

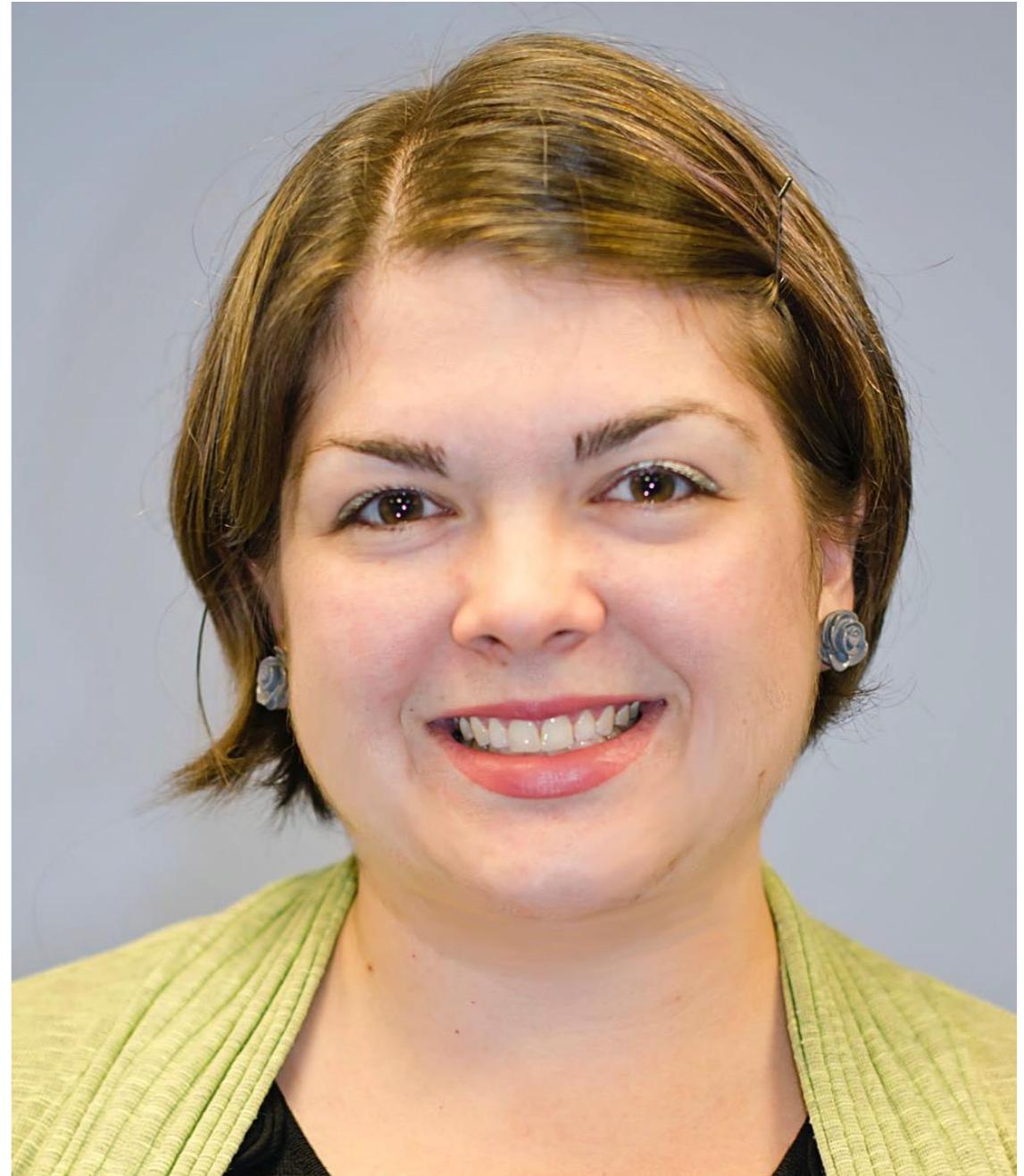
**Integrating STEAM into the  
ECE Classroom:  
Finding and Utilizing the Right  
Resources for Your Center**

**Amy Koester**

**St. Charles City-County Library District**

# Hello!

- Amy Koester, MLS
- Children's Librarian
- All Things STEAM
- Children's programs, services, and outreach



“Every kid starts out as a natural-born scientist.”

–Carl Sagan

What's STEAM?

**STEAM**

science

technology

engineering

arts

math

# Why the “A”?

- Arts ≠ crafts
- Arts = creativity
- Open-ended creative activities
- Arts and STEM are not at odds

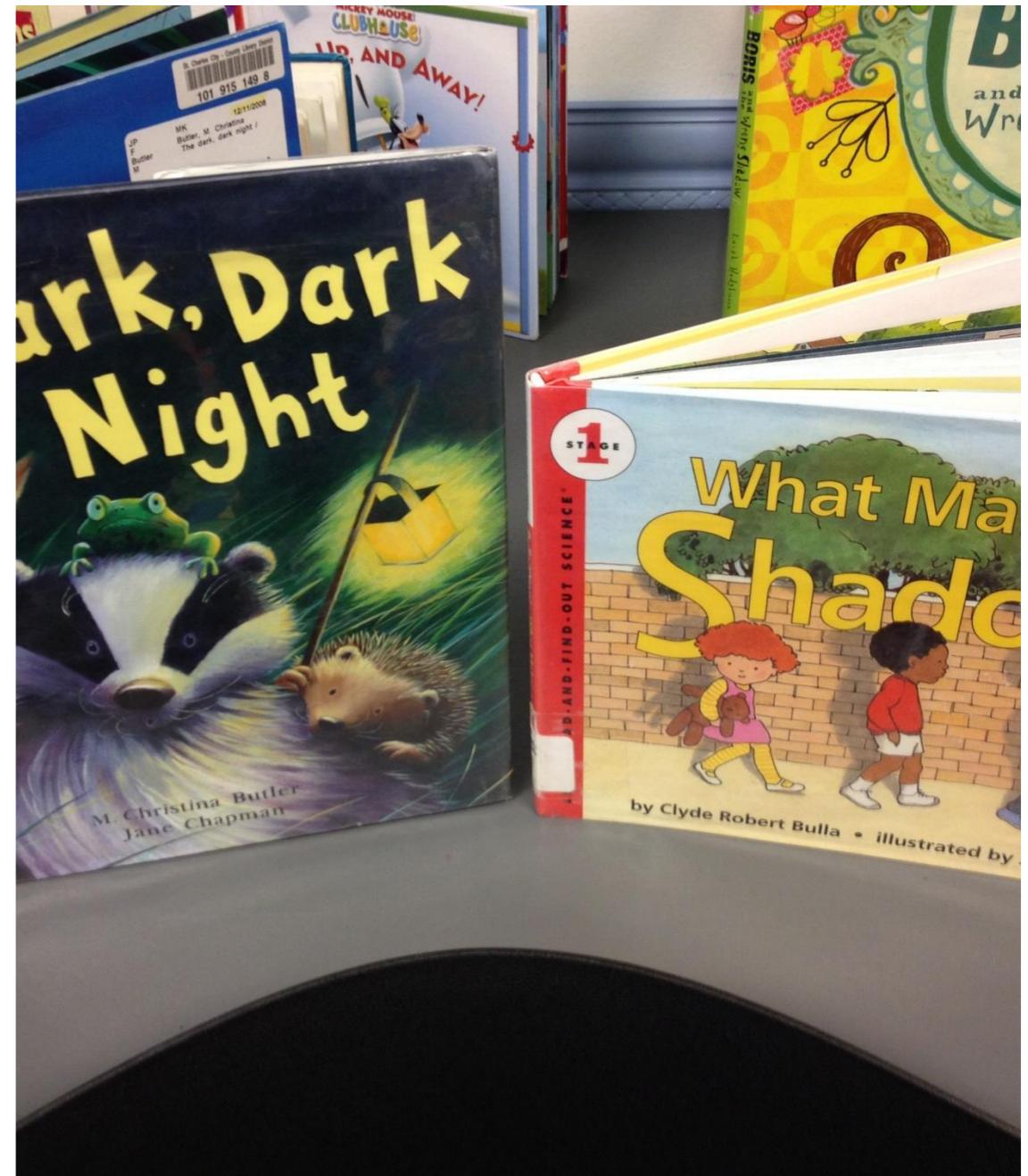
# POLL!

Where in your classroom, if at all, do your children engage in STEAM elements?

POLL!

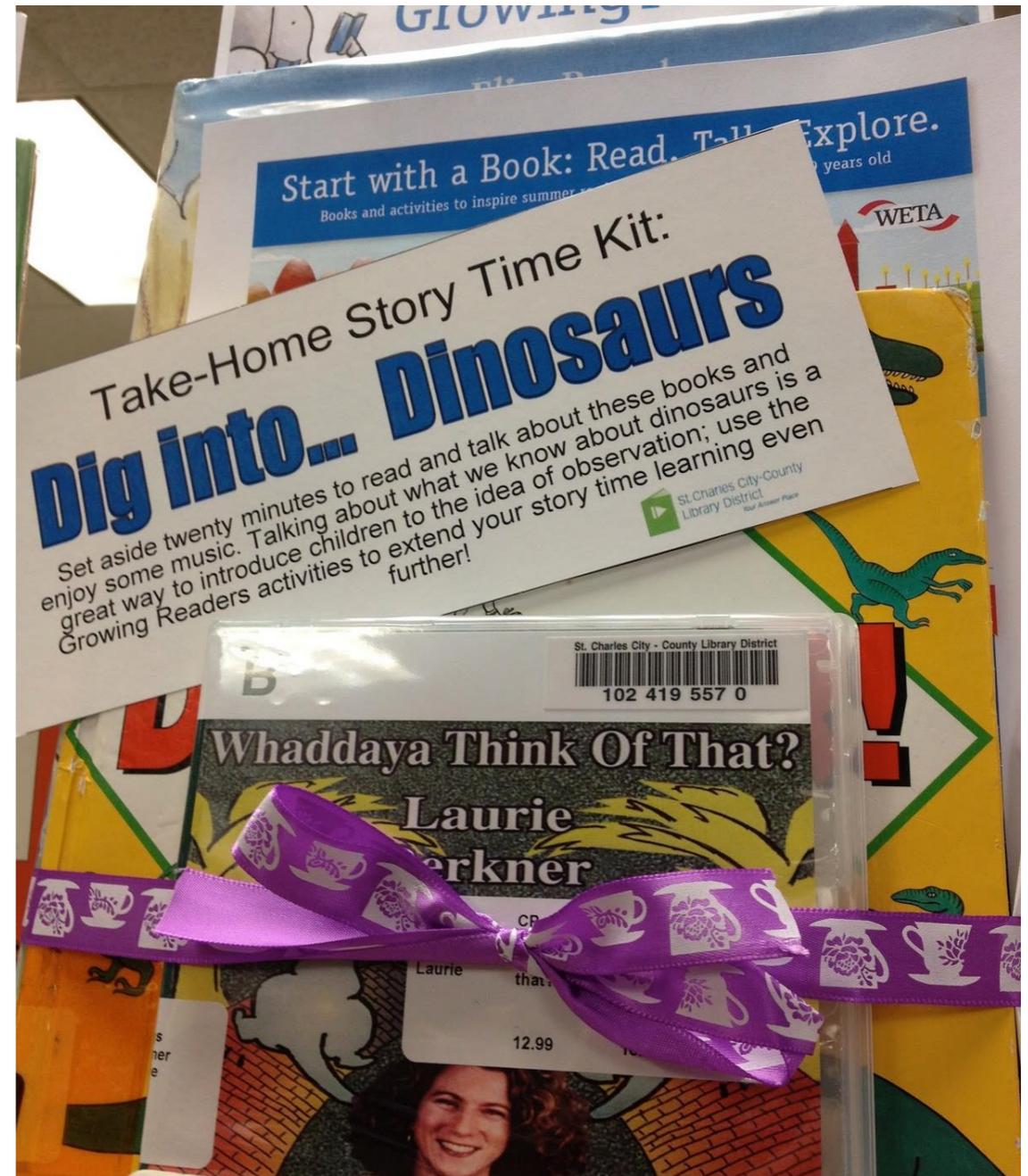
# STEAM in the ECE Classroom: Storytimes

- Add non-fiction titles
- Choose fiction with STEAM content
- Take opportunities to talk
- Ask “Why?” questions
- Include counting rhymes & activities



# STEAM in the ECE Classroom: Activities

- Cumulative projects
- Media creation
- Exploration walks
- Take-home activities & kits



# STEAM in the ECE Classroom: Stations

- Observation stations
- Age-appropriate tools
- Water or sensory stations
- Creation stations
- Manipulables



# SCIENCE

hypothesis  
try

magnifying glass

experiment

explore

investigate

eyedropper  
observe

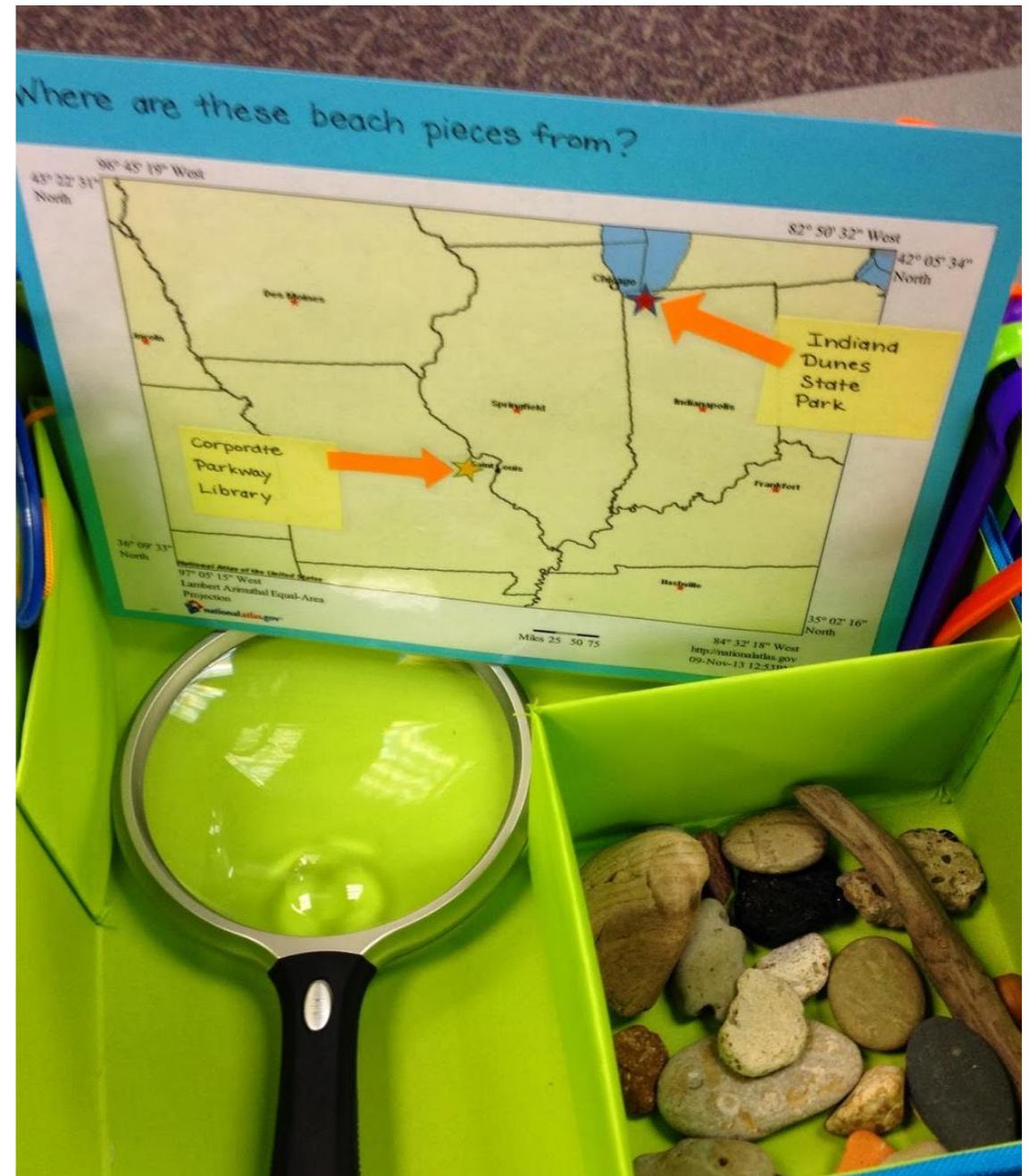
# Science Activities

- Weather demos
- Observe living things
- Physical and chemical changes
- Body science



# Science Mix-Ins

- Extending stories
- Testing strength with *The Three Little Pigs*
- Primary and secondary colors with *White Rabbit's Color Book*
- Realia



game tools  
simple machines scissors apps

# TECHNOLOGY tablet

play glue

# Technology Activities

- Exploring tools
- Book apps and games
- Content creation
- Chain reaction machines



SCIENCE IS MAGIC  
**Toca Lab**

Come to Toca Lab! Explore the colorful electrifying world of science and meet 18 of the elements from the periodic table. Discover elements by experimenting with the lab tools!



A NEW KIND OF SELFIE!  
**Toca Hair Salon Me**

Give your friends and family a totally new look! Simply snap a picture and you're transported to a world of hair-raising fun!



CREATE YOUR OWN MINI!  
**Toca Mini**



BUCKLE UP, FRIENDS!  
**Toca Cars**

# Technology Mix-Ins

- Picture book apps
- Media supplements
- Simple machines to solve problems



# ENGINEERING

make

test

blocks

invent

stack

build

plan

solve a problem

# Engineering Activities

- Building projects
- Sink and float structures
- “How it Works” investigations
- Fixing/repurposing broken toys



# Engineering Mix-Ins

- Recreate story components
- Building name games
- Talk about ways to solve problems



music  
stamp  
draw  
texture  
create  
paint  
ARTS  
design  
colors

# POLL!

Have you ever intentionally used arts activities with the goal of promoting creativity and innovation?

POLL!

# Arts Activities

- Process vs. product
- Open-ended
- Let kids pick the media
- Encourage exploring the media
- Display creations



# Arts Mix-Ins

- “What happens next?”
- Story maps
- Retelling stories in other formats (songs, dance, yoga, flannel)



# MATH

chart patterns shapes sort  
count numbers weight  
measure

# Math Activities

- Compare & contrast
- Identify & create patterns
- Sorting stations
- Shape scavenger hunt



# Math Mix-Ins

- Make a story chart
- Counting songs & rhymes
- Measure & compare within activities



# STEAM Resources: Books

What to look for in STEAM books:

- High-quality images
- Vocabulary
- Explanation of concepts
- Accuracy
- Age-appropriate activities

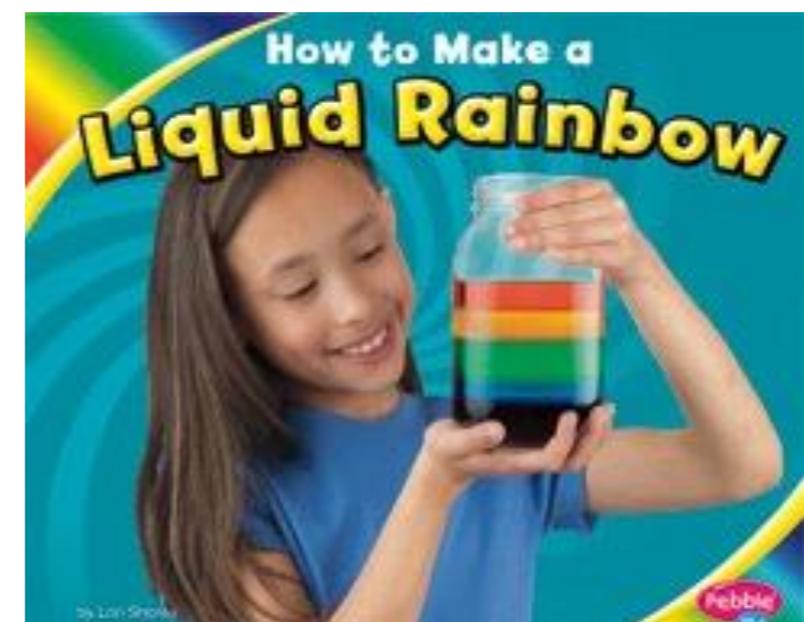
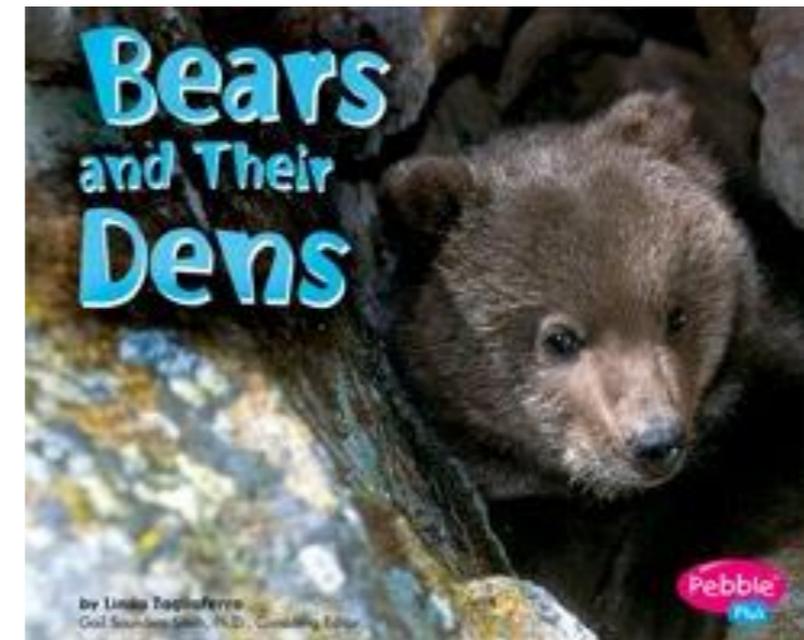
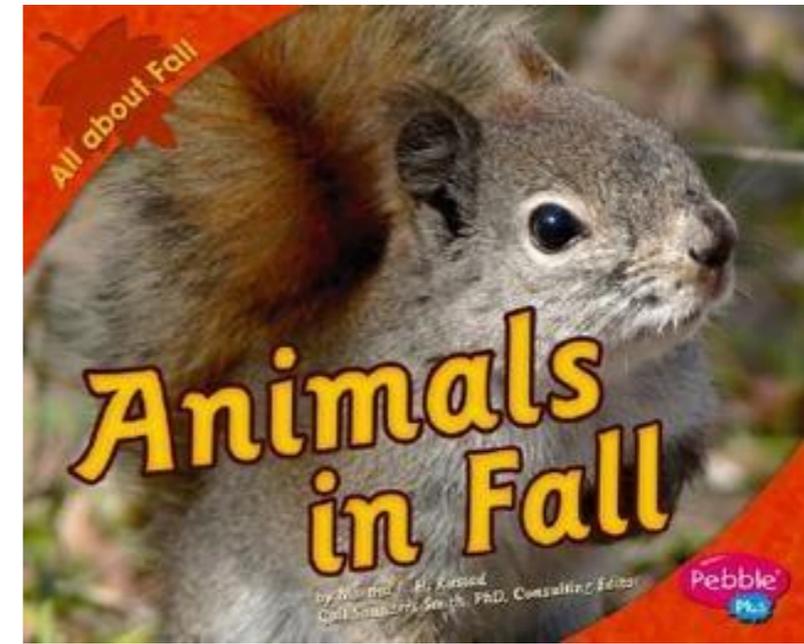
# STEAM Resources: Books

Leap! from Bullfrog Books  
(Publisher)



# STEAM Resources: Books

Pebble Plus (Publisher)

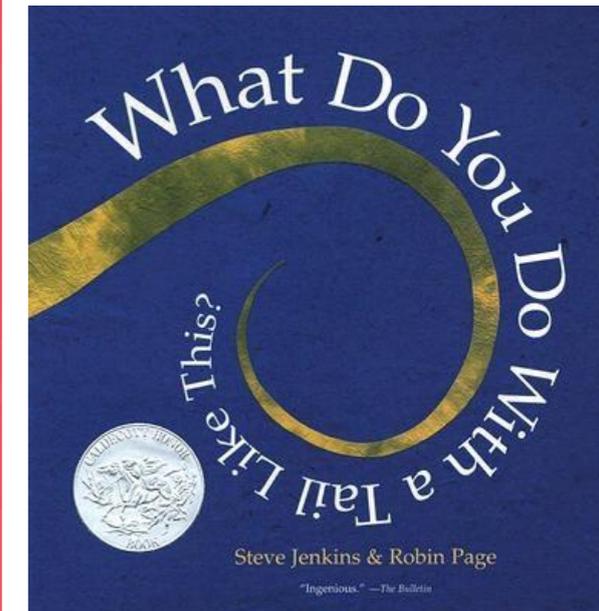
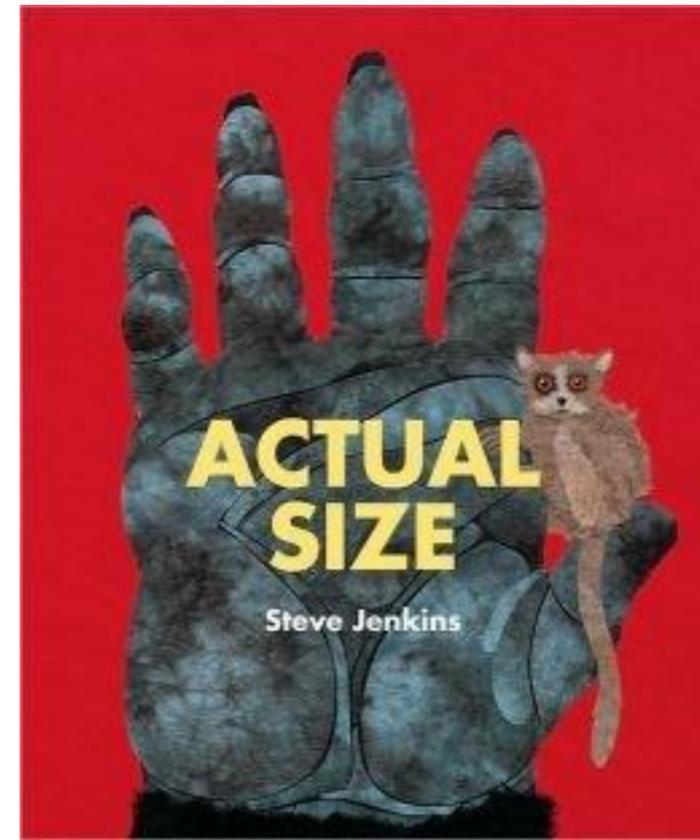


# STEAM Resources: Books

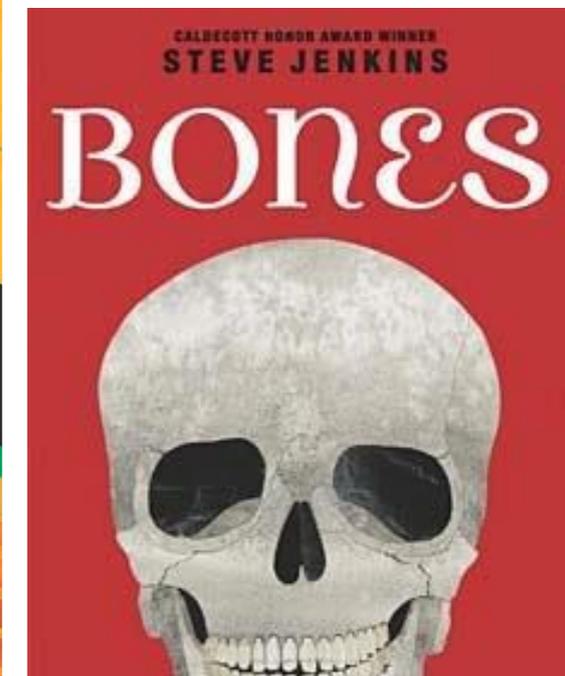
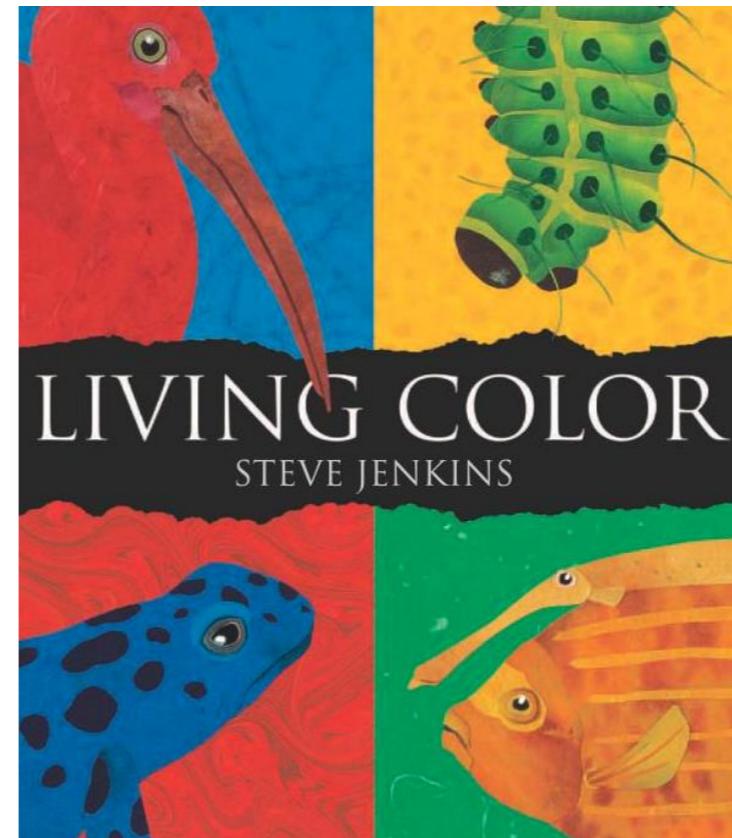
Gail Gibbons (Author)



# STEAM Resources: Books

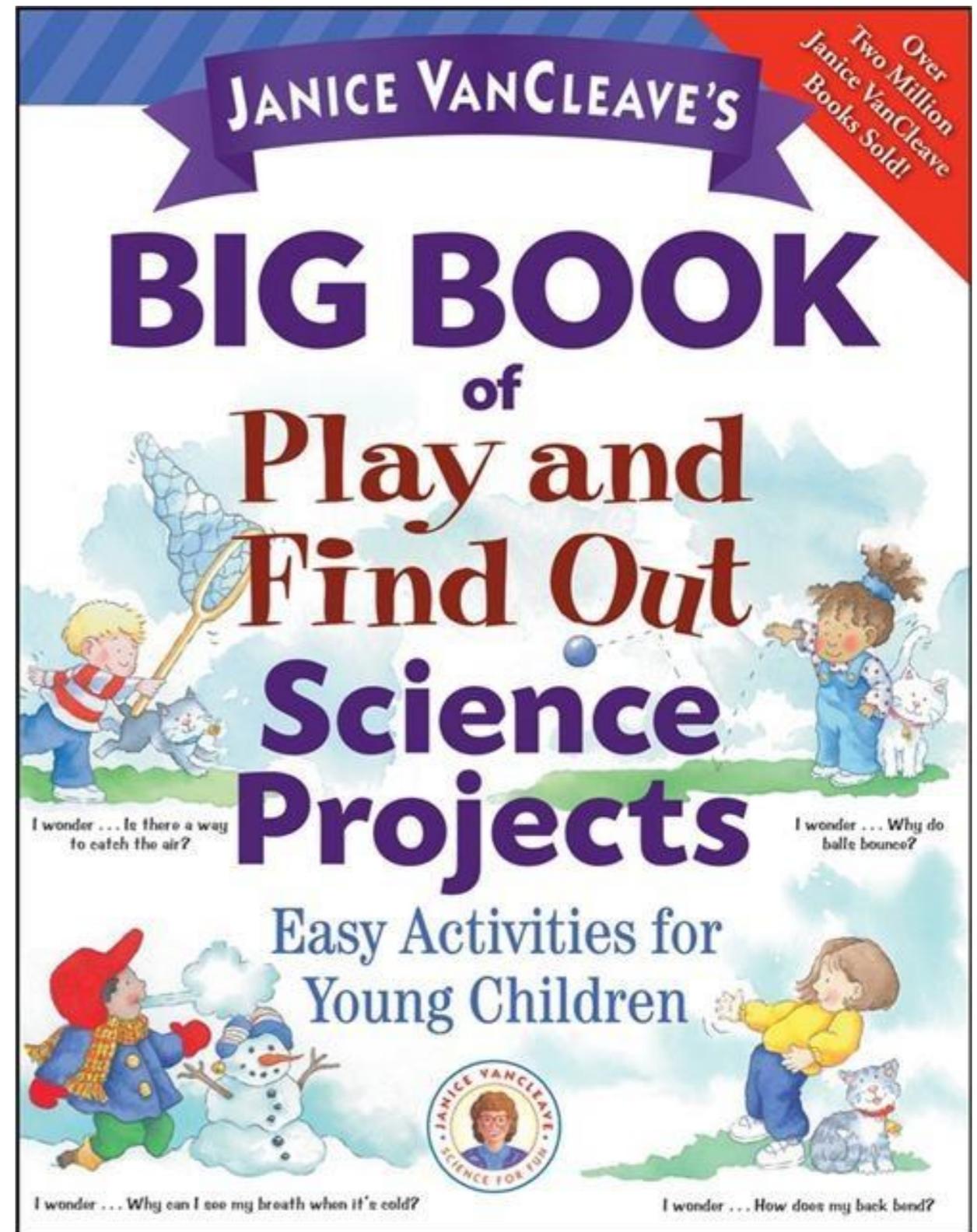


Steve Jenkins  
(Author/Illustrator)



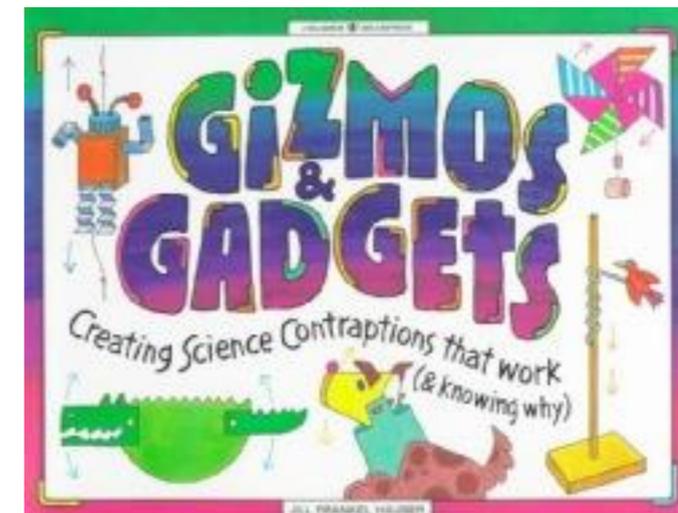
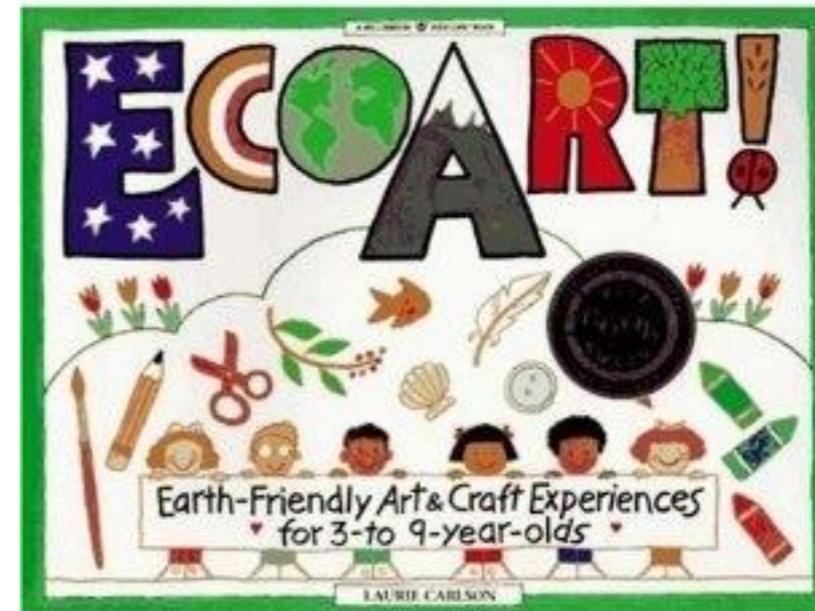
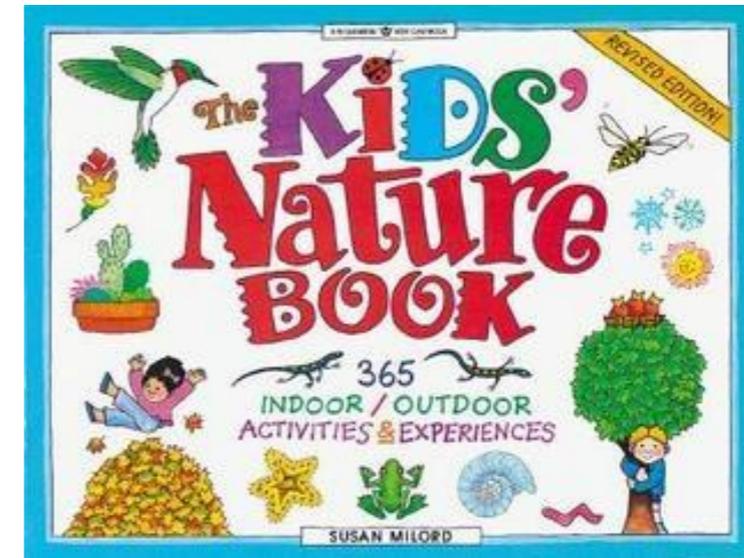
# STEAM Resources: Books

Janice VanCleave  
(Author)



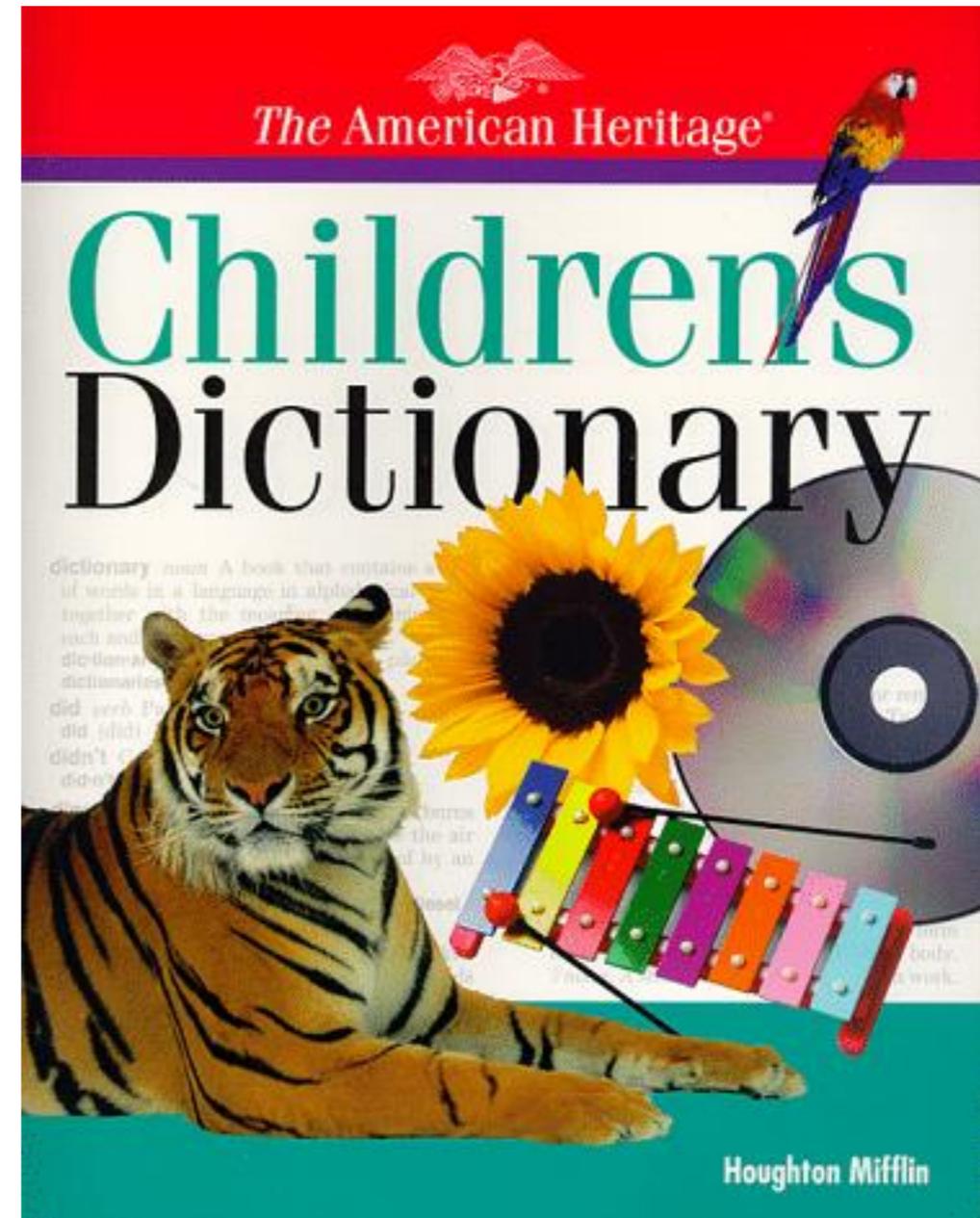
# STEAM Resources: Books

Williamson Kids Can!  
(Publisher)



# STEAM Resources: Books

Children's Dictionary



# STEAM Resources: Blogs

Utilize a variety of preschool blogs:

- Early childhood educators
- Homeschool caregivers
- Libraries & library staff

# STEAM Resources: Blogs

Teach Preschool

<http://www.teachpreschool.org/category/science-and-nature/>



The screenshot shows the Teach Preschool website header with the logo, a search bar, and navigation links. The main content area is titled "Science and Nature" and features two article previews. The first article is "Exploring raindrops and clouds in preschool" with a photo of a child at a sensory table. The second article is "Who cares about the weather?" with a photo of a child painting a weather chart.

TEACH PRESCHOOL  
Promoting Excellence in Early Childhood Education

DEBORAH | SIMPLE SONGS | READY FOR KINDERGARTEN | POWERED BY PLAY | EXPLORING BOOKS

## Science and Nature

**Exploring raindrops and clouds in preschool**

The weather helper informed us that today's weather was definitely going to be cold and rainy making it a perfect day to explore raindrops and clouds at our sensory table.

[Read more....](#)

**Who cares about the weather?**

As the weather changes, it is a good time to naturally promote conversations and ideas that lead us to explore the weather in the preschool classroom.

[Read more....](#)

# STEAM Resources: Blogs

PreKinders

<http://www.prekinders.com/science-page/>



# STEAM Resources: Blogs

## Library Makers

<http://librarymakers.blogspot.com>

## Library Makers {hands-on learning for all ages}

Show me posts about:

- [CraftLab](#)
- [NeedleReads](#)
- [Toddler Art Class](#)
- [WonderWorks](#)

FAQ:  
NEEDLEREADS

FAQ: TODDLER  
ART CLASS

FAQ: CRAFT LAB

FAQ:  
WONDERWORKS

RECOMMENDED  
BOOKS

Links we love

[Madison Public  
Library](#)

WonderWorks: Ramps + Textures



Exploring ramps was fun, let's try adding one extra element and see what happens!

Today's Topic: Friction (or Textured Ramps)

Supplies:

lengths of wooden cove molding  
blocks  
cardboard carpet tubes (optional)  
things to slide down the ramps (balls, cars, marbles,  
blocks, etc.)

# STEAM Resources: Blogs

Little eLit

<http://littleelit.com>

The screenshot shows the Little eLit website interface. At the top, the logo "Little eLit" is displayed next to the tagline "Young Children, New Media & Libraries". A navigation menu includes links for HOME, ABOUT, APPS, RESOURCES, PROGRAMMING, TRAINING, and CONTACT. The main content area features a blog post titled "ECRR App List" dated "MAR 14" and posted by "cen campbell". The post text states: "As promised, here is a crowd-sourced list of librarian-tested apps that can be used to support early learning practices and parent-child engagement. Many thanks to the LittleeLit Think Tank for sharing their favourites!". Under the heading "Reading:", there are three links: "Moo, Baa, La La La! - Sandra Boynton (Loud Crow) [and others by Boynton]", "Go Away, Big Green Monster! (Night & Day Studios)", and "The Three Little Pigs (Nosy Crow)". To the right of the blog post is a video player titled "LITTLE ELIT: THE TRAILER!" showing a trailer for "Little eLit- The Trailer" from "carissaabc". The video player includes a play button, a progress bar, a timestamp of "01:00", and "HD" and "v" icons.

# STEAM Resources: Blogs

All Things STEAM from  
The Show Me Librarian

<http://showmelibrarian.blogspot.com/p/all-things-steam.html>

## *The Show Me Librarian*

The Blog

About Me

Review Policy

All Things STEAM

### All Things STEAM

Welcome to All Things STEAM, a resource for offering library programming in science, technology, engineering, arts, and mathematics. When it comes to developing my STEAM programming, I have a number of go-to resources that I use for inspiration and concept knowledge support. I've gathered links to those resources, my program how-tos, and other STEAM resources for your convenience. I'll be updating as I have more links to share, so bookmark this page and get programming! And if you'd ever like to bounce ideas around, please comment here or start a conversation on Twitter (I'm @amyeileenk). I'm always up for a STEAM discussion.



# STEAM Resources: Websites

Websites with preschool STEAM content:

- Science companies
- Non-profit initiatives
- Library & classroom support
- Academic standards

# STEAM Resources: Websites

Science Sparks

<http://www.science-sparks.com>



Preschool Science   Physics   Chemistry   Kitchen Science   Biology



# STEAM Resources: Websites

Fun Science from  
National Geographic Kids

<http://kids.nationalgeographic.com/kids/activities/funscience/>

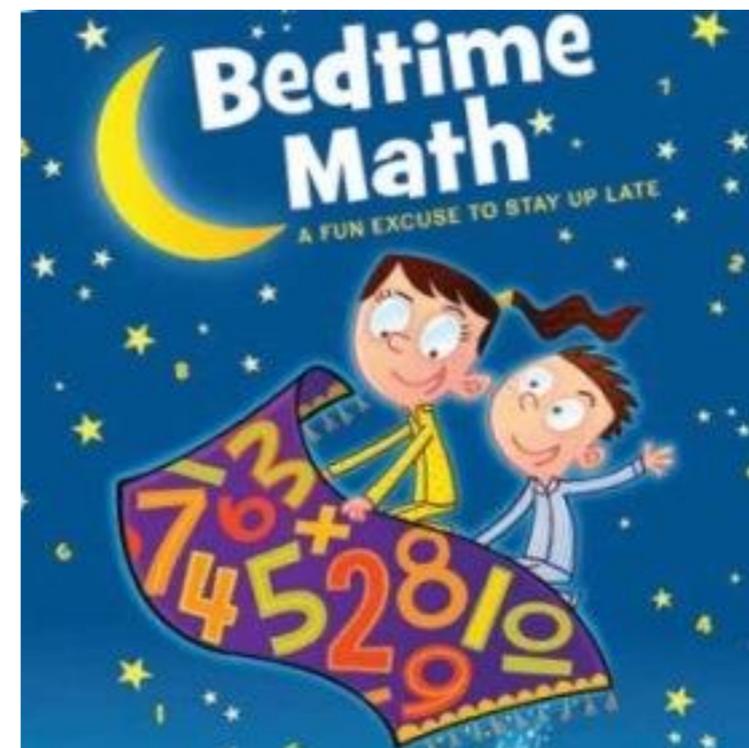


The screenshot shows the National Geographic Kids website. At the top, the logo reads "NATIONAL GEOGRAPHIC KIDS". Below the logo is a navigation bar with categories: GAMES, VIDEOS, ANIMALS & PETS, PHOTOS, COUNTRIES, FUN STUFF (highlighted), and COMMUNITY. Under "FUN STUFF", there are sub-links: Fun Stuff Home, Photo Fill-Ins, Cartoons, Just Joking, Crafts, and Recipes. The main content area is titled "Science" and features a "FEATURE" section. The feature includes an illustration of two children smiling and balancing an egg on its end. To the right of the illustration, the text reads: "Balancing Eggs-periment Balance an egg on its end with some skillful coordination, a little salt—and maybe even a little help from the sun's gravitational pull!" Below this text is a teal button labeled "CHECK IT OUT".

# STEAM Resources: Websites

Bedtime Math

<http://bedtimemath.org>



# STEAM Resources: Websites

## Flannel Friday

<http://www.pinterest.com/flannelfriday/>



Home

This Week

FAQs

Tech How-To's

Who's Who

Browse Past Round-Ups

Schedule

Get Involved!

## Welcome to Flannel Friday!

### What is Flannel Friday?

Flannel Friday is an online event in which participating bloggers post a description of a flannelboard, puppet, or prop storytime activity on their blogs every Friday. All the participating posts are gathered into one spot in a link round-up. It is a way of sharing ideas, encouraging new techniques, and building community among children's library staff around the country (and even around the world).

### Where is Flannel Friday?

Currently, Flannel Friday has the following outposts:

- Posts on participating blogs (See our [Schedule](#) to find upcoming hosts or [Browse Past Round-Ups](#))
- Conversations and links under the hashtag [#flannelfriday](#) on Twitter

# STEAM Resources: Websites

## Missouri Early Learning Standards for Science

Your state's early learning  
standards

Content Component	Process Standards
I. Physical Science	<ol style="list-style-type: none"><li>1. Explores physical properties of objects and materials.</li><li>2. Investigates properties of objects and materials.</li><li>3. Solves problems involving physical properties of objects and materials.</li><li>4. Represents observations of the physical world in a variety of ways.</li></ol>
II. Life Science	<ol style="list-style-type: none"><li>1. Explores characteristics of living things.</li><li>2. Investigates characteristics of living things.</li><li>3. Solves problems related to living things.</li><li>4. Represents observations about living things in a variety of ways.</li></ol>
III. Earth and Space	<ol style="list-style-type: none"><li>1. Explores properties of earth and space.</li></ol>

# STEAM Resources: Supplies

Keep two major factors in mind:

- Cost
- Reusability

STEAM  
Resources:  
Supplies

Dollar Store



# STEAM Resources: Supplies

Leftovers (Recyclables  
Center)



# STEAM Resources: Supplies

Lakeshore Learning

<http://www.lakeshorelearning.com>



# STEAM Resources: Supplies

Constructive Playthings

<http://www.constructiveplaythings.com>



# STEAM Resources: Supplies

Steve Spangler Science

<http://www.stevespanglerscience.com>



# STEAM Resources: Community Partners

Use your community as a STEAM resource!

- A few key places to look
- How to approach potential partners

# POLL!

Have you ever worked with your local public library in planning or providing services to your children?

POLL!

# STEAM Resources: Community Partners

**The Public Library!**



STEAM  
Resources:  
Community  
Partners

Local Businesses



# STEAM Resources: Community Partners

## Local Professionals



# In Conclusion

- STEAM belongs in ECE centers.
- There's a STEAM fit for every ECE center, & every age child.
- Use your resources!

# Questions?

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