





Museum of Science and Industry &
Chicago Public Library

Making All Learning Count: Making the Move to Summer Learning


What we will do together today:

- Discuss 21st Century Learning Framework and the Theory of Multiple Intelligences
- Focus in on the significance of STEAM and literacy in the context of 21st Century Learning
- Apply the Engineering Design Process to a children's fairy tale and STEAM to a picture book
- Deepen our understanding of the role of reflection
- Think about ways to broaden summer reading
- Learn by doing
- Have some fun together!





Who's here?



















Who we REALLY are: MSI & CPL






But why a Library and a Science Museum?





How does a Library-Museum Partnership make a difference:

- Harness the power of two institutions to build a more meaningful summer experience
- Incorporate STEM/STEAM learning into reading
- Incorporate literacy/reading into the science
- Develop relationships within neighborhoods to bring our thinking throughout the summer: 30,000 Chicago Park Kids/CPS Summer School Kids and Special Needs Camps
- 52 Weeks of Summer: bring the success of summer into the school-
- Leverage our partnership to seek funding and maximize budgets




CPL & MSI together looks like:

- Summer Learning Challenge
- Farrell Fellows
- Science Nights
- Science Clubs
- Science & Literacy Kits
- ULC Grant: STEAMed and Chopped at CPL

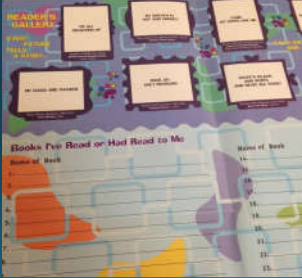





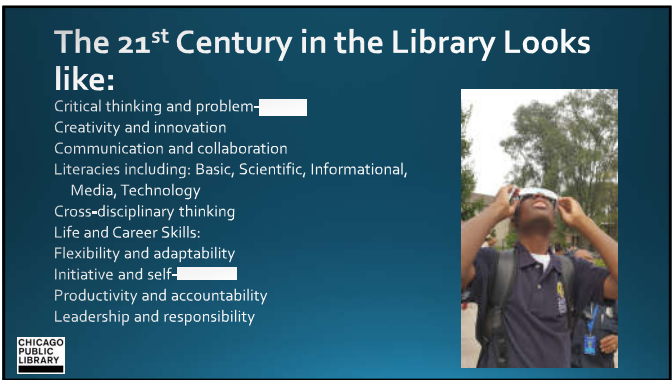
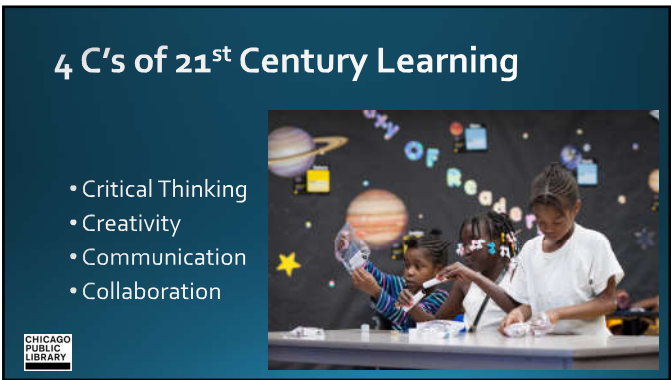
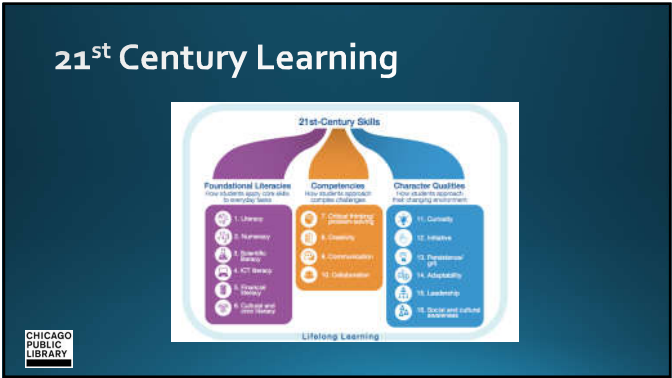




Are we reaching everybody?







What happened when you tried?

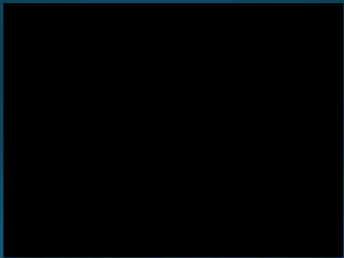


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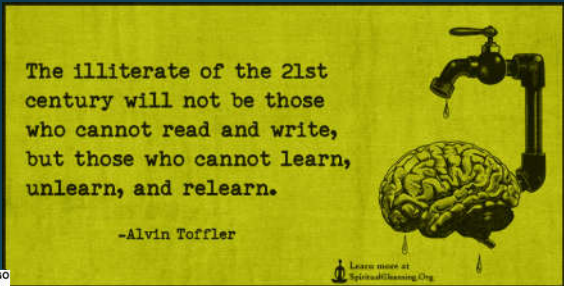
Fostering a Growth Mindset



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Broadening the definition of literacy in the 21st Century



A complete picture of reading comprehension in the 21st Century includes the skills, strategies, dispositions and practices required to comprehend and use a wider range of print, non-print and digital texts with multiple purposes and with multiple audiences. (IRA, 2009)

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Why STEAM in the Library:

- Appeals to a variety of learners
- Helps to develop the critical thinking and problem solving skills
- Reinforces the learning that happens in school, without feeling like more school
- Prepares youth for college and career pathways
- Builds multiple literacies for all citizens
- Gives youth the skills and confidence to navigate the world



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Consider this...

15 out of the 20 jobs available in 2025
haven't even been invented yet...

U. S. Department of Labor



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Re-envisioning Summer in Chicago



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Build basic literacy	Build digital, information and cultural literacy	Advance critical thinking and problem solving	Advance creativity and innovation	Foster communication and collaboration
<ul style="list-style-type: none">• Pre-K patrons who are ready to read• Patrons who have improved reading and writing skills• Patrons who have improved English language skills	<ul style="list-style-type: none">• Patrons who have improved technology skills• Patrons who have improved reading and writing skills• Patrons who have improved information literacy skills• Patrons developing cultural literacy• Patrons who have improved job search skills• Patrons referred to workforce development programs	<ul style="list-style-type: none">• Patrons who have improved critical thinking and problem-solving skills• Patrons who have completed job-related training• Students engaged in out-of-school time learning	<ul style="list-style-type: none">• Patrons who have improved creativity and innovation skills• Patrons referred to entrepreneurial programs	<ul style="list-style-type: none">• Patrons with a sense of connectedness and belonging as a result of library• Patrons participating in civic or community groups• Patrons exposed to mentors or role models

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Our challenge:



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- Reach children with different learning styles
- Align summer to CPL's Areas of Impact
- Reduce barrier, increase access
- Incorporate 21st Century Learning Skills
- Help stop summer slide
- Keep it fun

"I Only Want to Do What I Want to Do"
Adding Youth Voice & Choice



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What Happens to Children DURING THE SUMMER?



During the summer months, disadvantaged children tread water at best or even fall behind. It's what we call **"SUMMER SLIDE"** while better off children build their skills steadily over the summer months.

SUMMER LEARNING LOSS accounts for about two-thirds of the ninth grade achievement gap in reading.¹

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National Summer Learning Association





NATIONAL SUMMER LEARNING WEEK
JULY 8-13, 2019

- Go to summerlearning.org
- Click on the tab "events"
- Click on Summer Learning Week
- Add your library's program!

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All Learning Counts Model: Three Tracks of Learning



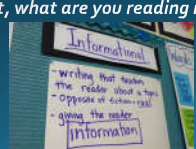


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Let's Hear it for Informational Texts

- Help us understand the world around us
- Conveys information about the physical, social or natural world
- Gives direction or information that assists us in daily & lifelong success


In fact, what are you reading right now?



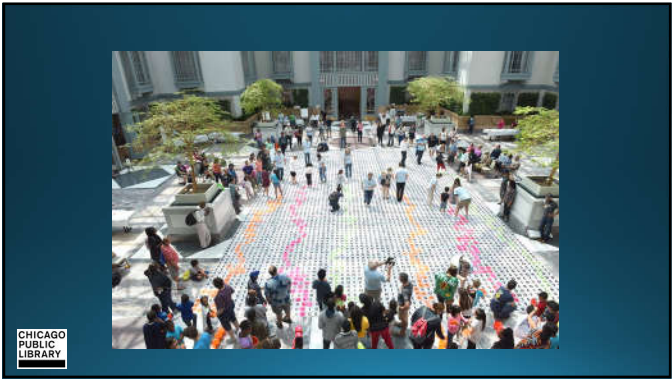
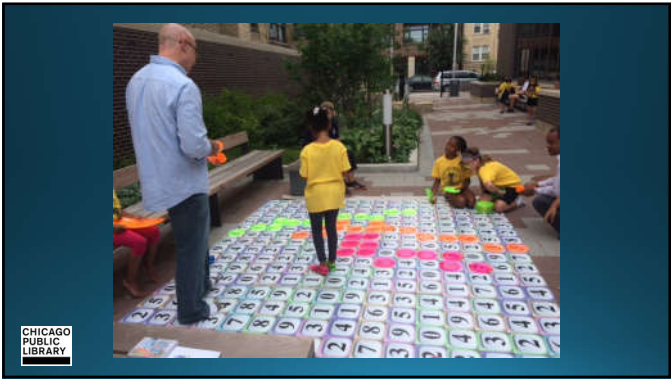
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Here's a shout-out for fiction:

- Improves brain connectivity and brain function
- Builds empathy and social awareness
- Flexes the imagination and grows the **Theory of Mind**
- Allows a human to escape into another place, time, mindset



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Summer Reading to Summer Learning:

- 21st Century Learners need a variety of contexts, exposure and experiences
- Books are gateways to STEAM learning
- STEAM learning is enhanced by effective reading
- Puts Multiple Intelligences to work, offers multiple entry points for learning
- Foster the 4 C's of 21st Century Learning
- Sneak the spinach on the pizza
- Stop the Summer Slide

A photograph of a young child standing in a room, holding a book. The child is wearing a green shirt and red pants. A "CHICAGO PUBLIC LIBRARY" logo is in the bottom left corner.

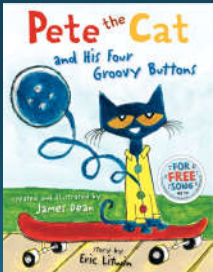
Why STEAM and Literacy Together?

- Children learn best when information is presented in a variety of ways
- Stories are great building blocks for sparking curiosity
- STEAM and Stories connect curiosity to learning
- Informational books connect STEAM concepts
- Helps develop persistence and iterate solutions
- Develops Critical Thinking skills
- Builds and strengthens similar habits of mind



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Now let's put the "S" into a Picture Book!

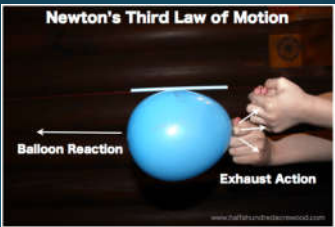


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The STEAM of Pete's Buttons msichicago.org/experiment/summer-games/



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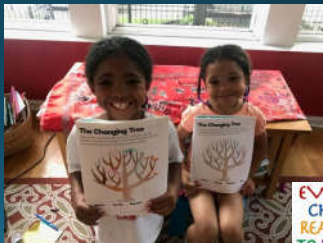


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Early Childhood



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EVERY
CHILD
READY
TO READ
@your library

Parental Engagement



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Gains for Chicago Kids



- More than 110,000 children participated in 2018. This is a more than 60% gain in program attendance in seven years.
- 77% of Summer Learners met or exceeded NWEA math standards (vs. 66% of their school-based peers, and 56% districtwide)
- 75% of Summer Learners met or exceeded NWEA reading standards (vs. 64% of their school-based peers, and 54% districtwide)
- Participants saw 15 percent greater reading gains and 20 percent greater math gains over and above their peers who did not participate in the program

University of Chicago-Chapin Hall Research Collaborative

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Tips for Repositioning Your Program

- Inventory program strengths and articulate goals for change
- Make a mission statement and articulate your vision statement for summer
- Align the program goals to strategic vision or areas of impact for your library
- Find a way to count or “log” activities and learning
- Communicate your vision up and down the Library
- Change is hard: celebrate victories!
- Find local experts in your track of learning to help build capacity



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“If you take the fun out of learning....why bother?”

--Jim Henson

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Data doesn't Bite...



Developmentally Appropriate Experiences Require:


Action	Reflection
Contribute, choose, practice, tinker, engineer, encounter	Describe, evaluate, connect, articulate, envision, integrate






Science and Engineering Practices


- Asking questions (for science) and defining problems (for engineering)
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations (for science) and designing solutions (for engineering)
- Engaging in argument from evidence
- Obtaining, evaluating and communicating information




Six Strands of Science Learning


- Sparking and Developing Interest and Excitement
- Understanding Scientific Knowledge (content)
- Engaging in Scientific Explanation and Argument
- Understanding the Scientific Enterprise
- Engaging in Scientific Practices-Using the tools & language of science
- Identifying with the Science Enterprise (see oneself as a scientist)







Haack, Paul Dusenberry, et al






Effective reading comprehension strategies include:

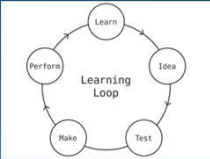
- Making connections
 - Questioning
 - Visualizing
 - Inferring
- Determining Importance
 - Synthesizing







Role of Reflection

- Closes the learning loop
- Helps youth build the habit of linking and constructing meaning
- Encourages insight and complex thinking
- Helps children embrace key 21st Century skills including analysis, problem solving and persistence






4 Components for Your Literacy-STEAM Program Organization



Youth will:

- ✓ Engage
- ✓ Explore
- ✓ Connect
- ✓ Articulate



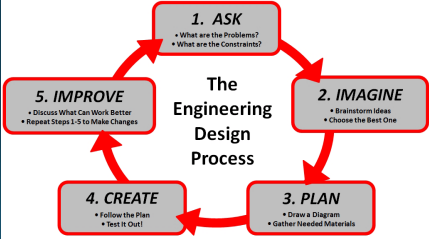
Best Practices in Integrating STEAM and Literacy



- Child-
- Experiential
- Authentic
- Expressive
- Reflective
- Social
- Collaborative
- Cognitive
- Challenging
- FUN!




The Design Process



The Engineering Design Process

- 1. ASK**
 - What are the Problems?
 - What are the Constraints?
- 2. IMAGINE**
 - Brainstorm Ideas
 - Choose the Best One
- 3. PLAN**
 - Draw a Diagram
 - Gather Needed Materials
- 4. CREATE**
 - Follow the Plan
 - Test It Out!
- 5. IMPROVE**
 - Discuss What Can Work Better
 - Repeat Steps 1-5 to Make Changes




Design process and children's literature






Let's try it:

In the fairy tale Hansel and Gretel, the twins get locked inside a gingerbread house by a hungry witch. Design something to help get Hansel & Gretel safely out of the candy house.





Now you try it!






Think about it:

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Kermit Says
Stretch!



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Evaluation, Data and Outcomes, Oh My!

- Logic Models
- Survey of children, parents/caregivers and teens
- Branch dashboards with individual KPI's
- Data partnership with University of Chicago
- Harvard University Dimensions of Success (DOS) Tool/Social-Emotional Learning and YPQ



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Logic Models

- Inputs
- Outputs
- Short Term Outcomes
- Longer Term Outcomes

Logic Model Template
Created by Lori Wiggins • Evaluate

Inputs	Activities	Outputs	Short Term Outcomes
What resources will be used to support the project?	What are the main things the project will do/produce?	How many and what sort of observable tangible results will be achieved?	What will occur as a direct result of the activities & outputs? Typically, changes in knowledge, skills, attitudes

- All starts with your goals! CPL's are:
- Encourage, facilitate and promote literacy and STEAM-based learning for children 0 - 13 years to mitigate the summer slide.
- -Support family and caregiver involvement in children's reading and learning.

Our Top Pieces of Advice about Partnerships:

1. Give more than you expect to get
2. Prove yourself every step of the way
3. It's a journey, not a destination
4. Try, Try again!
5. You Can't Always get What You Want



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Questions and Great Thoughts



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