Make. Do. Share.

KITSAP REGIONAL Library

INDIANA STATE LIBRARY

This project was made possible in part by the Institute of Museum and Library Services. LG-80-15-0085-15

INSTITUTE of Museum and Library SERVICES

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Indiana State Library

Make.
Do.
Share.

Webinar Overview

Why:

STEM and Libraries

How:

Tool 1: Roadmap

Tool 2: Playbook

What:

Local Examples

Kitsap County

9 locations

Serving

258,000

people


LUSCS
CEANS
RIANS
QUART

Structured

Unstructured

Balanced

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

Finding Balance

Completely Staff Led

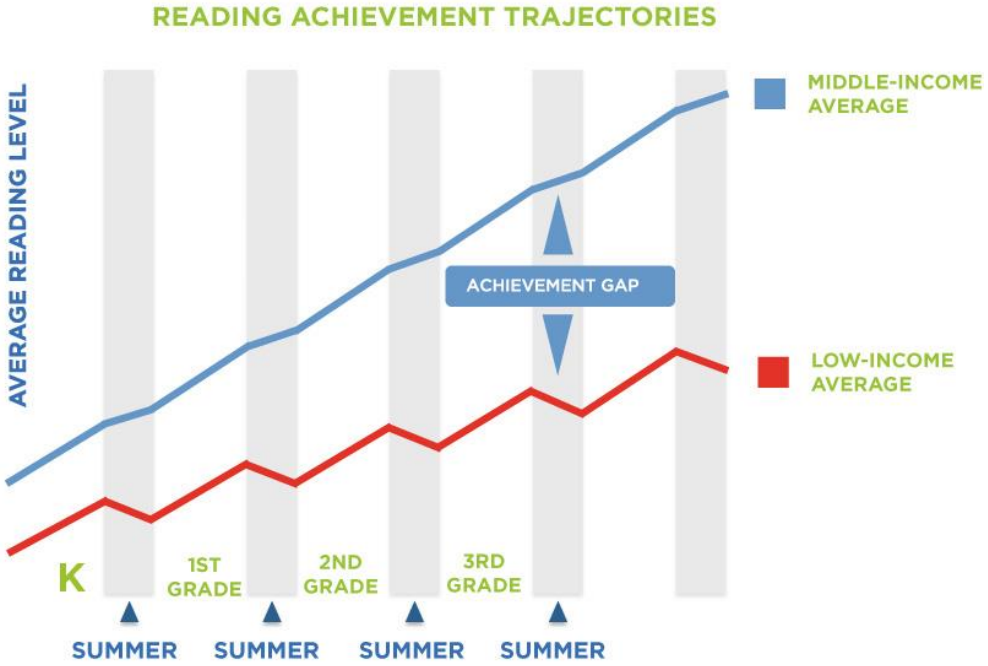
Supportive Environment

Completely Open/Unstructured

Big Question:

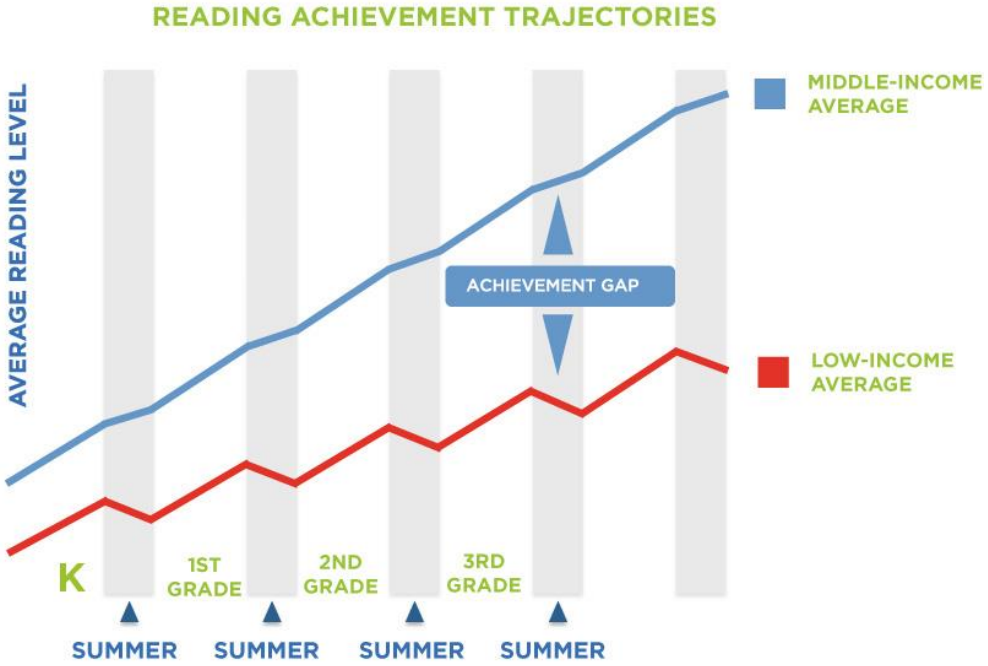
Why STEM?

Summer Slide



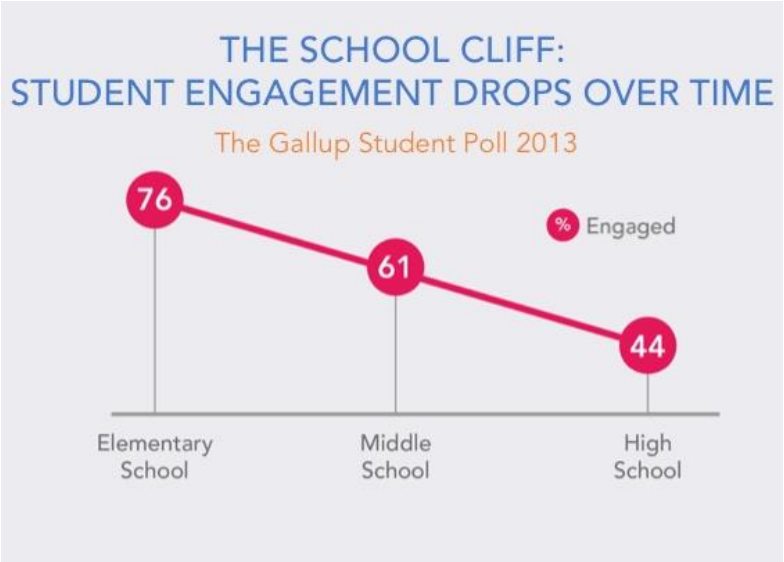
Source: http://www.ececonsortium.org/resources/

Summer Slide

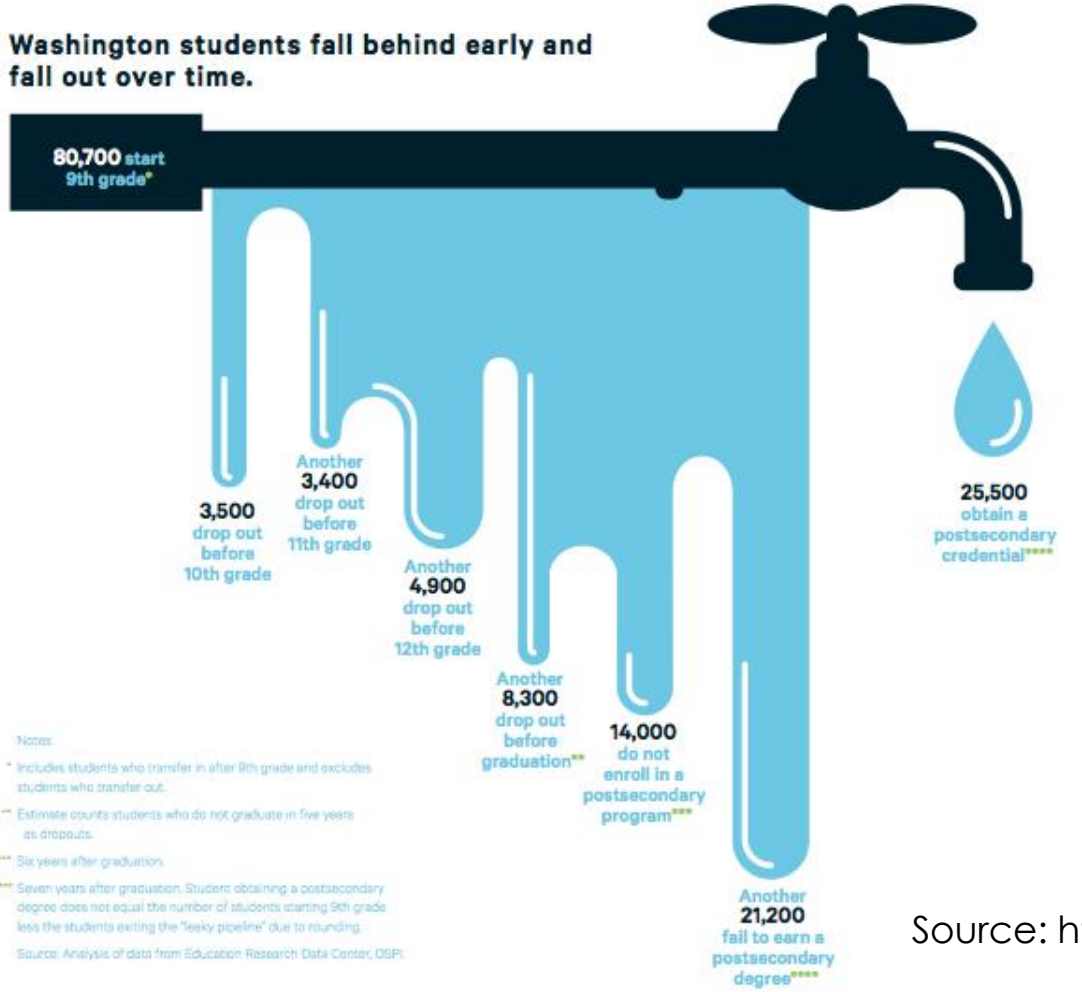


Source: http://www.ececonsortium.org/resources/

Engagement Cliff



Source: https://clalliance.org/publications/connected-learning-an-agenda-for-research-and-design/



Source: http://opportunitywa.org

UCHICAGOCCSR
THE UNIVERSITY OF CHICAGO CONSORTIUM ON CHICAGO SCHOOL RESEARCH

RESEARCH REPORT NOVEMBER 2014

Looking Forward to High School and College

Middle Grade Indicators of Readiness in Chicago Public Schools

Why STEM in Indiana?

INDIANA NEEDS MORE STEM TALENT

STEM fields are growing in Indiana

Between 2017 and 2027:

STEM jobs will grow

13%

Non-STEM jobs will grow

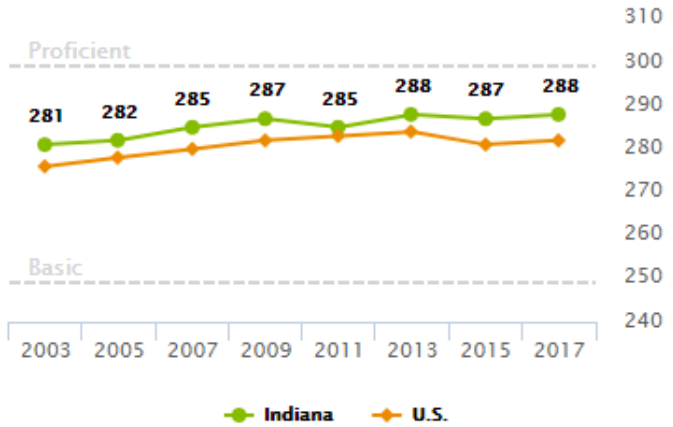
7%

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



SOURCE: U.S. Department of Education, 2003–2017

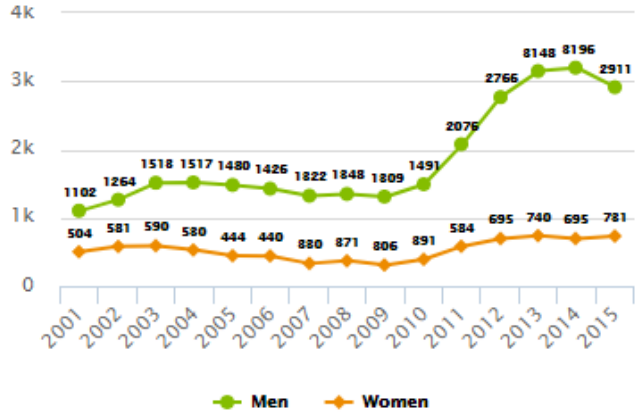
STEM is an Equity Issue

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.

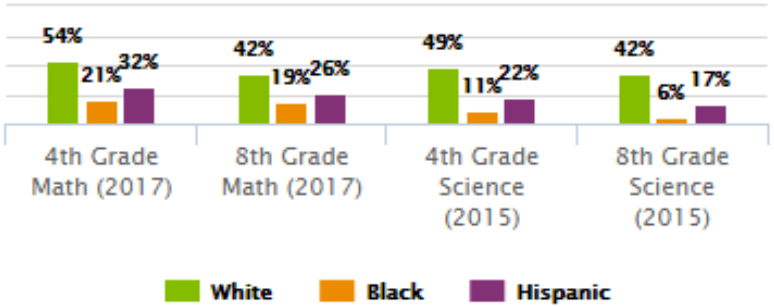
Women have lost ground in computing

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



SOURCE: U.S. Department of Education, 2001–2015



SOURCE: U.S. Department of Education, 2015–2017

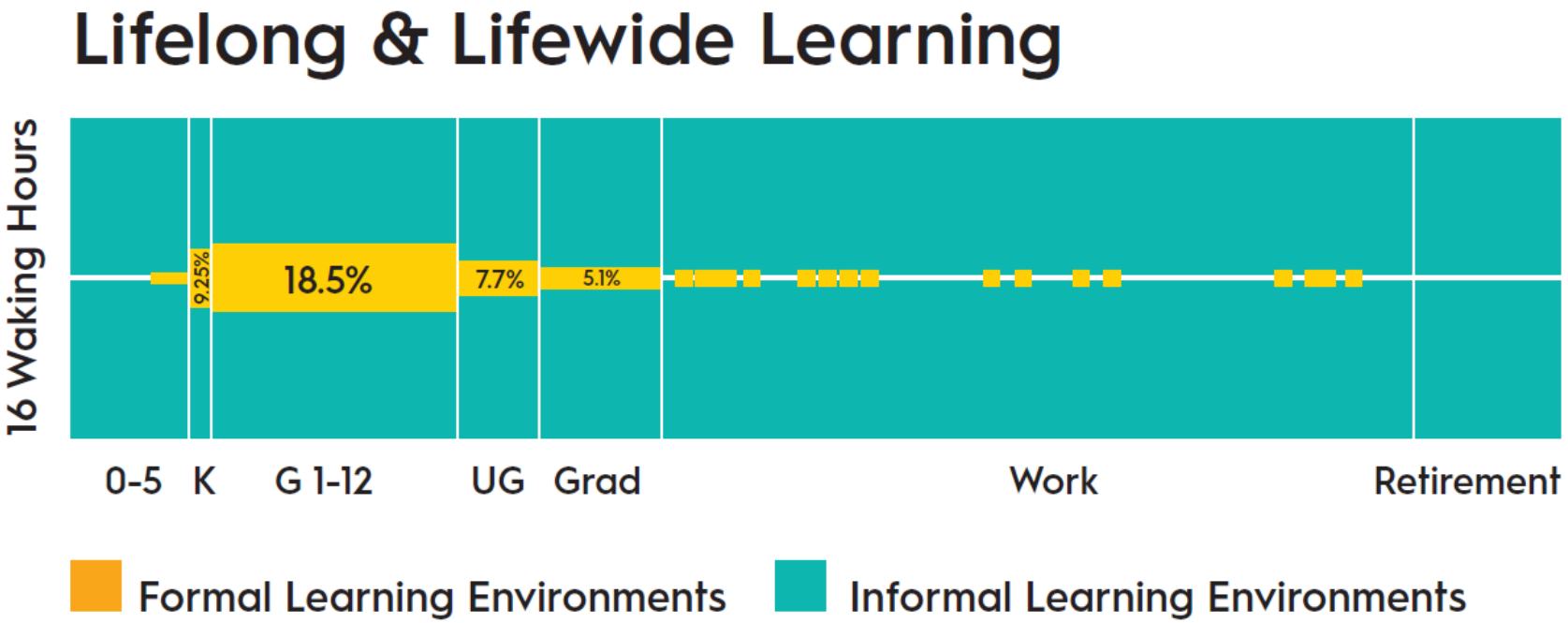


Figure 1: The LIFE Center Lifelong and Lifewide Learning Diagram

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 "

Afterschool Alliance. Defining Youth Outcomes for STEM Learning in Afterschool. Web. Jan. 20, 2016. **www.afterschoolalliance.org/STEM_Outcomes_2013.pdf**

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.

Technique of discovery and what you hope to learn	Date started	What you learned	Next steps based on learning


SEA

THE DESSERT SPECTRUM OF PUBLIC PARTICIPATION
Developed by Hennepin County Library Staff *With Apologies to IAP2

Inform	Consult	Involve	Collaborate	Empower
We are having cherry pie for dessert.	I am thinking about bringing chocolate chip cookies for dessert. Is that ok? What do you think?	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. Ok, how about flan?	Let's discuss and decide together what to have for dessert. Maybe even shop or bake together.	Whatever you decide you want for dessert, we will have. Maybe I'll even give you the money to get or bake it. Or maybe you just have the responsibility to bring dessert.

Tool 2: The Playbook

Excite
Explore
Engage

Outcomes

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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

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Afterschool Alliance. Defining Youth Outcomes for STEM Learning in Afterschool. Web. Jan. 20, 2016. **www.afterschoolalliance.org/STEM_Outcomes_2013.pdf**

Excite Programming

Excite

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

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

Engage Programming

Engage

COME TO VALUE THE GOALS OF STEM AND STEM LEARNING

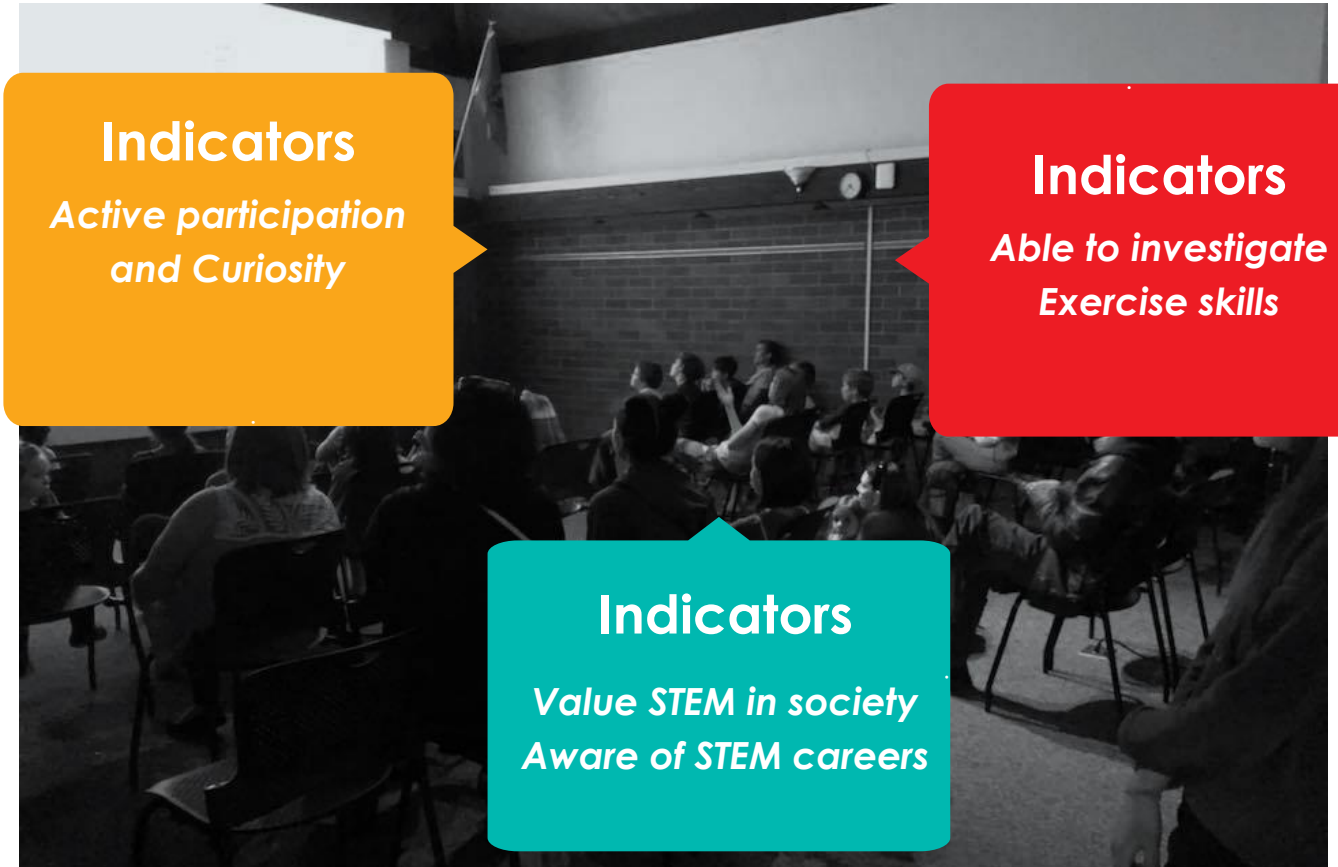
"This is important to me "

Engage Programming

Engage

COME TO VALUE THE GOALS OF STEM AND STEM LEARNING

"This is important to me "



Indicators

Active participation and Curiosity

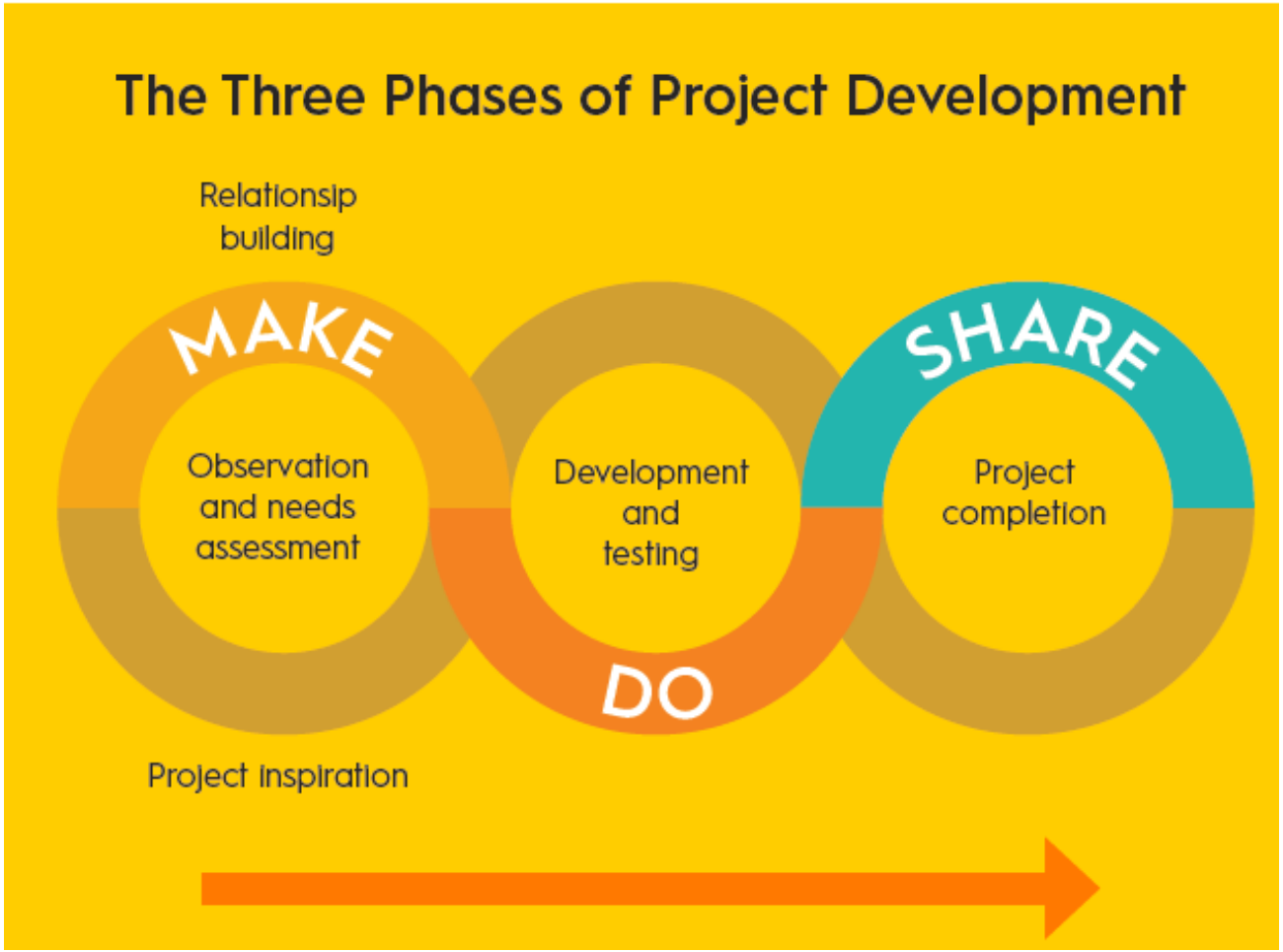
Indicators

Able to investigate Exercise skills

Indicators

Value STEM in society
Aware of STEM careers


INSIDE OUT
Exploring the body through art and science
WHY SCIENCE AND ART?
EXPLORING THE BRAIN (LATE ELEMENTARY)
EXPLORING THE BRAIN (HIGH SCHOOL-ADULT)
EXPLORING THE SKELETON (ELEMENTARY)
Library


The Three Phases of Project Development
Relationsip building
MAKE
Observation and needs assessment
Development and testing
DO
SHARE
Project completion
Project inspiration

21st Century Skills

Make
Cognitive

Knowledge
Content Knowledge
Research Skills

Critical Thinking
Decision-making
Problem-solving

Creativity
Innovation
Conceptualization

Do
Intrapersonal

Intellectual Openness
Adaptability
Continuous Learning

Work Ethic
Self-direction
Initiative

Self-evaluation
Self-assessment
Self-reflection

Share
Interpersonal

Communication
Oral/Written Communication
Empathy

Collaboration
Teamwork
Coordination

Leadership
Self-presentation
Social Influence

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

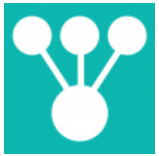
Self Evaluation
Self assessment
Self reflection

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

Make.
Do.
Share.

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

WHY STEM AND LIBRARIES? | STEM LIBRARY ROADMAP | PRACTICE | STEM LIBRARY PLAYBOOK

STEM Library Roadmap

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, spend time connecting with those you don't see or interact with on a regular basis. Discover and map groups and key stakeholders that may exist in your service area -- e.g. a STEM related business group, an active parent network, retired STEM professionals, etc. 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 the 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.
- Initiating 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 youth and families that you might work with to develop and implement STEM learning opportunities for youth and families.
- Initiating a social mapping project. A social map gives you the chance to learn from community members -- families -- where they spend time and why. For example, you might show community members a list of "social" 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.

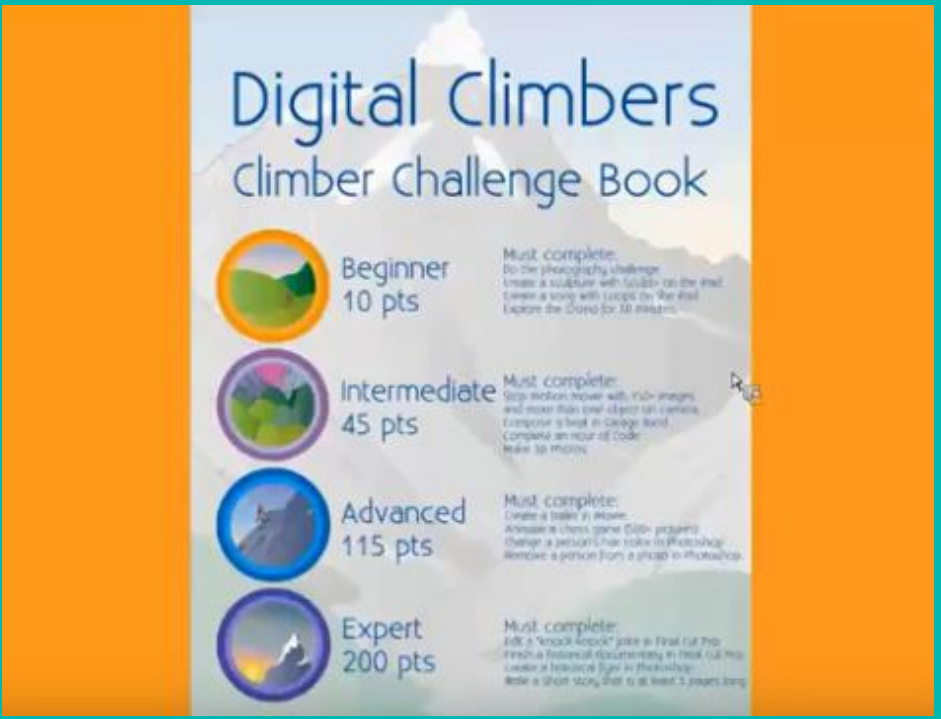
Resources for Further Learning

- Annie E. Casey Foundation. Kids Count Data Center. Web. 10 Jan 2016. **http://datacenter.kidscount.org/**
- Ready by 21. Program Landscape Mapping Packet. Web 10 Jan 2016. **http://www.readyby21.org/resources/program-landscape-mapping-packet**
- U.S. Department of Education. Data and Research. Web. 10 Jan 2016. **http://www2.ed.gov/rschstat/landing.jhtml?src=image**
- Work Group for Community Health and Development. "Assessing Community Needs and Resources Toolbox." Community Toolbox. University of Kansas. Web. 10 Jan 2016. **http://ctb.ku.edu/en/assessing-community-needs-and-resources**

• 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

Do worksheet

Play Package

Program description:

Outcomes:

Indicators:

Supplies:

Room Setup

Plays	Your Play	Youth Roles	Notes	Time
Welcome				
Community Builder				
Introduction to Materials				
Challenge 1				
Check in with Groups				
Challenge 2				

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www.krl.org/makedoshare

Questions? Contact me:

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