2nd Grade classroom

CAC Features

- FREE library of research-based activities for teachers and families
- Available in English and Spanish
- Contain example videos
- Aligned to age-appropriate learning areas and goals
- Search and filter by age, learning area, or keywords
- Exclusively online
- Updated monthly

Digging Deeper into CAC: Family

- 240 activities in English and 195 activities in Spanish for children aged 0 to 11
  - **Over 80 activities address STEM topics!**
- Research about each learning area
- Children's development resources
- Parent coaching videos
- Educational games developed in partnership with PBS
- Mobile-friendly

Watch a family do a math activity!

In this activity, your child will use interlocking blocks to begin to understand measurement and compare how long or tall common household objects are.

Locating the CAC on CLI Engage

circleactivitycollection.org

cliengagefamily.org

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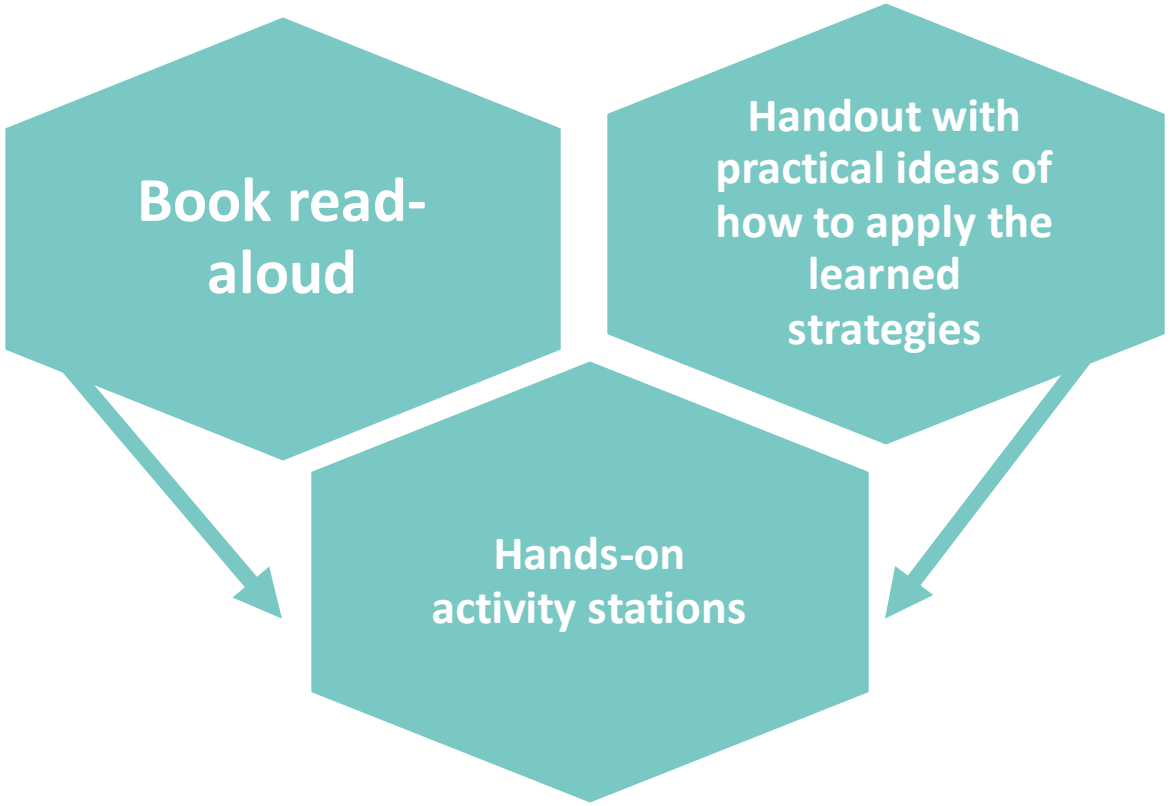
Summary of Family Engagement Resources

- Guides and tools (checklists, templates, tips)
- Materials for hosting family events
- Professional development courses
- CIRCLE Activity Collection: Family

Scan the QR code to explore resources on CLI Engage!

Teaching Together: STEM Family Engagement

The Family workshop manual provides framework, ideas, and examples for family workshops. Of course, workshops can be modified to fit your needs, resources, and family expectations.



Family Workshop Manual: STEM

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How do I access Family Engagement Resources?

Hosting Family Events to Support Children's Development

Parents are their child's first and most important teacher. However, some parents are uncertain or lack confidence in their role as their child's primary teacher. Hosting planned, playful, and purposeful family events are an excellent way to prepare parents to be successful home educators and engage as partners in their child's educational support team. This type of active family engagement has been shown to positively impact student achievement levels and educational aspirations.

BEST FIT FOR:

Preschool classrooms

ELIGIBILITY

Public Access

Teaching Together: Learning through Collaboration

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Family Workshop Manual: STEM

QR Code for Family workshops

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Teaching Together STEM Fun*Shops Overview

Introduction → Thematic Video → Parent Strategies → Song and Storytime → Workstations / Hands-on Activities.

- All workshops follow this format to engage families in an interactive learning experience
- Families are presented with strategies that develop early STEM skills.
- Overview of “Show What you Know!” Workshop

60 Minute Workshop

2 mins	Welcome and ice breaker
4 mins	Video: showing parent strategies
2 mins	Turn & Talk: Engage & practice strategies
10-12 mins	Read-aloud: Model strategies while reading
35 mins	Activity stations
5 mins	Reminder about end of workshop

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STEM Fun*shops & Themes

Workshop Event	Workshop	Theme
1	What's the Big Idea?	Asking Questions & Defining Problems
2	Math Rules!	Using Math and Computational Thinking
3	Show What You Know	Analyzing and Interpreting Data
4	Dream It, Build It!	Engineering

Show What You Know

- Parents will learn to teach children how to gather and interpret information as they explore.
- Gathering and interpretation of information will help children understand how and why things work or happen.

Parent Strategies:

Gather and Record Data

Understand Your Findings

Preparation:

- Become familiar with the video strategies to be presented.
- Become familiar with the stopping points during the read aloud.
- Practice reading the book aloud using the strategies before the workshop
- Set-up workstations

Key Messages

- Scientists gather information about things or events by using different tools such as graphs, charts, or tables.
- Scientists need to analyze and understand the data they gather to draw conclusions.
- You are supporting your child's interest in sciences when you take time to explain or talk about the data that you both collected after doing an experiment or investigation.

Introduction | Thematic Video | Parent Strategies | Song and Storytime | Workstations / Hands-on Activities.

- **Introduce** yourself and say a little bit about the program
- **Overview** of strategies
- **House keeping**
- **Explain each activity**

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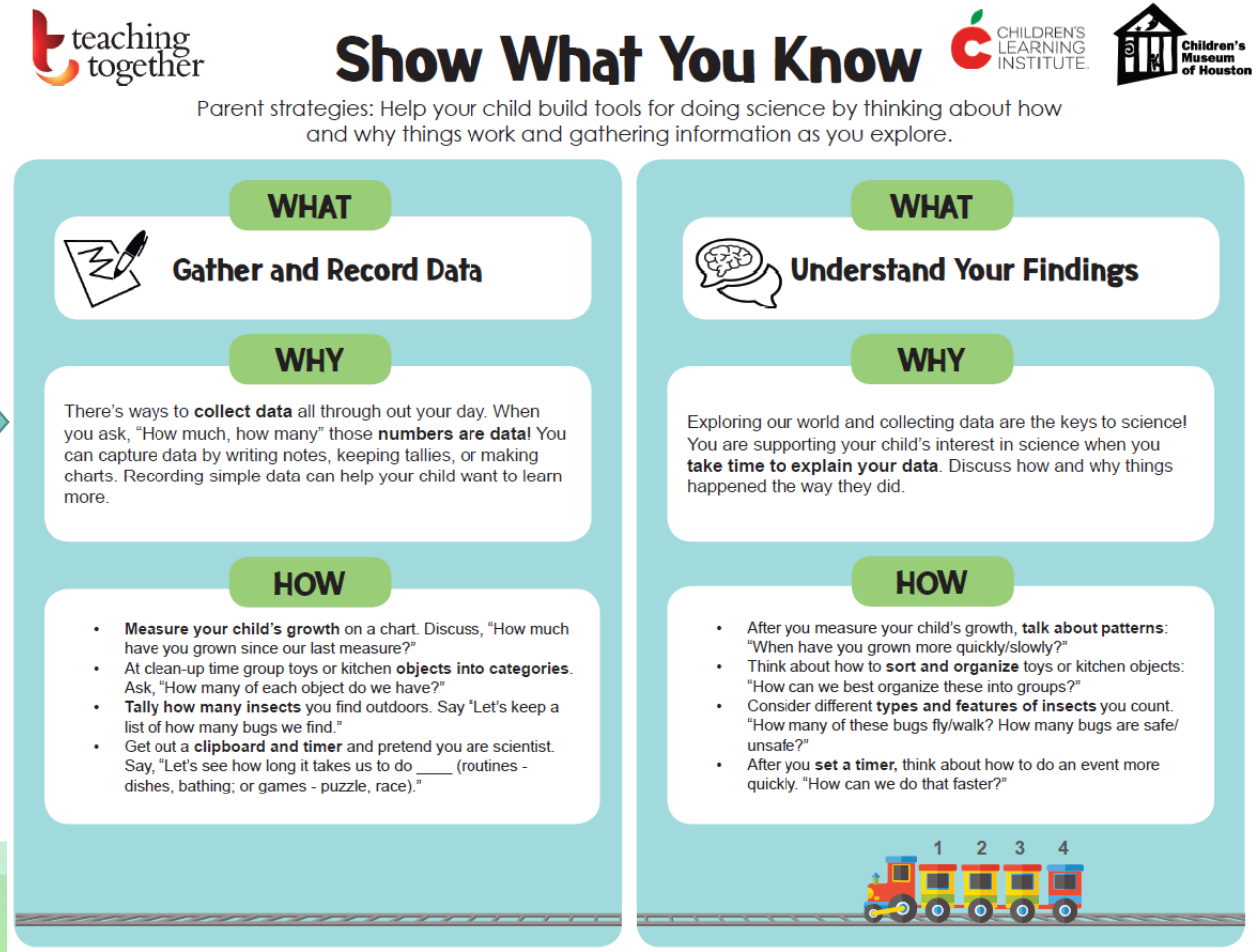
Introduction → **Thematic Video** → Parent Strategies → Song and Storytime → Workstations / Hands-on Activities.

Parent Handout



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Show What You Know

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Children's Museum of Houston

Parent strategies: Help your child build tools for doing science by thinking about how and why things work and gathering information as you explore.

WHAT

Gather and Record Data

WHY

There's ways to **collect data** all through out your day. When you ask, "How much, how many" those **numbers are data!** You can capture data by writing notes, keeping tallies, or making charts. Recording simple data can help your child want to learn more.

HOW

- **Measure your child's growth** on a chart. Discuss, "How much have you grown since our last measure?"
- At clean-up time group toys or kitchen **objects into categories**. Ask, "How many of each object do we have?"
- **Tally how many insects** you find outdoors. Say "Let's keep a list of how many bugs we find."
- Get out a **clipboard and timer** and pretend you are scientist. Say, "Let's see how long it takes us to do ____ (routines - dishes, bathing; or games - puzzle, race)."

WHAT

Understand Your Findings

WHY

Exploring our world and collecting data are the keys to science! You are supporting your child's interest in science when you **take time to explain your data**. Discuss how and why things happened the way they did.

HOW

- After you measure your child's growth, **talk about patterns**: "When have you grown more quickly/slowly?"
- Think about how to **sort and organize** toys or kitchen objects: "How can we best organize these into groups?"
- Consider different **types and features of insects** you count. "How many of these bugs fly/walk? How many bugs are safe/ unsafe?"
- After you **set a timer,** think about how to do an event more quickly. "How can we do that faster?"

1 2 3 4

- Explain the theme

  *During today's fun*shop called "Show What You Know," we will be using these Math concepts to develop two new STEM strategies: Gather and Record Data and Understand Your Findings.*

- Begin Video & Connect video to parent handout

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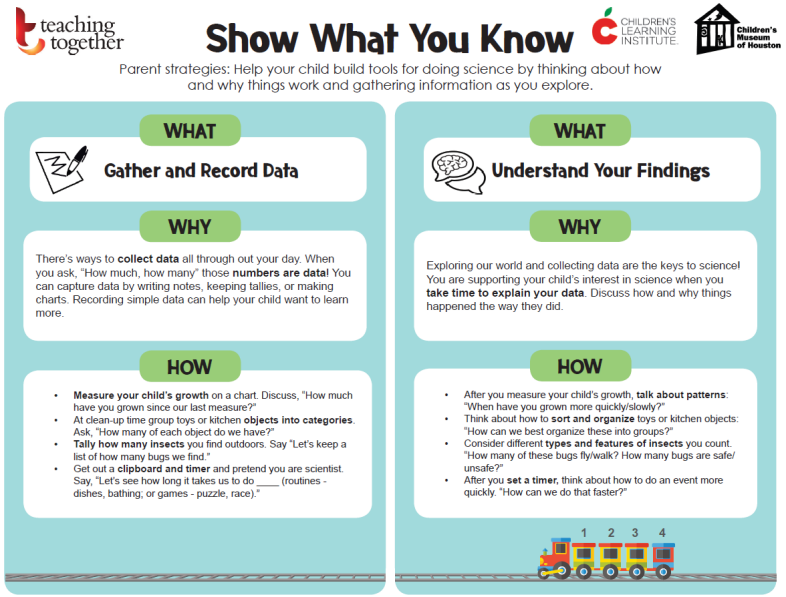
Show What You Know

Analyzing and Interpreting Data Video

Introduction → Thematic Video → **Parent Strategies** → Song and Storytime → Workstations / Hands-on Activities.

- Briefly summarize parent strategies



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Show What You Know

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1 2 3 4

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Introduction | Thematic Video | Parent Strategies | **Song and Storytime** | Workstations / Hands-on Activities.

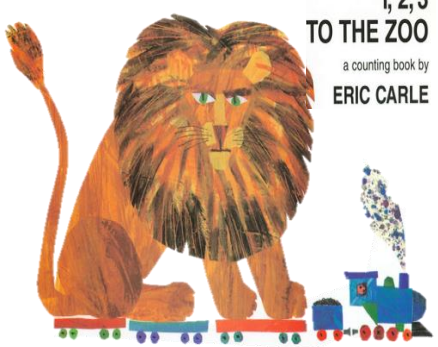
Importance of Reading Together

Parents, this is a time when you can sit close to your child.

- **Read-Aloud Engagement**

Today's story is a book that provides an opportunity to practice math skills. As I read it, you will see me ask questions like how many are there? and encourage children to count and compare quantities or data.

Example Book



Introduction → Thematic Video → Parent Strategies → Song and Storytime → **Workstations / Hands-on Activities.**

teaching together

Test Flight

Show what you Know!

Assemble paper airplanes and test them to determine which goes farthest.

What to do

1. Make two airplane designs. You can create them with different types of paper.

2. Standing on the starting line, gently throw your paper airplane so it can fly straight.

3 Measure how far your airplane flew (with measuring tape) and record the result on the graph. Repeat the steps with your second airplane.

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Animal Hatchlings

Show what you Know!

Discover which animals come from eggs and sort them into animals groups such insects, birds, reptiles, arachnids, and fish.

What to do

1. Pick five plastic eggs from the basket.

2. Open the eggs to reveal the animal inside. *What animal did you find in the egg?*

3 Place the animals on the sorting chart according to what animal group they are from. Such as: insects, birds, reptiles, arachnids, and fish.

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STEM Family Kits

Show What You Know

Parent strategies: Help your child build tools for doing science by thinking about how and why things work and gathering information as you explore.

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Questions & Answer Time!

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Interested in Participating in Our Research Study?

Scan the QR code to get more information about our research studies.

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Certificates from

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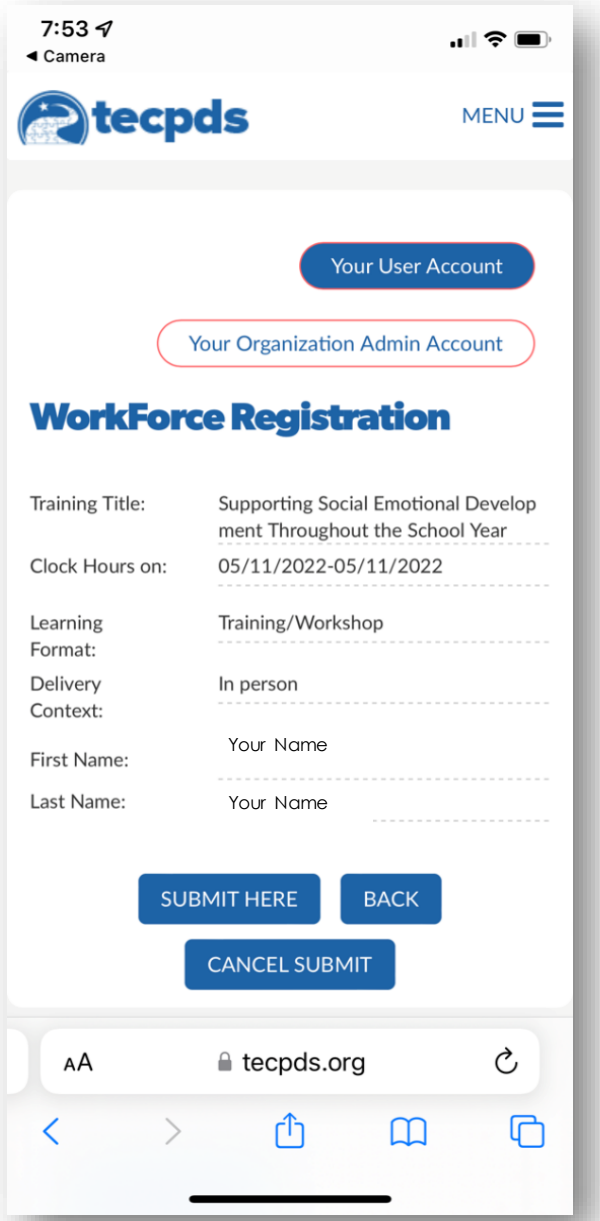

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Join Our Team!

We are hiring a range of positions across CLI programs!

Scan Me

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Thank you for supporting the Children's Learning Institute.

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Thank You for Joining Us!

Help us improve the Lunch & Learn!

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