Make.
Do.
Share.

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Webinar Overview

Why:
STEM and Libraries

How:
Tool 1: Roadmap
Tool 2: Playbook

What:
Local Examples
Kitsap County

9 locations
Serving
258,000 people
Structured
Youth Voice

Youth voice is the perspectives, ideas, experiences, knowledge and actions of young people. Youth voice doesn’t mean talking loudly or shouting to be heard and it is not about drowning out other people’s voices, including adults. Youth voice is about considering the perspectives and ideas of young people, respecting what everyone has to say, taking risks, listening, sharing and working together.

Free Child Project:
freechild.org/youthvoice.htm
Big Question: Why STEM?
Summer Slide

READING ACHIEVEMENT TRAJECTORIES

Source: http://www.ececonsortium.org/resources/
**Summer Slide**

**Engagement Cliff**

Source: [http://www.ececonsortium.org/resources/](http://www.ececonsortium.org/resources/)

Source: [https://clalliance.org/publications/connected-learning-an-agenda-for-research-and-design/](https://clalliance.org/publications/connected-learning-an-agenda-for-research-and-design/)
Washington students fall behind early and fall out over time.

80,700 start 9th grade

3,500 drop out before 10th grade

Another 3,400 drop out before 11th grade

Another 4,900 drop out before 12th grade

Another 8,300 drop out before graduation

14,000 do not enroll in a postsecondary program

Another 21,200 fail to earn a postsecondary degree

25,500 obtain a postsecondary credential

Notes:
* Includes students who transfer in after 9th grade and excludes students who transfer out.
** Estimate counts students who do not graduate in five years as dropouts.
*** Six years after graduation.
**** Seven years after graduation. Student obtaining a postsecondary degree does not equal the number of students starting 9th grade less the students exiting the “leaky pipeline” due to rounding.
Source: Analysis of data from Education Research Data Center, OSP.
Why STEM in Indiana?

INDIANA NEEDS MORE STEM TALENT

STEM fields are growing in Indiana
Between 2017 and 2027:

- STEM jobs will grow
- Non-STEM jobs will grow

13% 7%

THE INDIANA STEM SKILLS SHORTAGE STARTS EARLY

The state has made progress in math
Indiana has made some progress in K-12 math, but it still has far to go.

Trends in 8th grade math scores, 2003-2017

STEM is an Equity Issue

Together, females and minorities make up more than half of Indiana’s population, yet they are much less likely to earn STEM degrees or become STEM professionals. Closing these gaps can pay big dividends in the state.

**Women have lost ground in computing**

The available talent in computer science would rise dramatically if the state simply closed the gender gap in these subjects.

Number of computing degrees/certificates in Indiana

![Graph showing the number of computing degrees/certificates in Indiana from 2001 to 2015.](image)

Figure 1: The LIFE Center Lifelong and Lifewide Learning Diagram

the LIFE Center’s Lifelong and Lifewide Diagram by LIFE Center is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 United States License.
Outcomes

THROUGH AFTERSCHOOL PROGRAMS, YOUTH WILL

DEVELOP AN INTEREST IN STEM AND STEM LEARNING ACTIVITIES
“I like to do this”

DEVELOP A CAPACITY TO ENGAGE IN STEM ACTIVITIES
“I can do this”

COME TO VALUE THE GOALS OF STEM AND STEM LEARNING
“This is important to me”

Make. Do. Share.

STEM Learning in Libraries Resources

Tool 1: Roadmap
Tool 2: Playbook
Tool 1: The Roadmap
Build Community
Build Trust
## Community Discovery Record

Remember, your community is changing all the time which means that the community discovery process should be ongoing and not a one and done effort. Use this template to keep track of what you do and learn during the community discovery process.

<table>
<thead>
<tr>
<th>Technique of discovery and what you hope to learn</th>
<th>Date started</th>
<th>What you learned</th>
<th>Next steps based on learning</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Inform</td>
<td>Consult</td>
<td>Involve</td>
<td>Collaborate</td>
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</tr>
<tr>
<td>We are having cherry pie for dessert.</td>
<td>I am thinking about bringing chocolate chip cookies for dessert. Is that ok? What do you think?</td>
<td>Do you want a healthy or decadent dessert? Decadent. Do you want it to be sweet or savory? Sweet. Should it be hot, room temp or cold? Room temp. Do you prefer a pastry, baked good, or custardy type dessert? Custardy.</td>
<td>Let’s discuss and decide together what to have for dessert. Maybe even shop or bake together.</td>
</tr>
</tbody>
</table>
Tool 2: The Playbook

Excite
Explore
Engage
OUTCOMES
THROUGH AFTERSCHOOL PROGRAMS, YOUTH WILL

- DEVELOP AN INTEREST IN STEM AND STEM LEARNING ACTIVITIES
  “I like to do this”

- DEVELOP A CAPACITY TO ENGAGE IN STEM ACTIVITIES
  “I can do this”

- COME TO VALUE THE GOALS OF STEM AND STEM LEARNING
  “This is important to me”

Engaging Youth in STEM

**Excite**

DEVELOP AN INTEREST IN STEM AND STEM LEARNING ACTIVITIES

“I like to do this”

**Explore**

DEVELOP A CAPACITY TO ENGAGE IN STEM ACTIVITIES

“I can do this”

**Engage**

COME TO VALUE THE GOALS OF STEM AND STEM LEARNING

“This is important to me”

DEVELOP AN INTEREST IN STEM AND STEM LEARNING ACTIVITIES

“I like to do this”
Excite Programming

**Excite**

**DEVELOP AN INTEREST IN STEM AND STEM LEARNING ACTIVITIES**

“I like to do this”

**Indicators**

*Active participation and Curiosity*

“I like to do this”

“Something brief about this topic.”
Explore Programming

Explore

DEVELOP A CAPACITY TO ENGAGE IN STEM ACTIVITIES

“I can do this”
Explore Programming

Explore

DEVELOP A CAPACITY TO ENGAGE IN STEM ACTIVITIES

“I can do this”

Indicators
Active participation and Curiosity

Indicators
Able to investigate Exercise skills

"I can do this"
Engage Programming

Engage

COME TO VALUE THE GOALS OF STEM AND STEM LEARNING

“This is important to me”
Engage Programming

**Engage**

Come to value the goals of STEM and STEM learning

“This is important to me”

**Indicators**

Active participation and Curiosity

**Indicators**

Value STEM in society

Aware of STEM careers

**Indicators**

Able to investigate

Exercise skills
The Three Phases of Project Development

**MAKE**
- Observation and needs assessment

**DO**
- Development and testing
- Project inspiration

**SHARE**
- Project completion

Relationship building
21st Century Skills

**Make**
- Cognitive
  - Knowledge
  - Critical Thinking
  - Creativity

**Do**
- Intrapersonal
  - Intellectual Openness
  - Work Ethic
  - Self-evaluation

**Share**
- Interpersonal
  - Communication
  - Collaboration
  - Leadership
Make: The Building Blocks

Make - Cognitive

Knowledge
Content
Knowledge
Research Skills

Critical Thinking
Decision-making
Problem Solving

Creativity
Innovation
Conceptualization
Do: Social Emotional Learning

Do - **Intrapersonal**

- **Intellectual Openness**
- Adaptability
- Continuous Learning

- **Work Ethic**
- Self-direction
- Initiative

- **Self Evaluation**
- Self assessment
- Self reflection
Share: Anyone Can Lead

Share - Interpersonal

Communication
Professionalism
Empathy

Collaboration
Teamwork
Coordination

Leadership
Social capital
Influence
Indiana Libraries
Local Examples
Indiana Libraries through a Make Do Share Lens

Bartholomew County Public Library: Roadmap
Muncie Public Library: Engage Programming
• Bartholomew County Public Library

• Connects with public school librarians
• Shared Goals with Schools
• When connecting with partners “have an elevator speech”
• Bartholomew County Public Library
Discover Your Community

Limited staff capacity is a fact of life in many libraries. Engaging in a community discovery process or needs assessment will allow you to collect evidence and make informed decisions about the most strategic ways to implement STEM programming in your community, even with a limited amount of time. This can be a useful activity for experienced programmers wishing to fine-tune their offerings, as well as those just getting their feet wet.

As you begin, make a point to test your assumptions through this process. Be sure to connect with those you don’t see or interact with on a regular basis. Discover and map groups and key areas, e.g., a STEM-related business group, an active parent network, or a local STEM professionals’ group. Potential activities may include:

- Analyzing public census and local school district data. Are there specific demographics to engage? Who are the stakeholders?
- Talking to the community and finding out what they see as the biggest needs for youth. Make sure you listen and don’t spend time simply talking about what you can offer. Talk to teachers, store owners, police, and fire department staff, parents, and caregivers, out-of-school-time providers, youth development stakeholders, etc.
- Taking a colleague on a community drive. Before you go, develop a list of what you are trying to learn from the experience. Are you looking to see how many different venues there are for youth to take part in out-of-school-time activities? Do you want to take note of where out-of-school-time organizations are housed and how that relates to the transportation needs of youth? Do you want to look for different types of organizations and facilities there are for families to participate in out-of-school-time activities? Go with a series of learning objectives. Then, with your colleague, reflect on what you noticed and how that has an impact on what STEM initiatives you might plan for youth and families.

- Including a community mapping project. Community mapping can be an outgrowth of the community drive. In this instance, the map (which doesn’t need to be a map specifically) is a way to collect basic information about all of the organizations and services available to children and youth that you might work with to develop and implement STEM learning opportunities for youth and families.
- Including a social mapping project. A social map gives you the chance to learn from community members... where they spend time and why for example, you might show community members a list of “hot spots” in the community with everything from coffee shops to movie theaters to out-of-school-time facilities. Ask people to talk about where they spend their time, why, etc.

Resources for Further Learning
• Muncie Public Library

• Intentional STEM programming
• Soft skills + technical skills
• Personalized learning
• Assessment
• Muncie Public Library

• Engage Level Program because...
• Leveling up learning
• Learn through challenges
• Learning has a purpose
• Peer mentoring
## Play Package

<table>
<thead>
<tr>
<th>Program description</th>
<th>Outcomes</th>
<th>Indicators</th>
<th>Supplies</th>
</tr>
</thead>
</table>

### Plays

- Welcome
- Community Builder
- Introduction to Materials
- Challenge 1
- Challenge 2
- Challenges

### Your Play

- Notes
- Time

### Youth Roles

- Room Setup
Make. Do. Share.

Download
www.krl.org/makedoshare

Questions? Contact me:

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