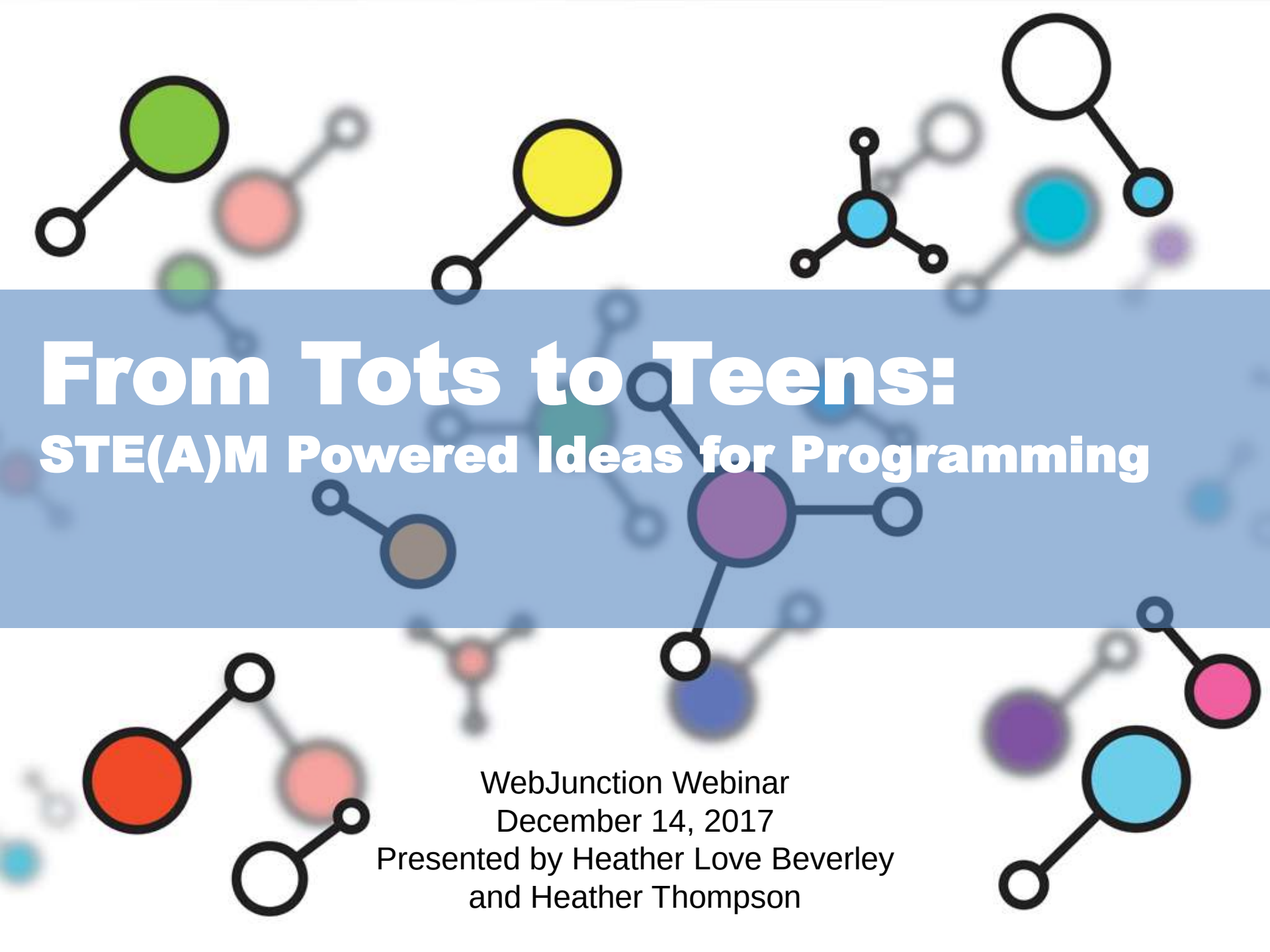


From Tots to Teens:

STE(A)M Powered Ideas for Programming

WebJunction Webinar
December 14, 2017
Presented by Heather Love Beverley
and Heather Thompson

WHO ARE WE?

HEATHERS

LOVE BEVERLEY

THOMPSON

WHO ARE WE?

HEATHERS

LOVE BEVERLEY

THOMPSON

…and that is Barkington von Makeithappen strapped to a remote controlled car with a GoPro on top.

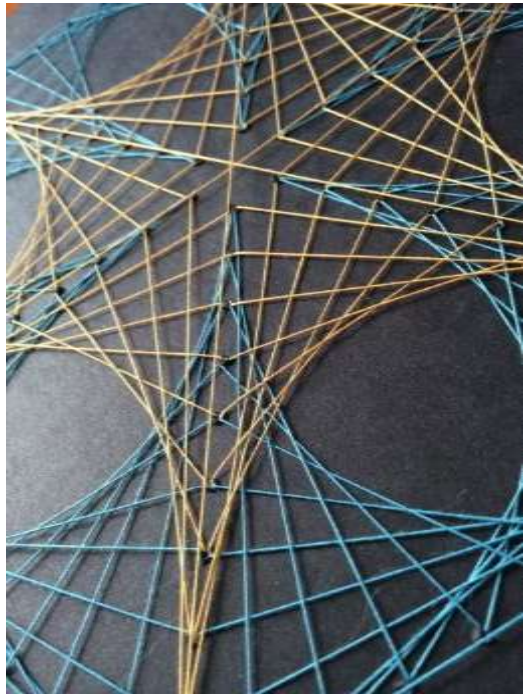
..because, science.

STEM vs. STEAM

Science
Technology
Engineering

Math

Science
Technology
Engineering
Art
Math



Happy Surprise!

STEMinlibraries.com

Librarian Jazz Hands!

STEMinlibraries.com

Week Thirty-Nine: Beam & Suspension Bridges

1

October 18, 2015 by libraryheather

Program Title: Beam & Suspension Bridges

Target Age Range: Grades 4-6

Program Length: 90 minutes

Brief Description:
Learn the difference between beam and suspension bridges, then build and test your own for strength in small groups.

Supplies:
Plastic straws

More shiny stuff!

About Us

We are a team of librarians with a passion for creating fun and engaging STEM programs for library patrons of all ages.

Have a question? Email us at: steminlibraries@gmail.com

Tags

adults ages 3-6 All Ages architecture art astronomy biology chemistry computer science Engineering engineering Family grades 1-3 grades 4-6 grades PreK - K math physics science storytime structures technology teens tweens weather

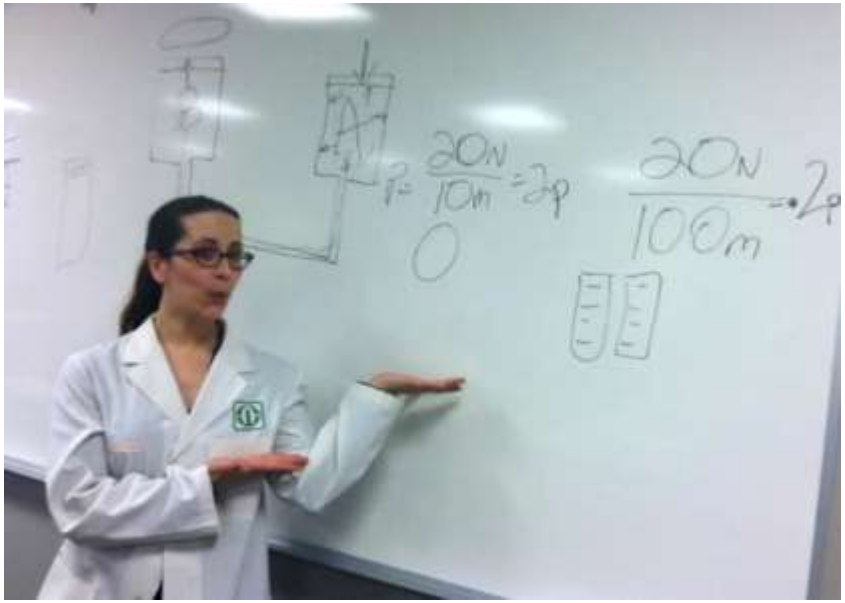
Archives

- March 2016
- February 2016
- October 2015
- September 2015
- August 2015
- March 2015
- April 2014

Follow Blog via RSS

WHY STEM IN THE LIBRARY

Support and supplement school curriculum, and provide opportunities for hands-on experiments that schools cannot.

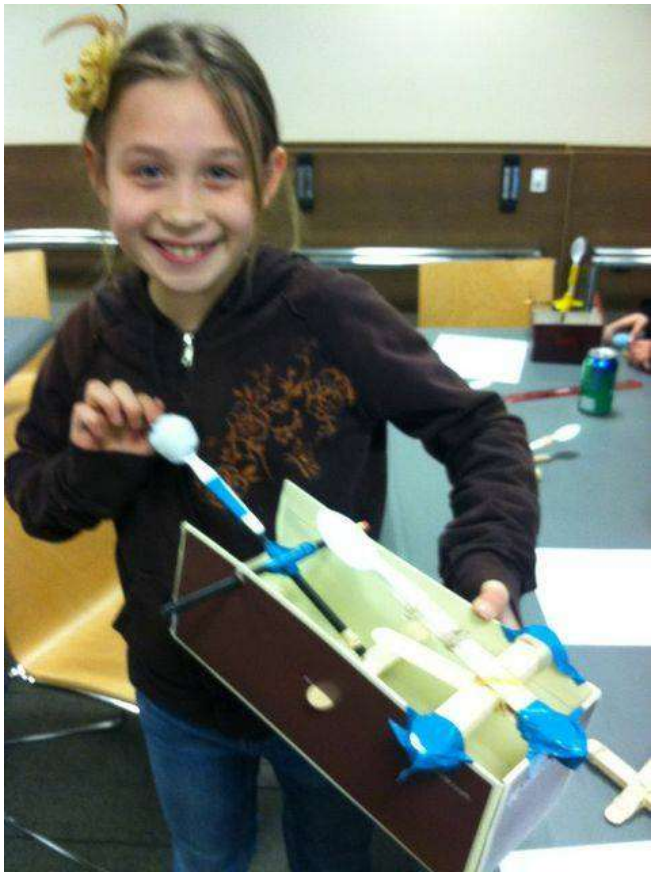


WHY STEM IN THE LIBRARY

Kids are naturally interested in exploring the world.

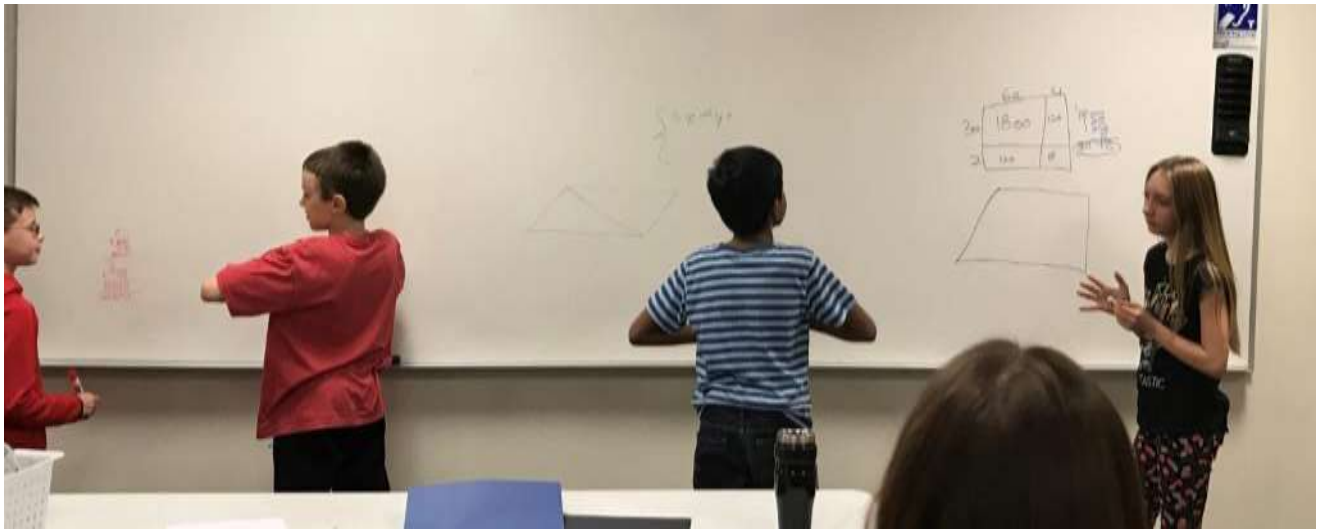
Libraries can nurture and maintain this interest to help them stay ahead of the curve.

WHY STEM IN THE LIBRARY



STEM programs
promote
critical thinking,
creativity,
and
problem solving skills.

WHY STEM IN THE LIBRARY



STEM programs allow for a collaborative learning environment.

WHY STEM IN THE LIBRARY

Support your library's core mission.

Instant buy in: Have your Director participate!

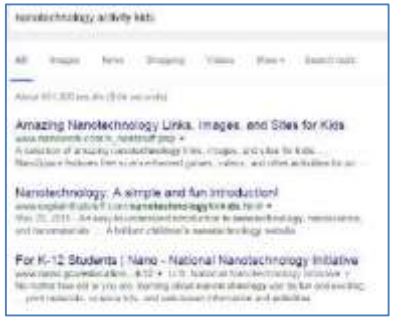
Hi Dave!

WHY STEM IN THE LIBRARY

Because it's fun. And *awesome*.

WHERE TO START

Pinterest (of course, and oh-so-pretty)

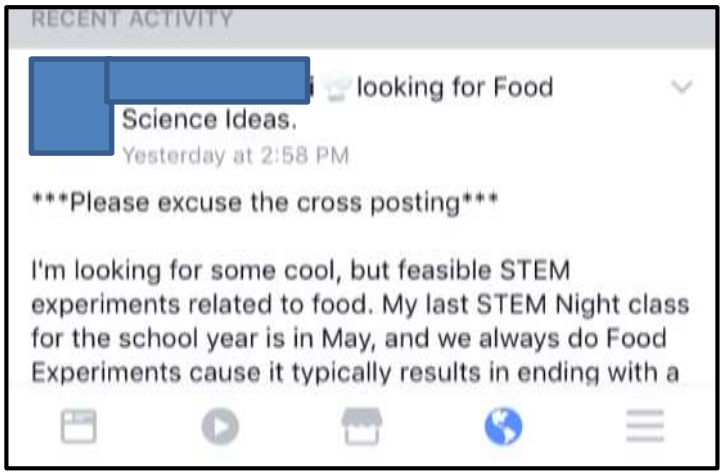


Google (not as pretty, but still good)

Google Image (pretty! …not always as good)

WHERE TO START

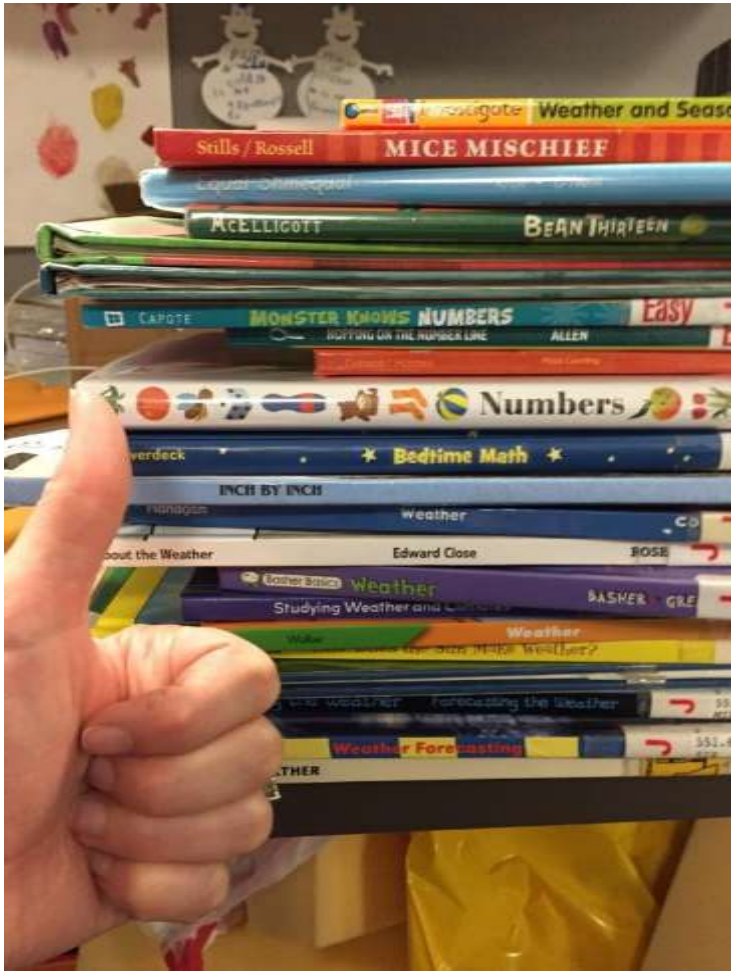
Ask a Librarian!



(Shameless plug: This is our group- join us!)

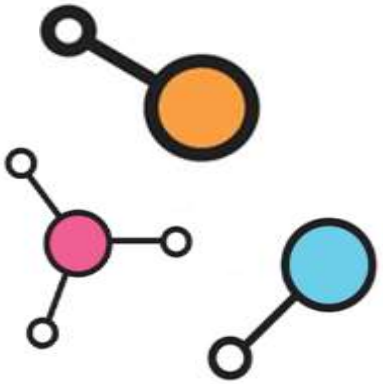
WHERE TO START

Library Books. (What?? Madness!!!)



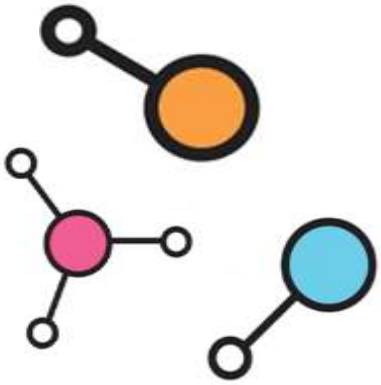
WHERE TO START

CONSTANT VIGILANCE!



Good Project vs. Bad

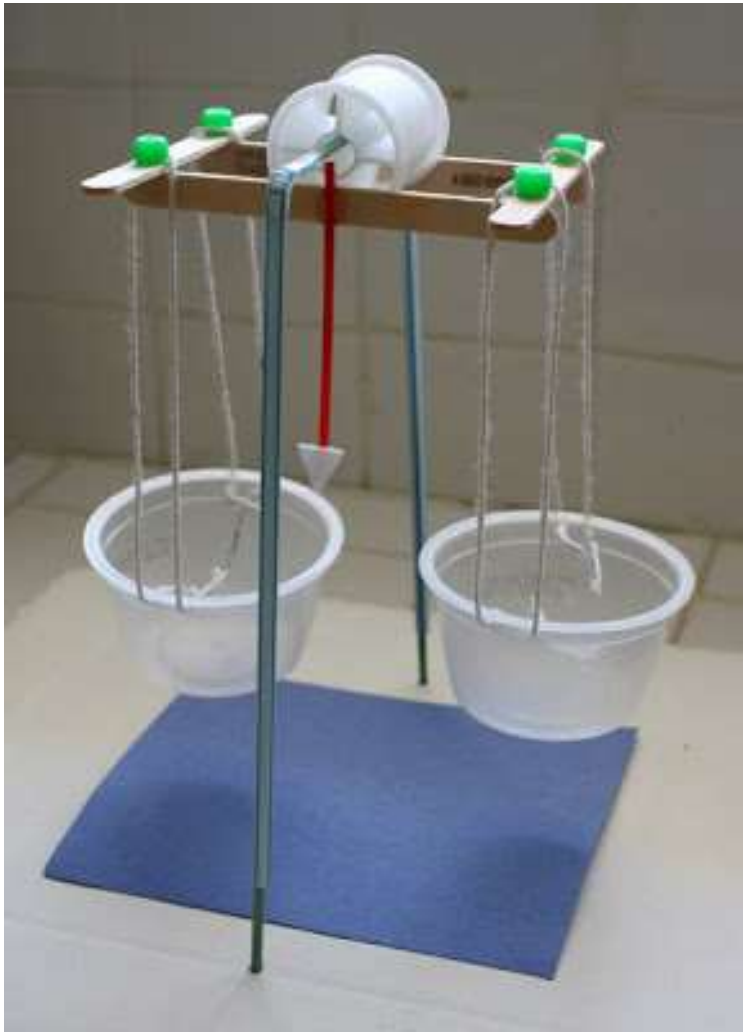
- Can it be done in an hour? Hour and a half?
- Can it be easily replicated for 20+ kids?
- How much hands-on help is needed?
- Are the supplies easy or hard to find?
- What level is the science at?
- Is it fun?!



Good Project vs. Bad

Would this be a good or bad project for 20+ 1st-3rd graders?

YES!



NO!

Good Project vs. Bad?

NO!

BAD!

Program Structure

Science Explorers Juniors:
1st – 3rd graders (60 minutes)

5 minutes getting settled

10-15 minutes of introductions, science discussion, and reading a related book.

40-45 minutes of demos and/or hands-on projects.

If possible, give them something tangible to take home!

Program Structure

<u>Tween Science Explorers</u>: 4th – 6th graders (90 minutes)
5 minutes getting settled

15-25 minutes of introductions, science explanation and discussion, demos and/or videos

65-75 minutes of hands-on project time (usually 1-2 projects)

Program Structure

<u>Science Explorers</u>: 7th grade & up (90 minutes)

5 minutes getting settled

10-15 minutes of introductions, science explanation and discussion, demos and/or videos

75-80 minutes focusing on in-depth projects, with an emphasis on creativity, competition, and instruction reading.

Program Structure

<u>STEAM Storytime</u>:
3-6 year olds with a caregiver
(60 minutes)

5 minutes getting settled

25 minutes science-related storytime

30 minutes hands-on lab time (3-4 activity stations)

Arsenal of Science Supplies

Program supplies: the dollar store is your very best friend, and there will be many items worth investing in that you will use again and again and again.

Tips, Tricks and Other Practicalities

You will learn (and forget) many strange and interesting things.

Tips, Tricks and Other Practicalities

Don’t be afraid to say “I don’t know.”

Tips, Tricks and Other Practicalities

Be excited, not scared

(they can smell fear)**.**

Tips, Tricks and Other Practicalities

Don’t over-plan.

…just like there’s such a thing as “too much cake,” there can be “too many good ideas for one program.”

Bow of thanks to the great Allie Brosh. We’re not worthy!
http://hyperboleandahalf.blogspot.com/2010/10/god-of-cake.html

Tips, Tricks and Other Practicalities

Programs that involve free building are the *best*.

Tips, Tricks and Other Practicalities

Is there something questionable in your program?

Better do it yourself!

Tips, Tricks and Other Practicalities

EMBRACE THE CHAOS!

Tips, Tricks and Other Practicalities

There's no such thing as failure.

Once more, Allie says it best:
http://hyperboleandahalf.blogspot.com/2010/07/dog.html

Tips, Tricks and Other Practicalities

Ageing Programs Up and Down

Littles (Pre-K-3rd Grade)

- Demonstration-heavy
- Simple process experiments
- No failure rate
- Take aways

Middles (4th- 8th Grade)

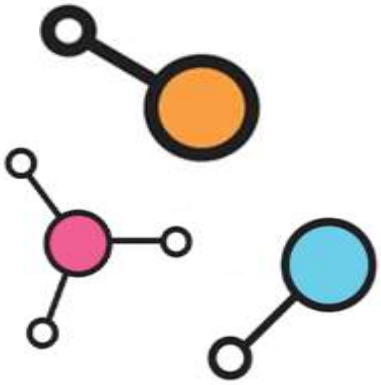
- Hands-on
- Instruction-based experimentation
- Controlled Freedom

Teens (6th – 12th Grade)

- Freedom, with directions
- Creativity
- Competition
- Exchange of Responsibility

Family

- Everyone participates
- Multi-skill Level
- Encourages Discussion
- Patron-led



STEAM Storytime

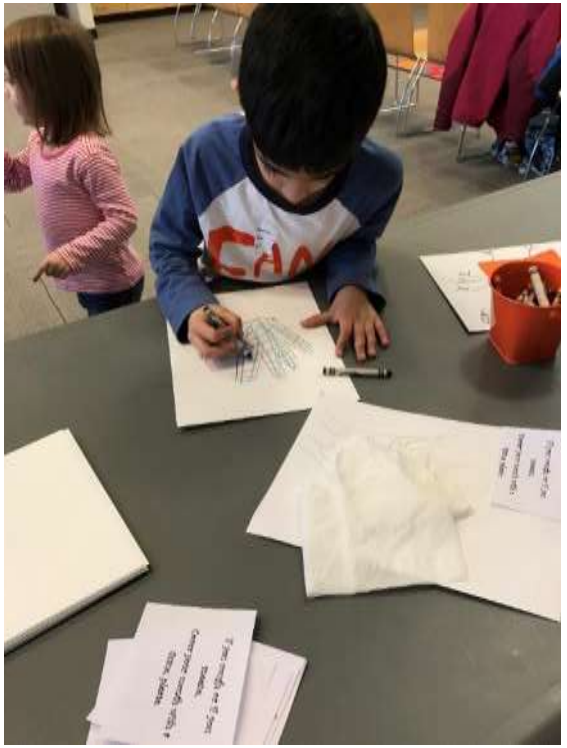
STEAM Storytime

Featured STEAM Storytime: Outer Space!

https://steminlibraries.com/2015/10/10/week-nineteen-steam-storytime-outer-space/

STEAM Storytime

Featured STEAM Storytime: Germs!



https://steminlibraries.com/2017/12/12/week-sixty-nine-steam-storytime-germs/

STEAM Storytime

Featured STEAM Storytime: Rain!

https://steminlibraries.com/2015/08/27/week-four-steam-storytime-rain/

Science Explorers Jr.

1st-3rd Graders

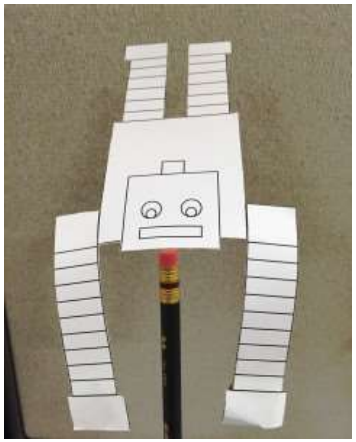
Science Explorers Jr.

Featured 1st-3rd Grade Program: Paleontology

https://steminlibraries.com/2015/10/01/week-fifteen-lets-be-paleontologists/

Science Explorers Jr.

Featured 1st-3rd Grade Program: Balance



https://steminlibraries.com/2015/09/17/week-ten-balance/

Oodles of Program Choices!

<u>Featured 1st-3rd Grade Program</u>: Circus Bridges or Wizard Science

https://steminlibraries.com/2017/12/12/week-seventy-circus-bridges/

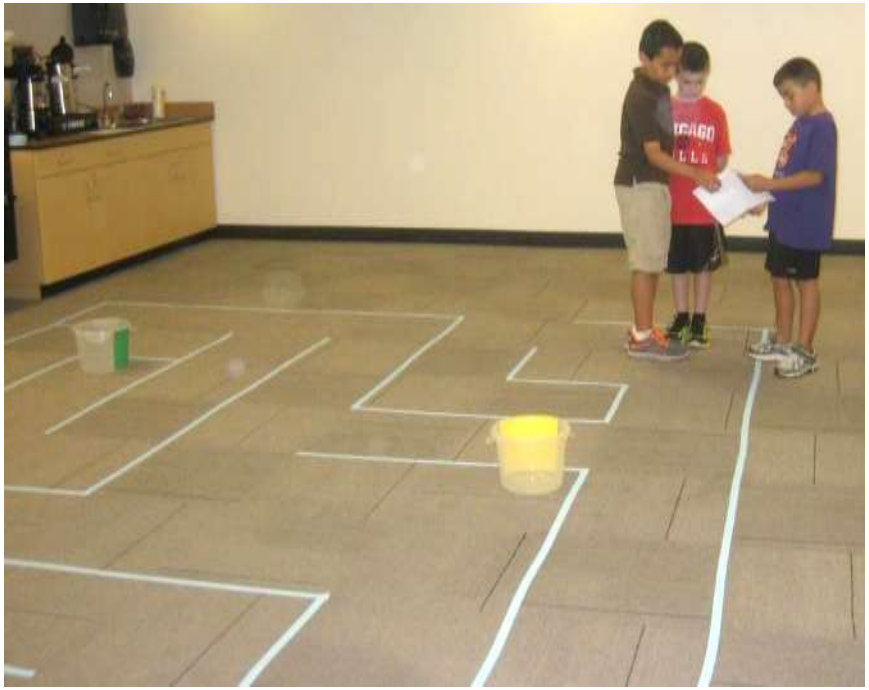
Tween Science Explorers

4th – 6th Graders

Tween Science Explorers

Featured 4th – 6th Grade Program:

Programming Without Computers



https://steminlibraries.com/2015/03/14/week-two-computer-programming-unplugged/

Tween Science Explorers

Featured 4th – 6th Grade Program:

Roller Coasters

https://steminlibraries.com/2014/04/11/week-one-diy-rollercoasters-an-exercise-in-science-and-engineering-2 /

Tween Science Explorers

Featured 4th – 6th Grade Program:

Engineering in a Bag

https://steminlibraries.com/2017/12/11/week-sixty-eight-engineering-mystery-bags-and-rube-goldberg-machines/

Science Explorers

7th grade & up

Science Explorers

Featured 7th Grade and Up Program:

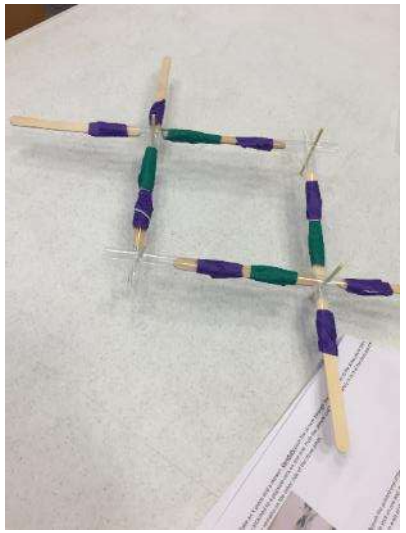
Crash Test Dummies

https://steminlibraries.com/2017/12/12/week-seventy-one-crash-test-dummies/

Science Explorers

Featured 7th Grade and Up Program:

Arcade Champions



https://steminlibraries.com/2016/11/06/week-sixty-one-arcade-champions/

Family Science

Family Science

<u>Featured Family Program</u>:

Fun Family Science

https://steminlibraries.com/2015/09/05/week-seven-fun-family-science/

https://steminlibraries.com/2016/09/02/week-fifty-nine-fun-family-science-second-edition/

https://steminlibraries.com/2017/08/01/week-sixty-three-fun-family-science-third-edition/

Family Science

Featured Family Program:

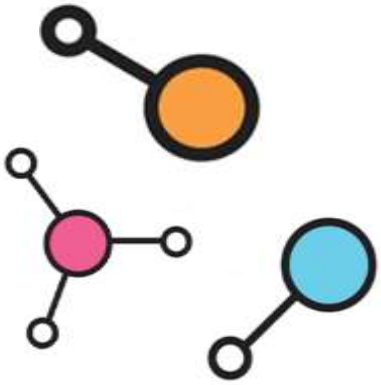
Structures

https://steminlibraries.com/2017/12/11/week-sixty-seven-family-structures-superstars/

Remember…

If everything fails, just say “It’s an experiment!”

That is the beauty of science.



P.S. **www.steminlibraries.com**

Any Questions?

(We didn't have a picture for this slide, so here we are with a penguin.
Why? Because PENGUIN!)

WebJunction Webinar
Presented by Heather Love Beverley
and Heather Thompson
hbeverley@cooklib.org / hthompson@mykpl.info