What great children's literature do you use to connect STEAM and Making?

- https://padlet.com/jmaslyk1/tmhfcf8rpy8z

INNOVATION LITERACY

2018 Improving Schools Conference

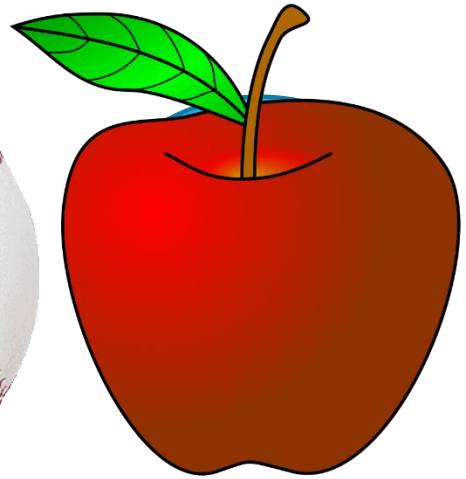
Dr. Jacie Maslyk

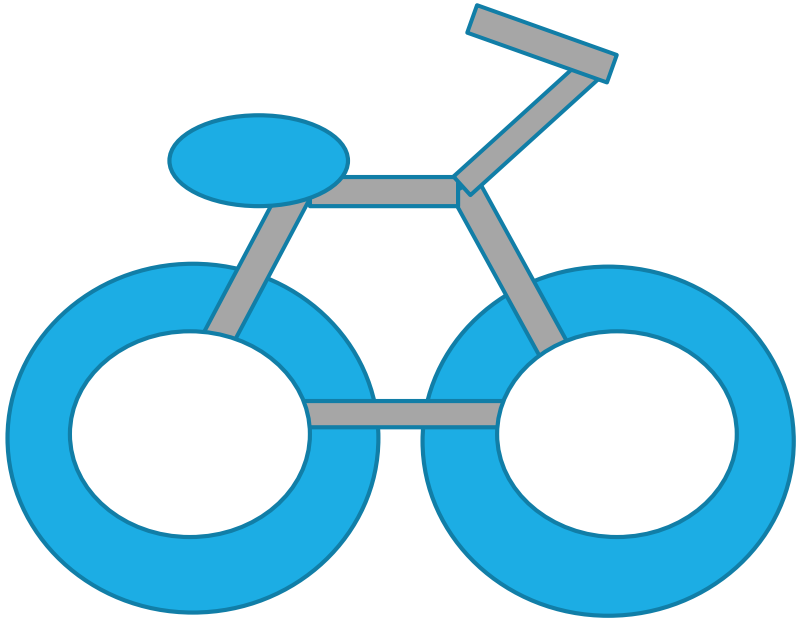
Assistant Superintendent

Hopewell Area School District, Pennsylvania

Just how creative are you?

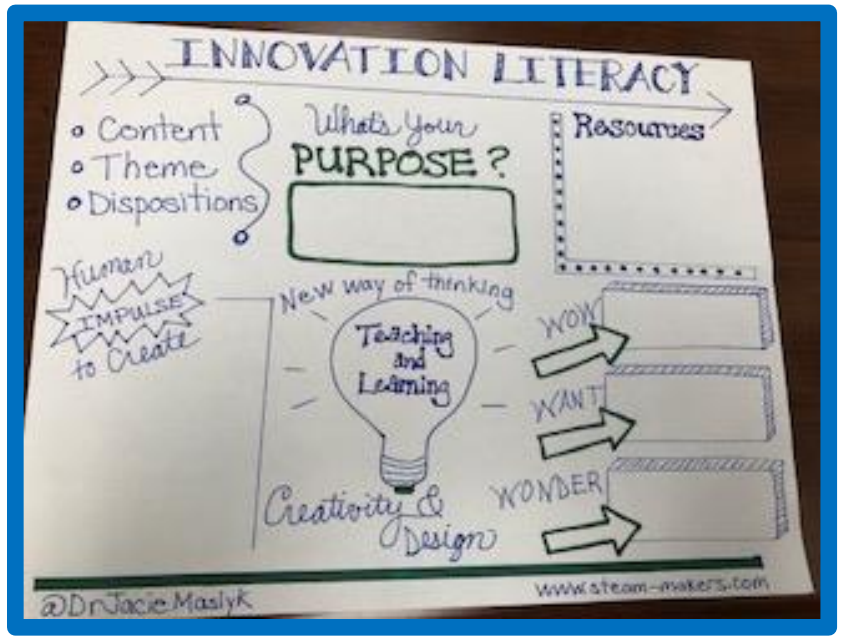
1





Goals

- Build an understanding of the importance of STEAM Education and the Maker Movement
- Discover 3 pathways to incorporate STEAM Maker learning into English Language Arts
- Engage in hands-on learning connected to children's literature



Resources

- All materials for this session are available on my website:
- www.steam-makers.com
- Check out my STEAM Makers Pinterest page:

https://www.pinterest.com/jaciemaslyk/steam-makers/

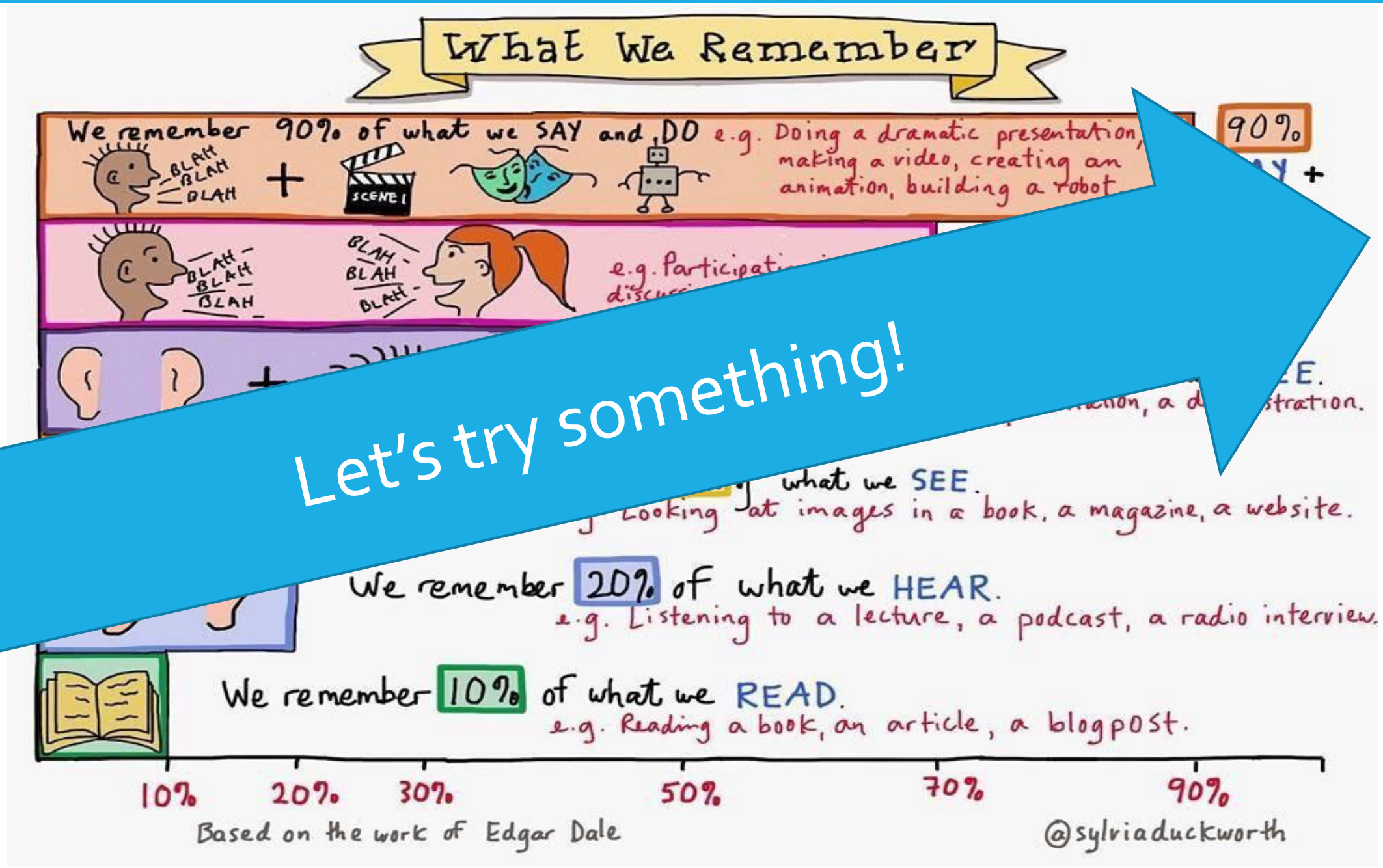
- Please tweet about the session using #STEAMMakers

@DrJacieMaslyk

- Infused innovative literacy practices over the last 2 years
- Increased PSSA ELA scores at grades 3, 5, and 8
  - Grade 8 scores increased by over 15%
- Named a High Progress Title I School at Hopewell Elementary
  - Opened a makerspace
  - Exploring flexible seating options

Formative Assessment

- I know about STEAM and use it in my classroom/school.
- Hands-on making is a part of my instructional practice.
- Innovation and creativity are embraced in my school/classroom.

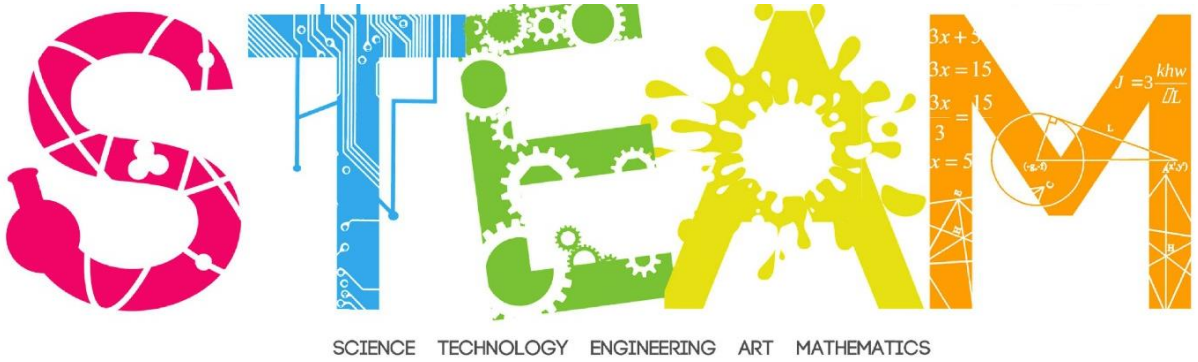


Let's try something!

[Innovation Literacy]

A way of thinking that creates new experiences around literacy teaching and learning through creativity and design.

- @DrJacieMaslyk



- **Requires thoughtful integration into the curriculum**

- **Revolves around the idea that:**

Science & Technology interpreted through Engineering & the Arts, all based in Mathematical elements.

(Yakman, 2009)

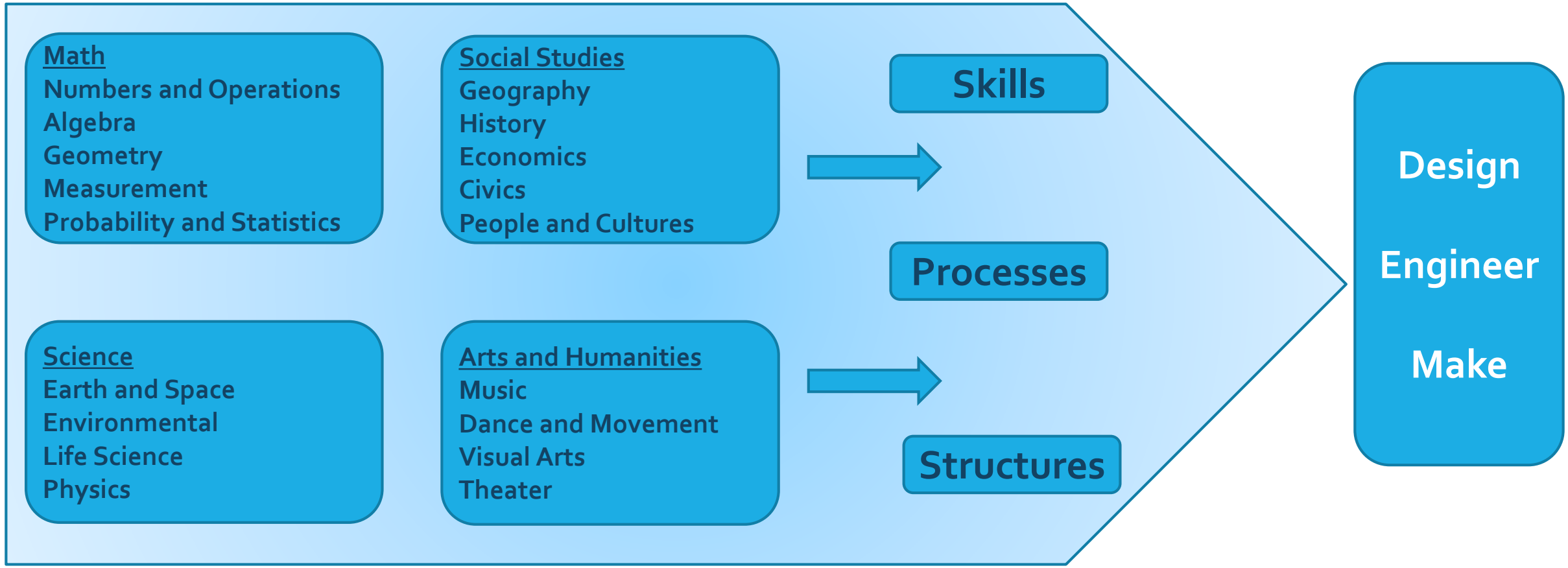
Making

- An opportunity to learn through hands-on/minds-on work that fosters curiosity, creativity and innovation through messing, building, designing, hacking, and remaking.

Physical or Digital

STEAM Maker Framework

How might we develop an overarching question or problem (real world or based in text) the students can work together to solve?



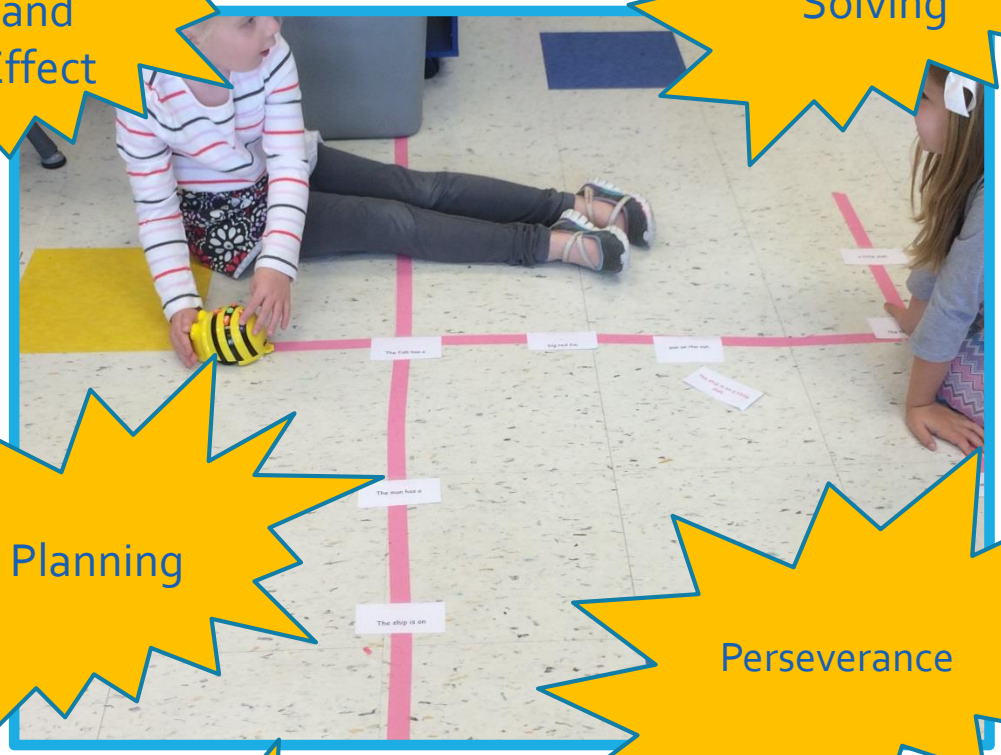
Maker Movement

- "The shift to "making" represents the perfect storm of new technological materials, expanded opportunities, learning through firsthand experience, and the basic human impulse to create."

(Gary Stager, 2014)

Learning Benefits

- Work collaborative in groups
- Follow a plan
- Give and receive feedback
- Develop learning dispositions



Cause and Effect

Problem Solving

Planning

Perseverance

Left to Right

Sequencing

What's your PURPOSE ?

- Integrate STEAM and Making to:
  - Challenge students to think differently and deeply
  - Build problem solving skills
  - Establish meaningful connections that build and expand student understanding

	STEAM
K-1	Scratch Jr., BeeBots, Puzzlets, Squishy Circuits
2	Rokenbok, Osmo, Finch Robots, Ozobots, Lego We-Do
3	Scratch, Snap Circuits, Bloxels, Little Bits
4	Makey-Makey, Stop motion animation
5	Sphero, K'Nex, Extraordinaires
6	Vex IQ, Hummingbird, Drones

Making

Each grade level should begin to develop skills in:

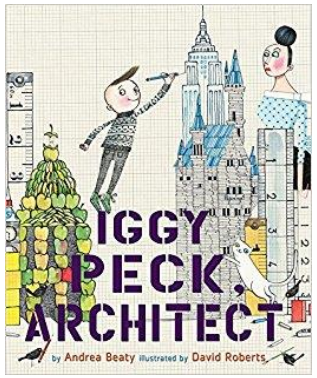
-woodworking
-circuitry
-sewing
-digital animation
-deconstruction
-re-purposing and recyclable art
-building and design challenges

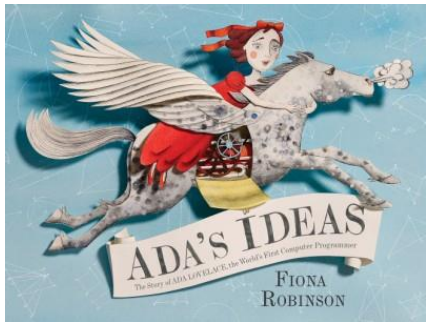
Reading is an active,
imaginative act; it takes work.
Khaled Hosseini
quotefancy

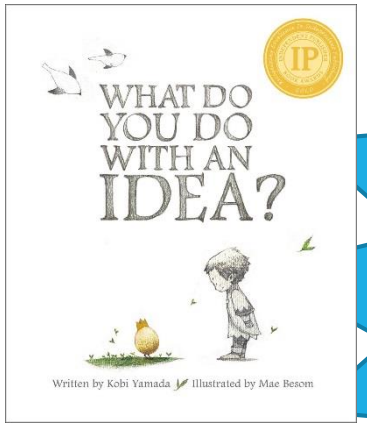
3 Literacy Connections

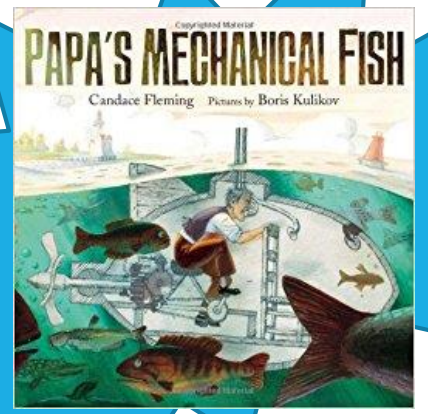
- Content
- Theme
- Dispositions

Content

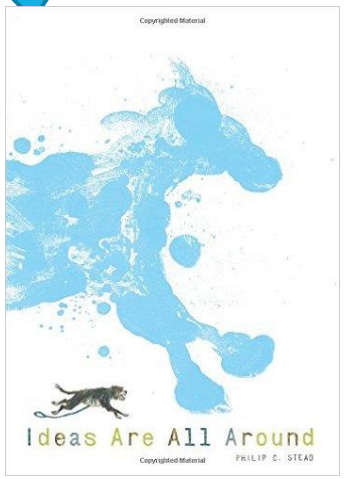


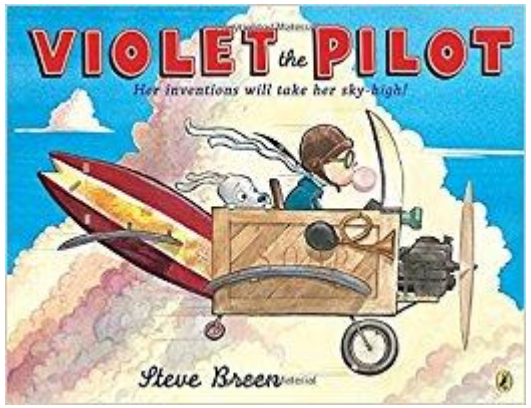


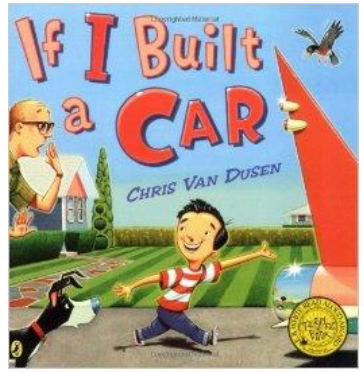




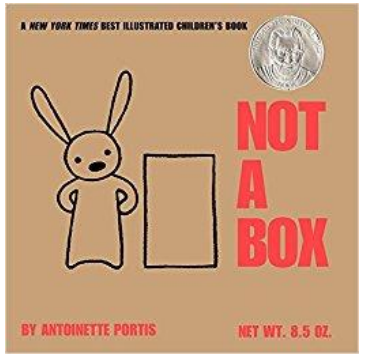
- Iggy Peck Architect by Andrea Beaty
- Ada's Ideas by Fiona Robinson
- What Do You Do With an Idea? By Kobi Yamada
- Papa's Mechanical Fish by Candace Fleming
- Ideas Are All Around by Philip Stead
- If I Built a Car by Chris Van Dusen
- Violet the Pilot by Steve Breen

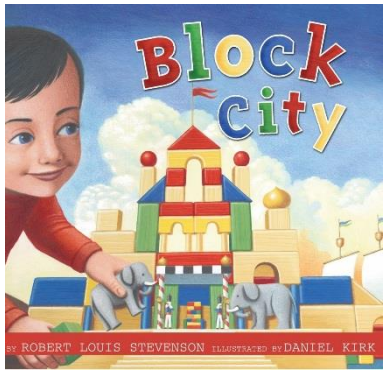


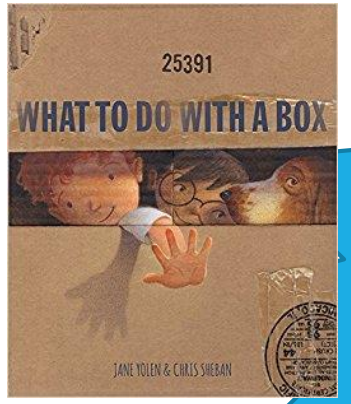


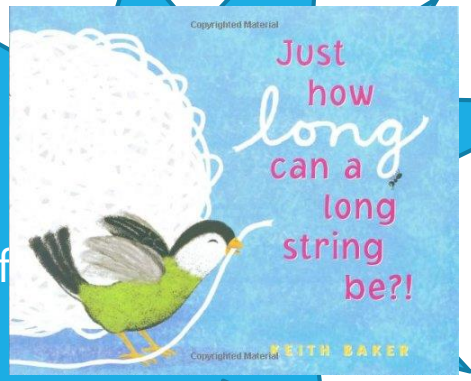


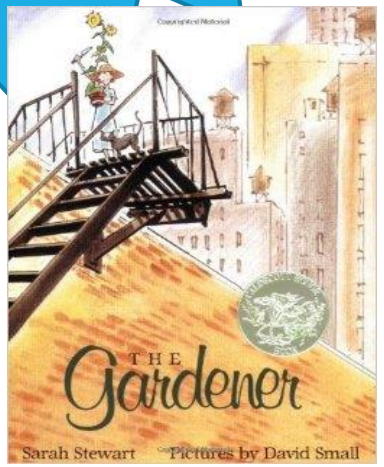
Theme



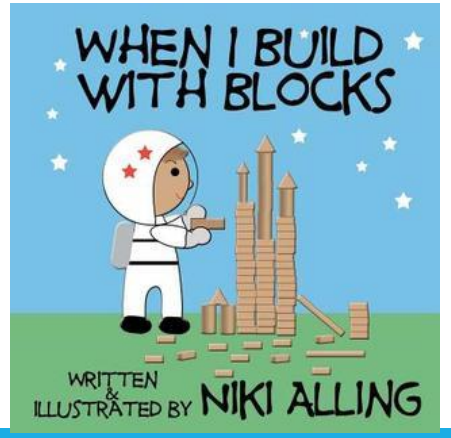


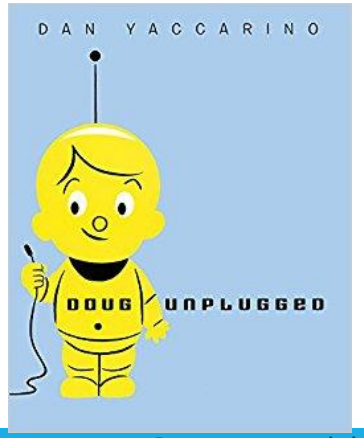




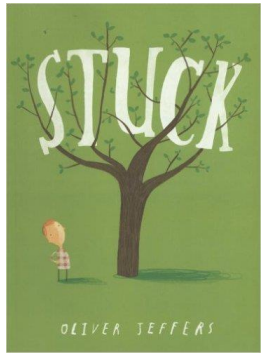


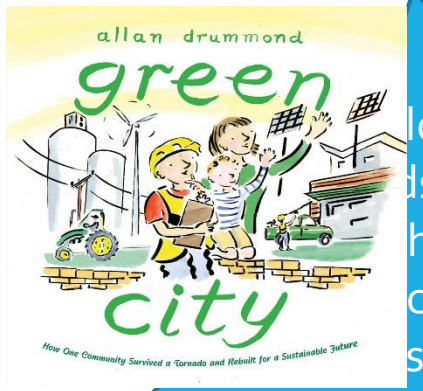
- Not a Box by Antionette Portis
- Block City by Robert Louis Stevenson
- What To Do With a Box? By Jane Yolen and Chris Sheban
- Just How Long Can a Long String Be? By Keith Baker
- The Gardener by Sarah Stewart
- Doug Unplugged by Dan Yaccarino
- When I Build With Blocks by Niki Alling

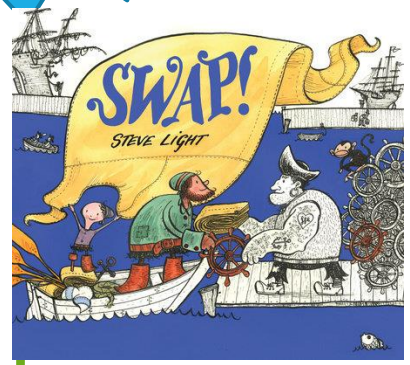


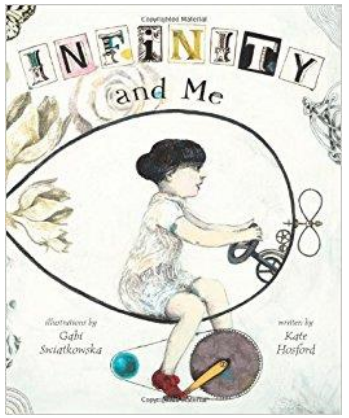


Dispositions









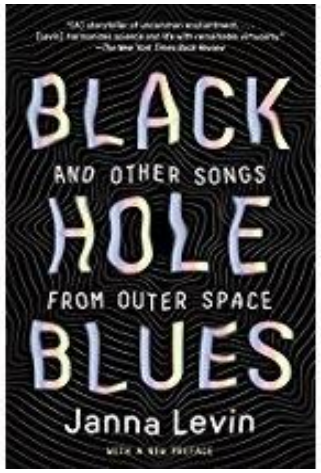
- [The Most Magnificent Thing by Ashley Spires]
- [Stuck by Oliver Jeffers https://www.youtube.com/watch?v=hipx6HJs4XQ]
- [Green City by Allan Drummond]
- [Marvelous Thing That Came From a Spring by Gilbert Ford]
- [Swap! By Steve Light]
- [Infinity and Me by Kate Hosford]

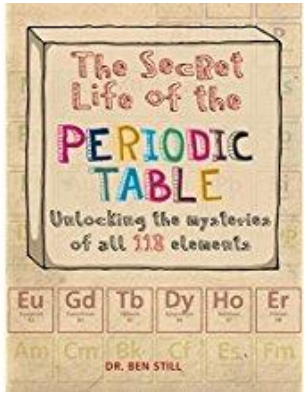
Secondary Literature Selections

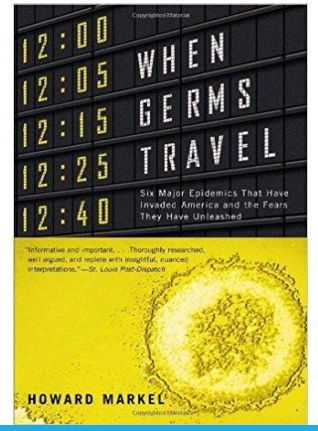
- The Giver
- Ender's Game
- Long Walk to Water
- Lord of the Flies
- Adventures of Tom Sawyer
- To Kill a Mockingbird
- The Martian
- Ready Player One

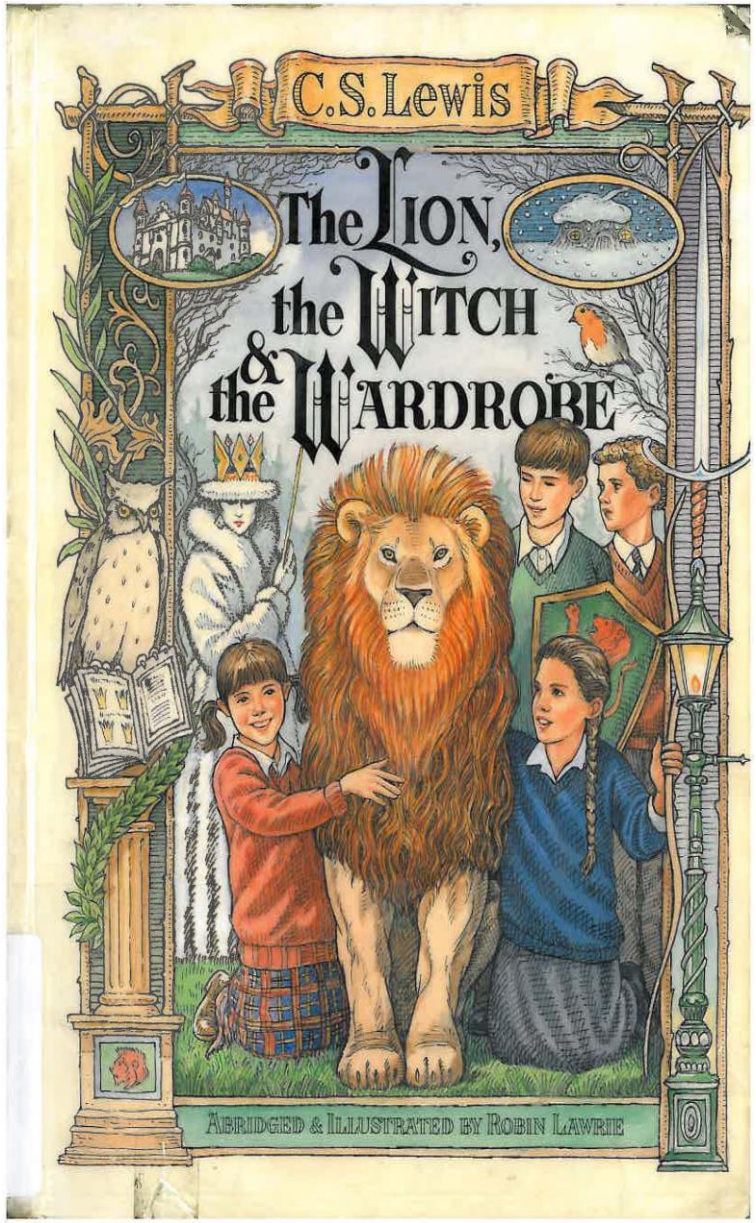
Secondary Content Literature

- The Secret Life of Equations
- Weapons of Math Destruction
- When Germs Travel
- Black Hole Blues and Other Songs From Outer Space
- The Secret Life of the Periodic Table



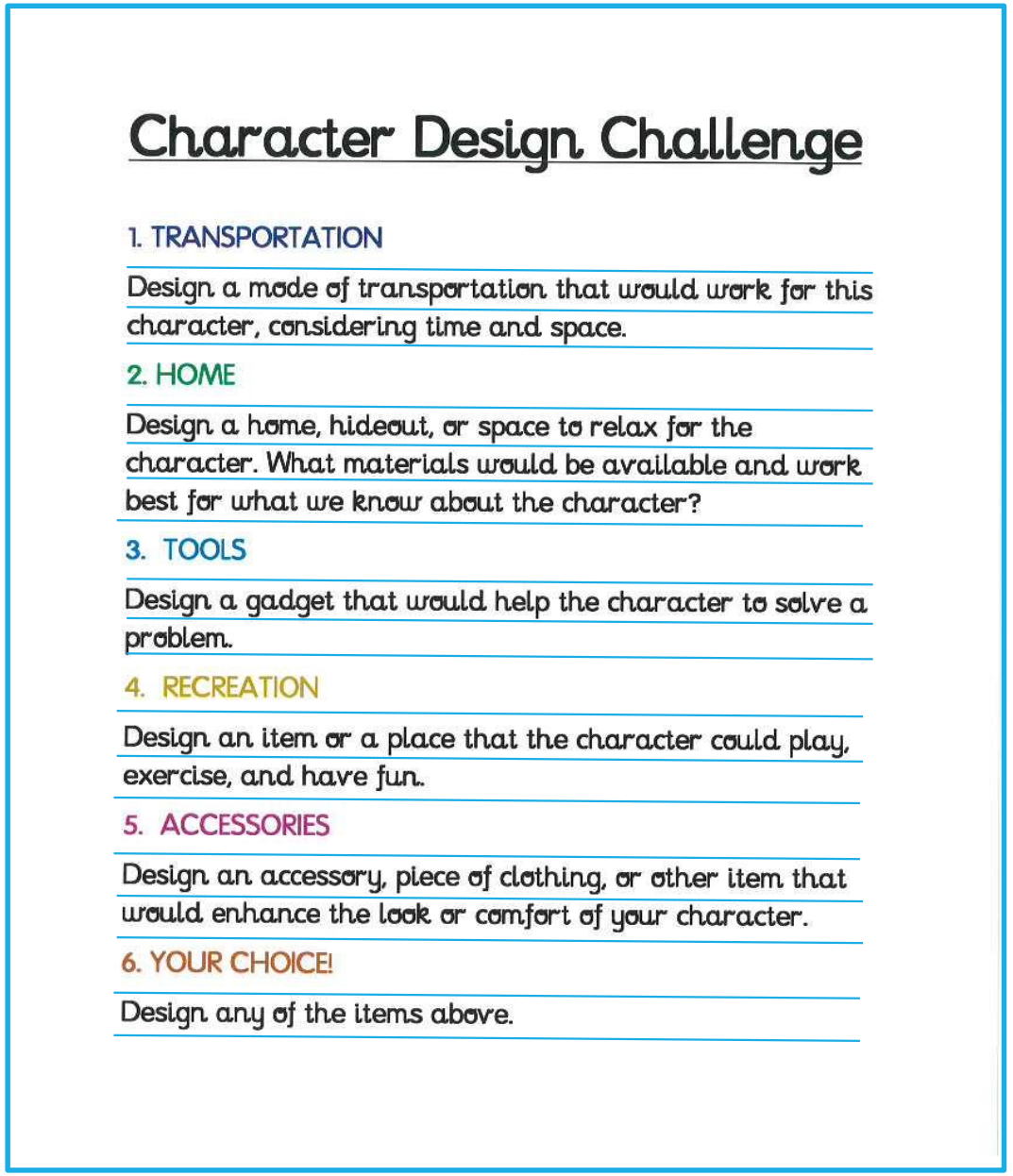





C.S. Lewis
The Lion, the Witch & the Wardrobe
Abridged & Illustrated by Robin Lawrie

Let's Make !

- Use the character cards to think about a popular character from children's literature.
- Discuss what problems this character might need to solve.
- Use the materials provided to design one of the items.



Character Design Challenge

1. TRANSPORTATION

Design a mode of transportation that would work for this character, considering time and space.

2. HOME

Design a home, hideout, or space to relax for the character. What materials would be available and work best for what we know about the character?

3. TOOLS

Design a gadget that would help the character to solve a problem.

4. RECREATION

Design an item or a place that the character could play, exercise, and have fun.

5. ACCESSORIES

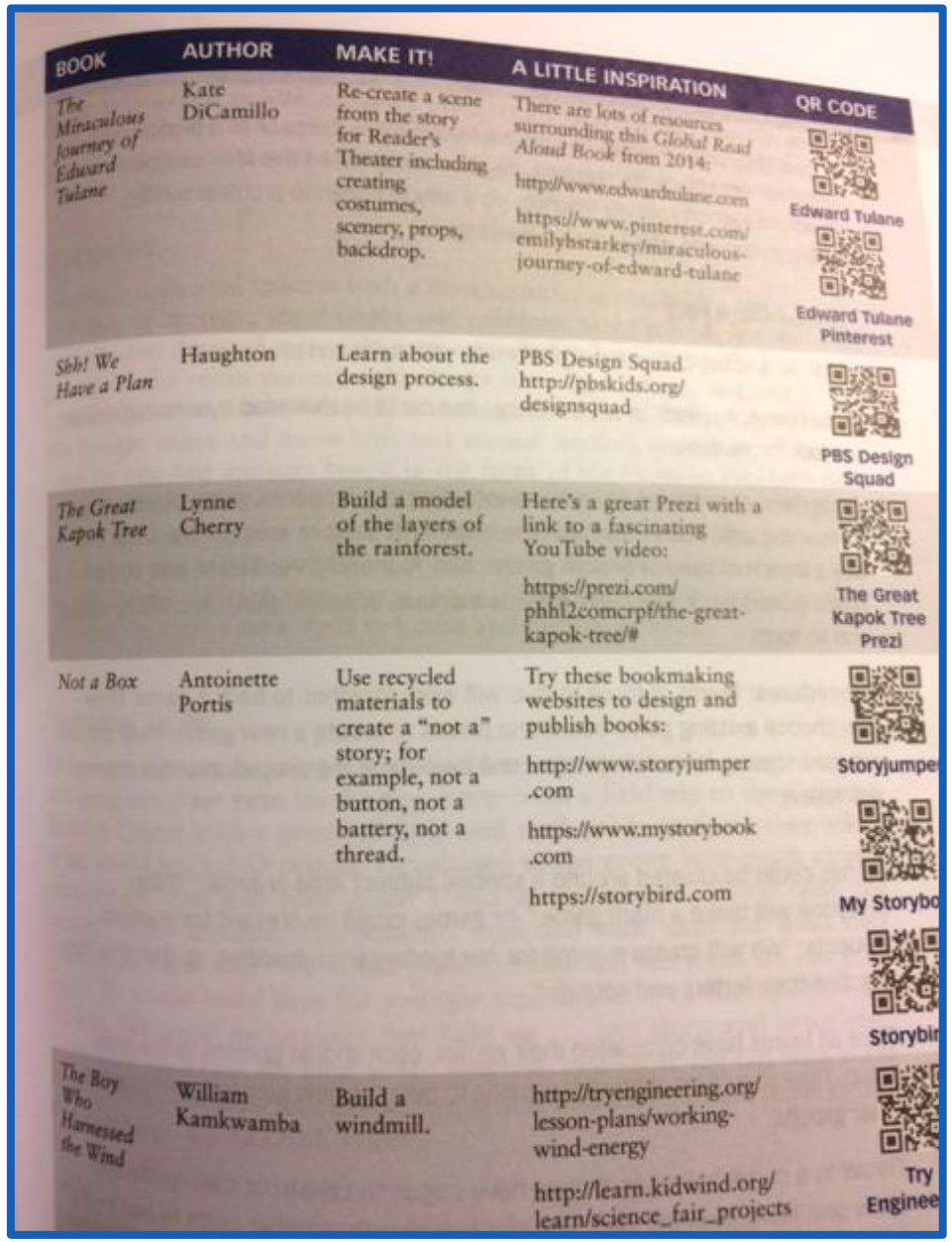
Design an accessory, piece of clothing, or other item that would enhance the look or comfort of your character.

6. YOUR CHOICE!

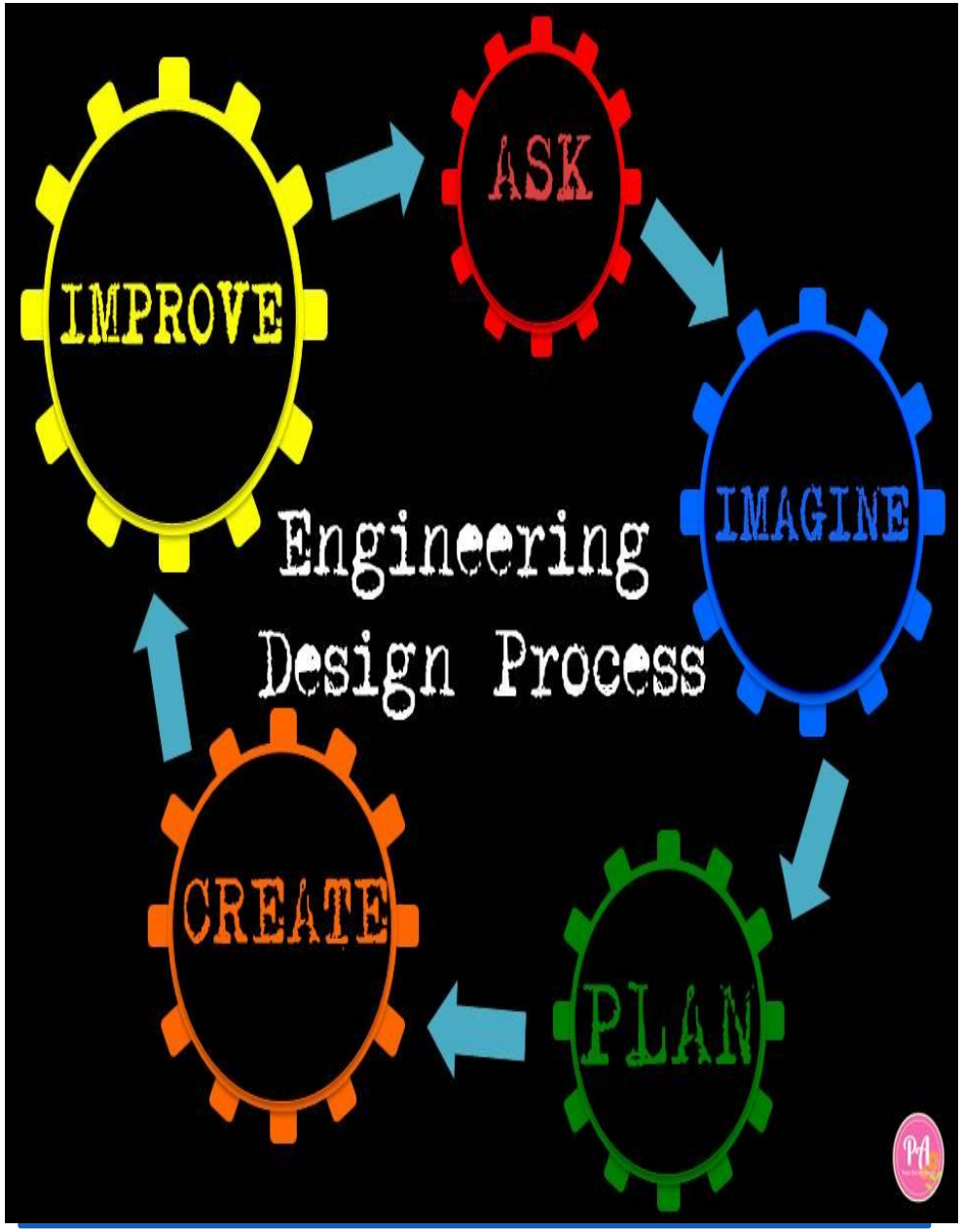
Design any of the items above.

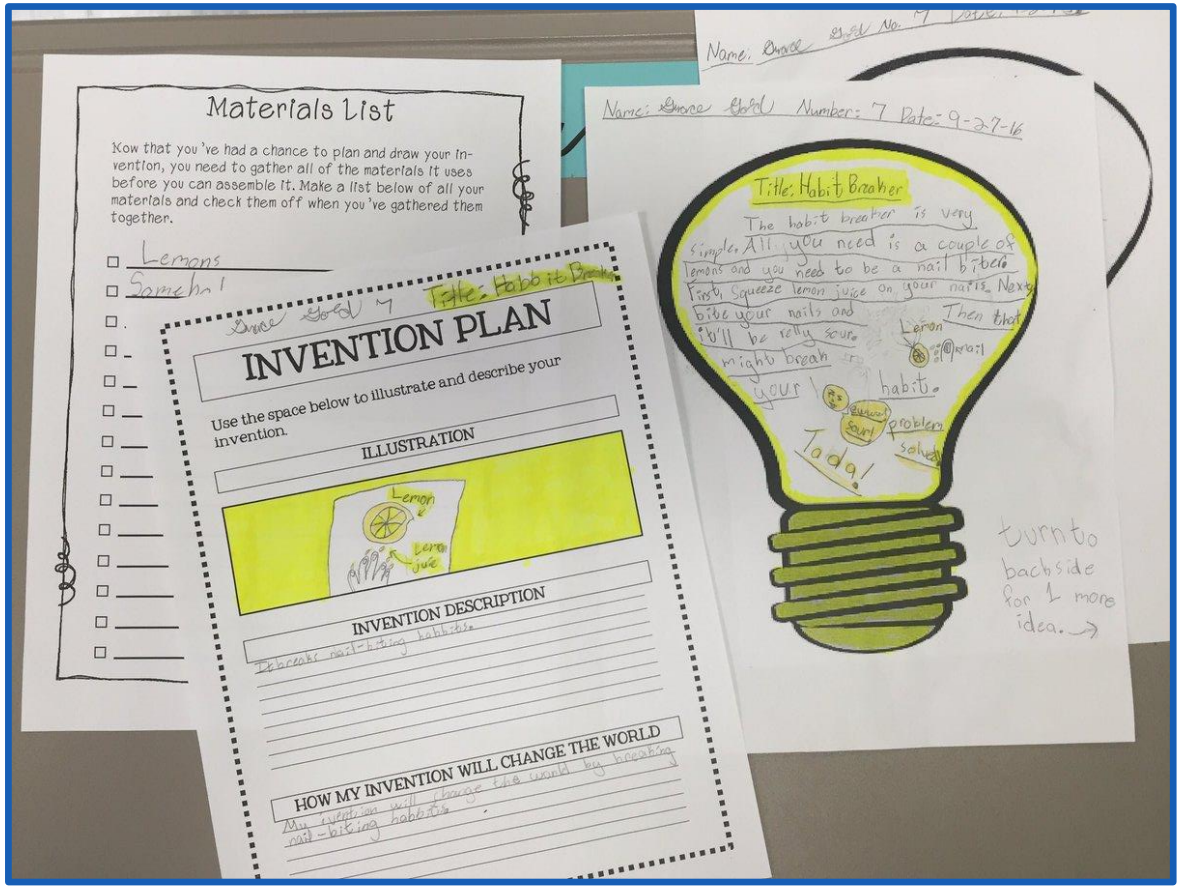
Simple Ways to Add Making to ELA

- Create a new ending to a story using video animation
- Build a model of the setting for the story
- Bring the character to life through design/draw/build
- Construct a 3D scene of a story
- Design a solution for a problem a character is having

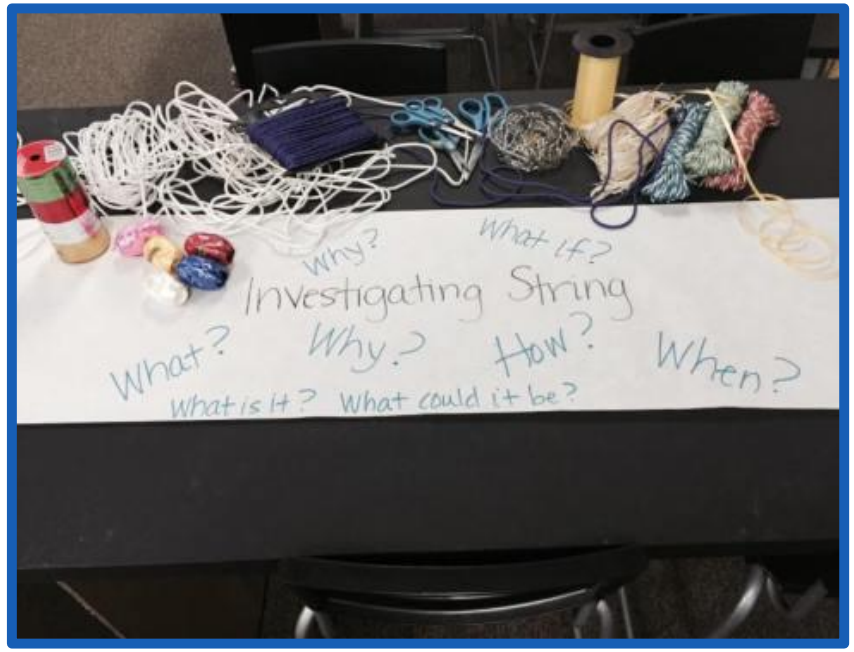


BOOK	AUTHOR	MAKE IT!	A LITTLE INSPIRATION	QR CODE
The Miraculous Journey of Edward Tulane	Kate DiCamillo	Re-create a scene from the story for Reader's Theater including creating costumes, scenery, props, backdrop.	There are lots of resources surrounding this *Global Read Aloud Book* from 2014: http://www.edwardtulane.com https://www.pinterest.com/emilyhstarkey/miraculous-journey-of-edward-tulane	Edward Tulane Edward Tulane Pinterest
Shh! We Have a Plan	Haughton	Learn about the design process.	PBS Design Squad http://pbskids.org/designsquad	PBS Design Squad
The Great Kapok Tree	Lynne Cherry	Build a model of the layers of the rainforest.	Here's a great Prezi with a link to a fascinating YouTube video: https://prezi.com/phhl2comcrpf/the-great-kapok-tree/#	The Great Kapok Tree Prezi
Not a Box	Antoinette Portis	Use recycled materials to create a "not a" story; for example, not a button, not a battery, not a thread.	Try these bookmaking websites to design and publish books: http://www.storyjumper.com https://www.mystorybook.com https://storybird.com	Storyjumpe My Storybo Storybir
The Boy Who Harnessed the Wind	William Kamkwamba	Build a windmill.	http://tryengineering.org/lesson-plans/working-wind-energy http://learn.kidwind.org/learn/science_fair_projects	Try Enginee

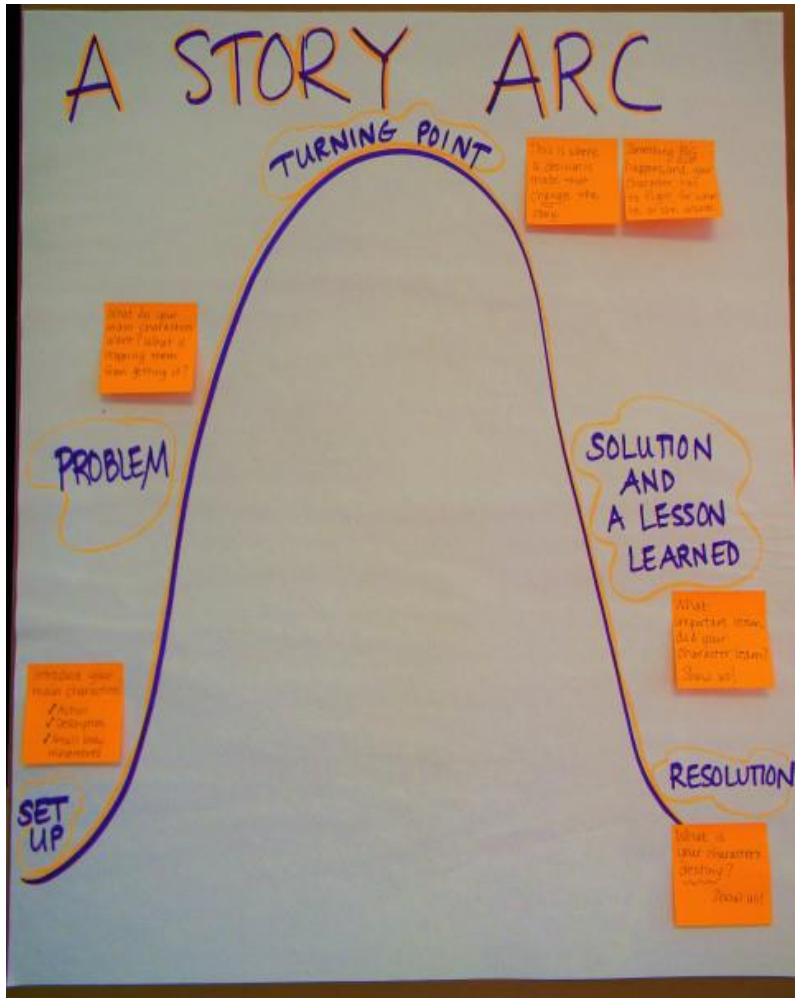

ASK
IMAGINE
PLAN
CREATE
IMPROVE
Engineering
Design Process

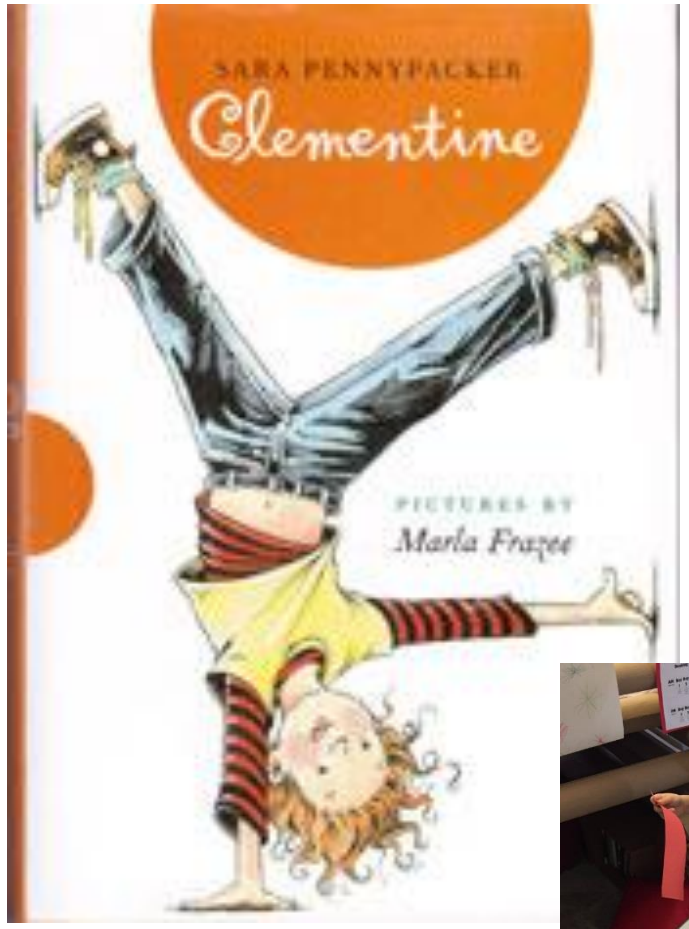

Materials List
Now that you've had a chance to plan and draw your invention, you need to gather all of the materials it uses before you can assemble it. Make a list below of all your materials and check them off when you've gathered them together.
Lemons
Something
INVENTION PLAN
Use the space below to illustrate and describe your invention.
ILLUSTRATION
INVENTION DESCRIPTION
HOW MY INVENTION WILL CHANGE THE WORLD
Title: Habit Breaker
Tada!
turn to backside for 1 more idea.

Tinker Trays



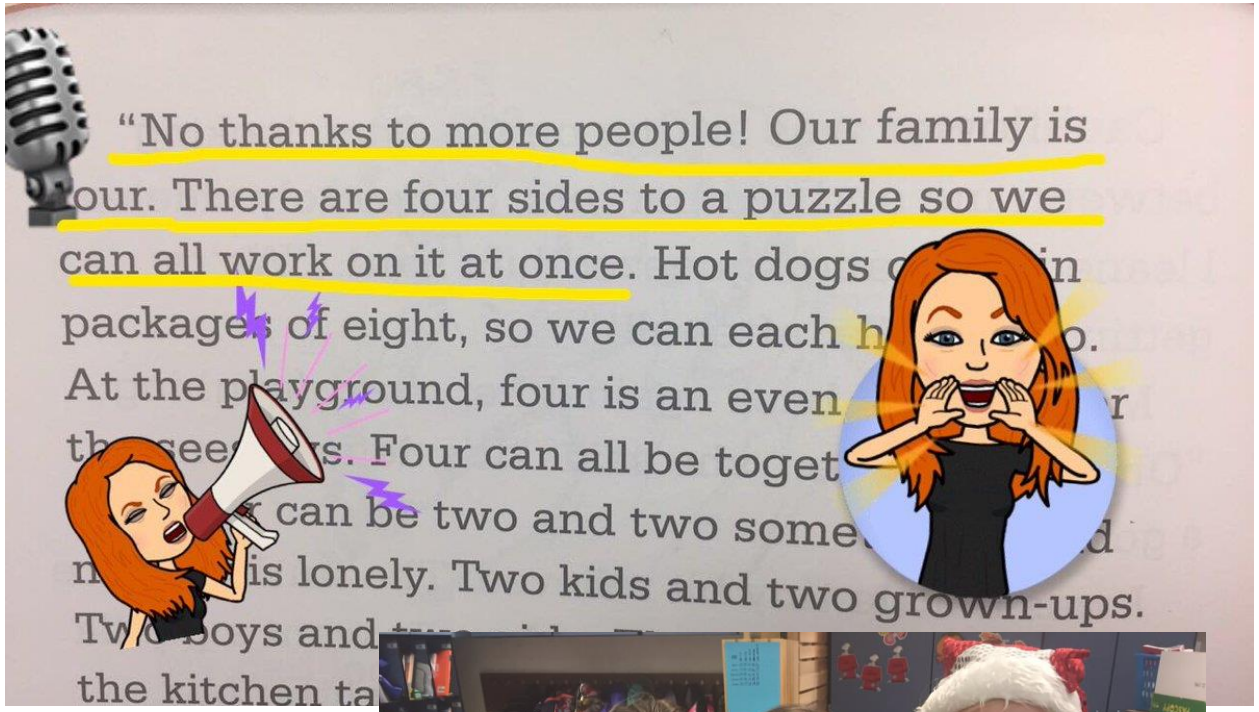
- What if we played with the string of our story arc the way we play with real string?
- What if we tied it together?
- Wove it?
- Created purposeful knots?
- Began with the resolution?
- Made a circle of our story




SARA PENNYPACKER
Clementine
PICTURES BY
Marla Frazee

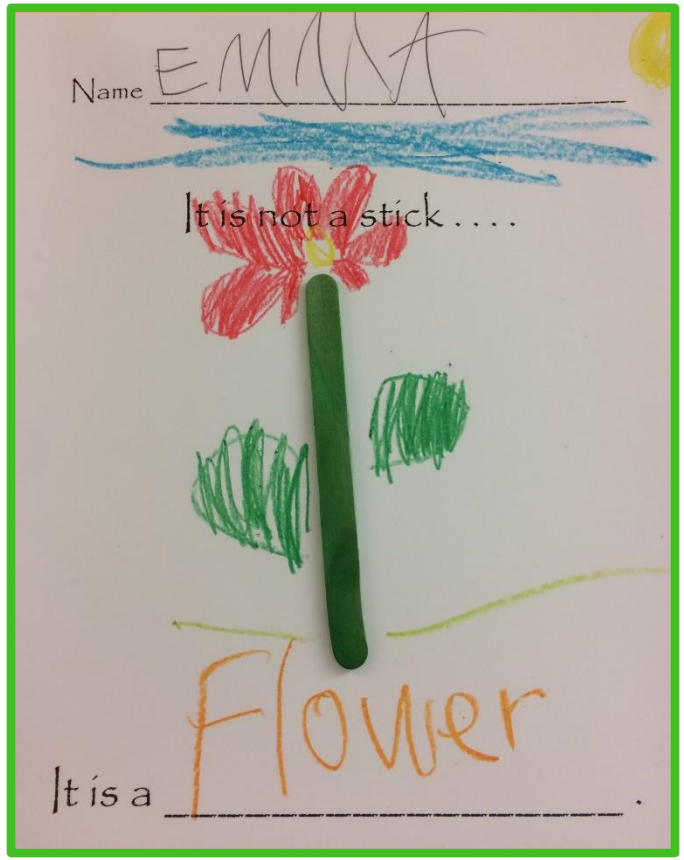
#BookSnaps

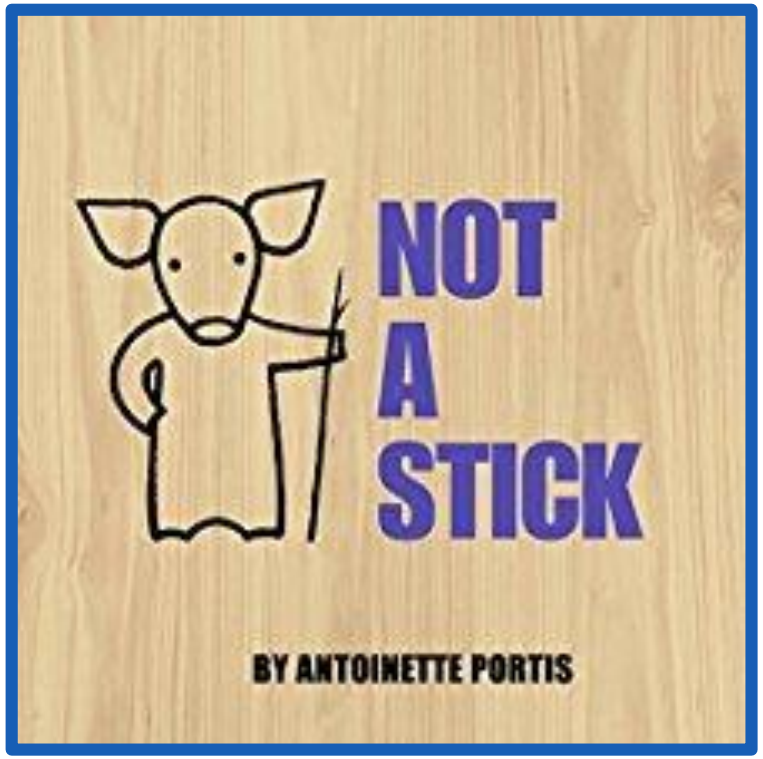
26

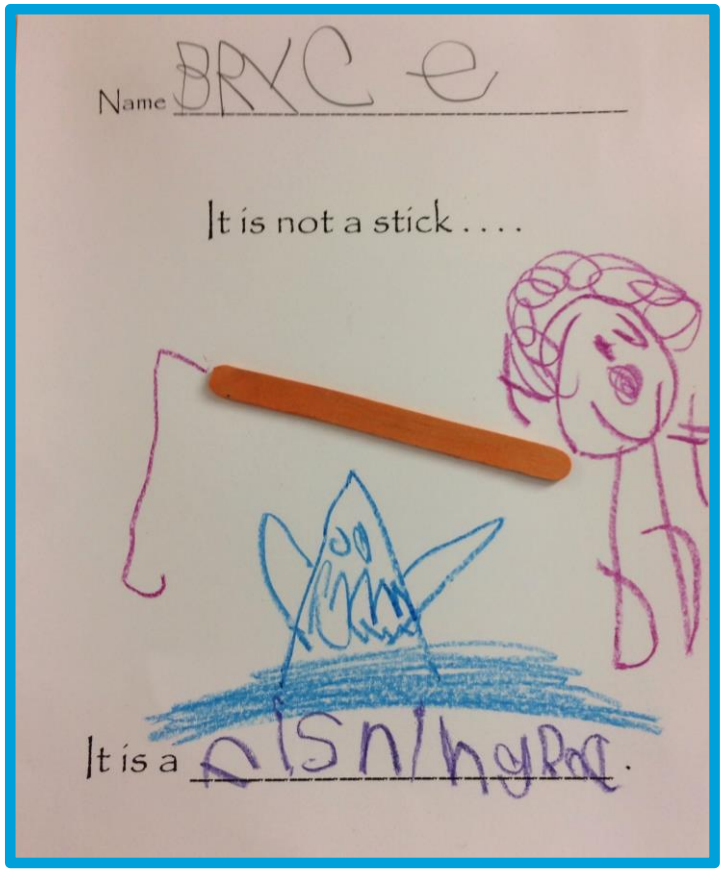

"No thanks to more people! Our family is
our. There are four sides to a puzzle so we
can all work on it at once. Hot dogs
packages of eight, so we can each
At the playground, four is an even
can be two and two some
is lonely. Two kids and two grown-ups.
the kitchen

Robotics

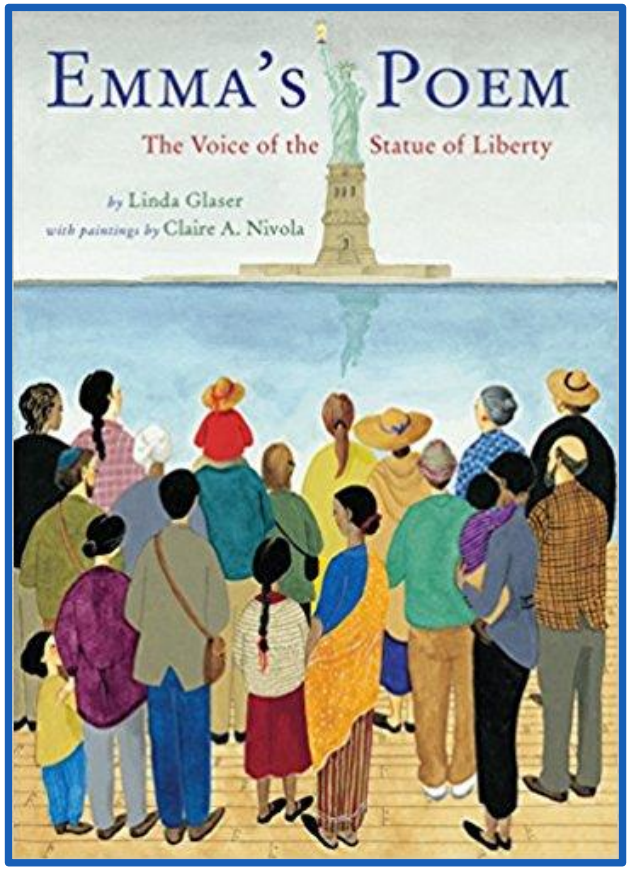
https://twitter.com/twitter/statuses/922929528640561152

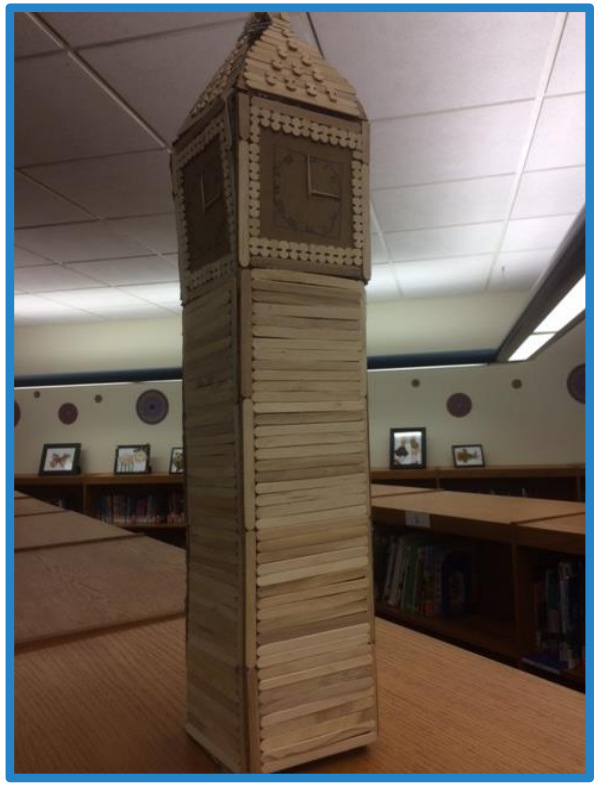

Name EMMA
It is not a stick . . . .
Flower
It is a _____.

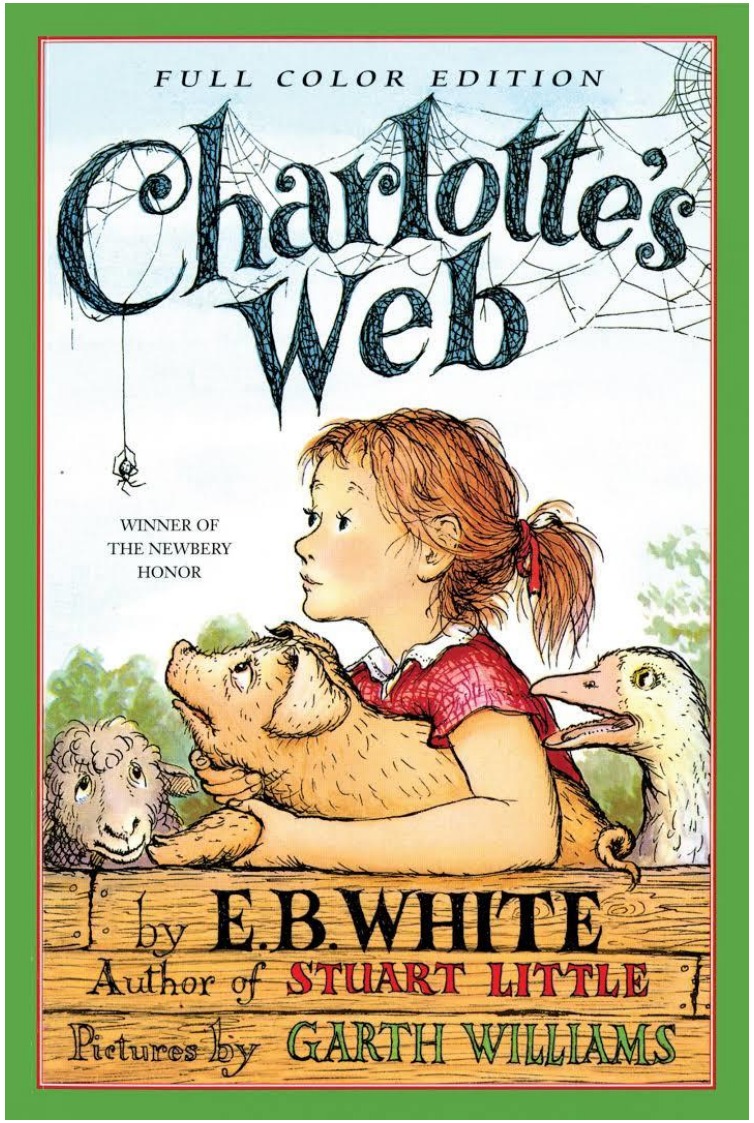

NOT
A
STICK
BY ANTOINETTE PORTIS

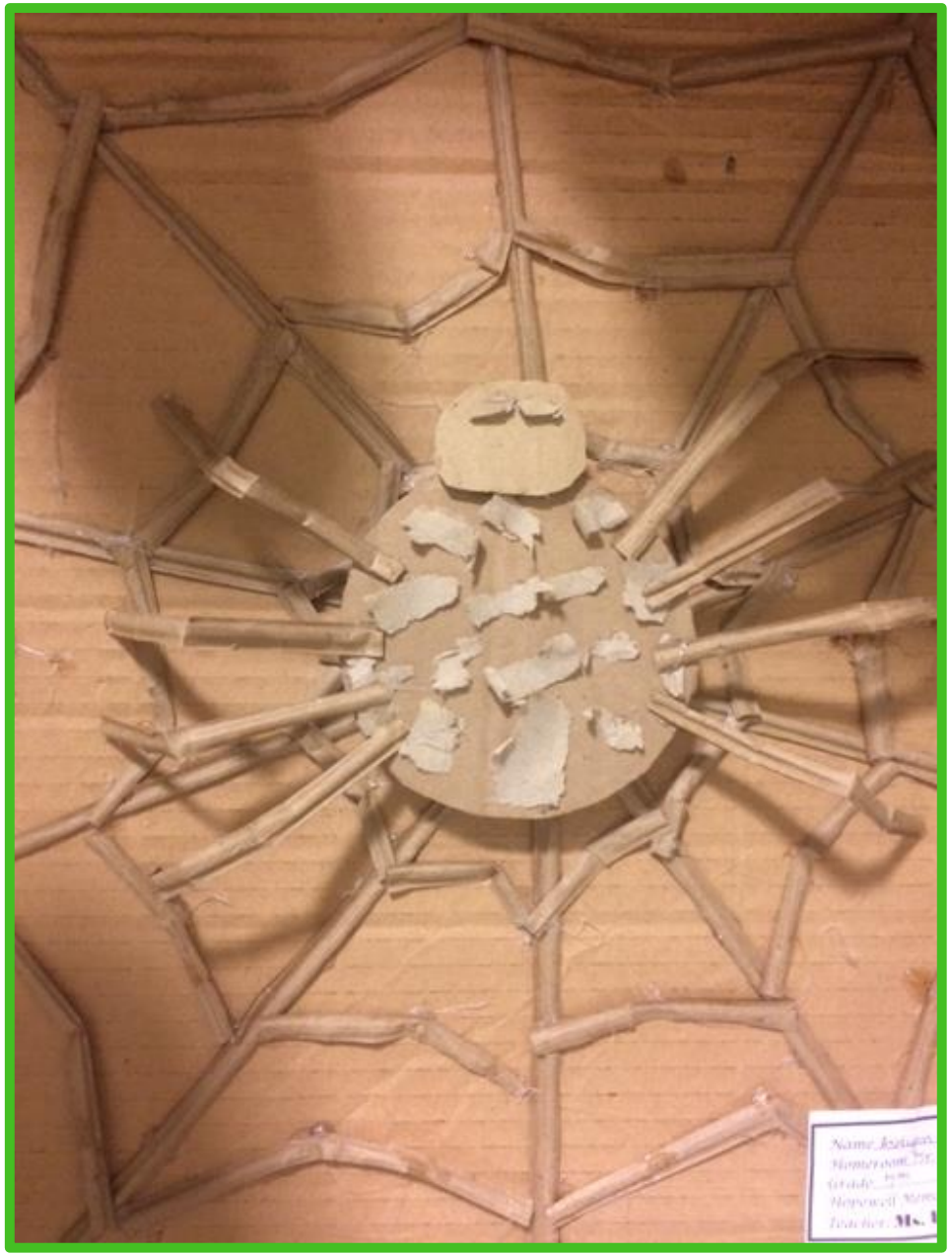

Name BRYCE
It is not a stick . . . .
It is a elephant.

IGGY
PECK,
ARCHITECT
by Andrea Beaty illustrated by David Roberts


EMMA'S POEM
The Voice of the Statue of Liberty
by Linda Glaser
with paintings by Claire A. Nivola




FULL COLOR EDITION
Charlotte's Web
WINNER OF THE NEWBERY HONOR
by E.B. WHITE
Author of STUART LITTLE
Pictures by GARTH WILLIAMS



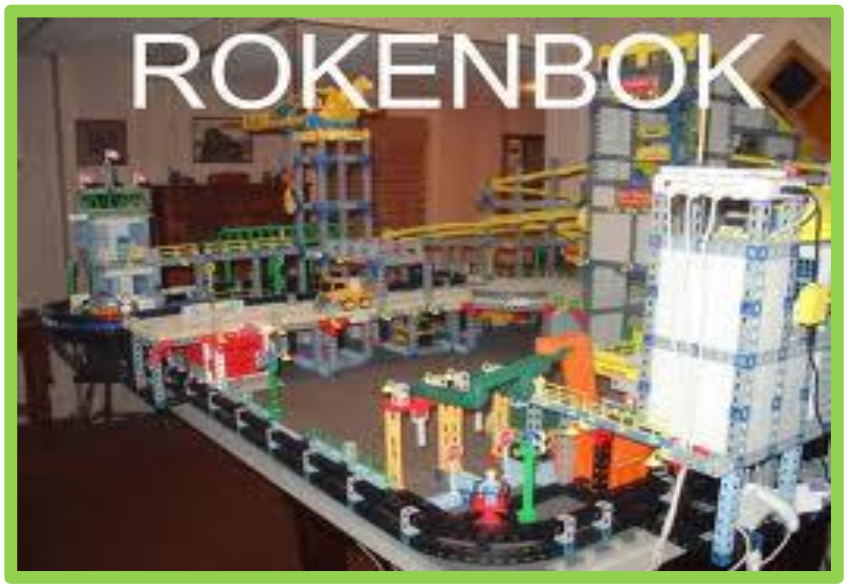
Video Production and Animation

- Stikbot
- Green screens

Writing

A new home

Prototyping Problem Solver
Design Dots
Tableaux Turns
This Is My Space


ROKENBOK

Reflect

- WOW, Wonder, Want
- Share your feedback in a tweet.

Contact me at maslykj@hopewellarea.org

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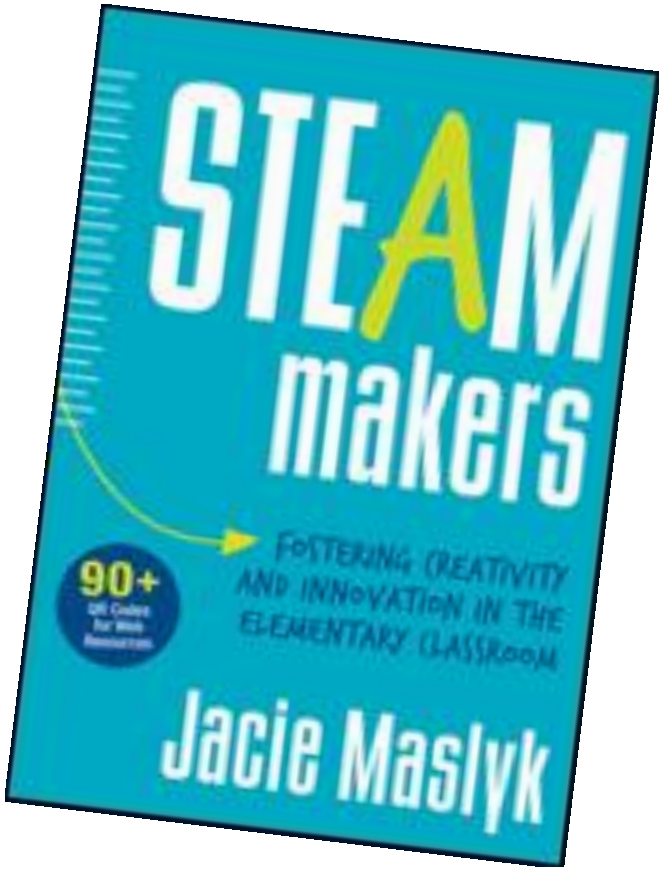
Who will win a copy?