STEAMing up the Library

Identifying and implementing STEAM elements in children's programming

Who we are:

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Agenda for today:

1. What is STEAM?
2. Identifying STEAM elements
3. Examples
4. STEAMify a storytime

What is STEAM?

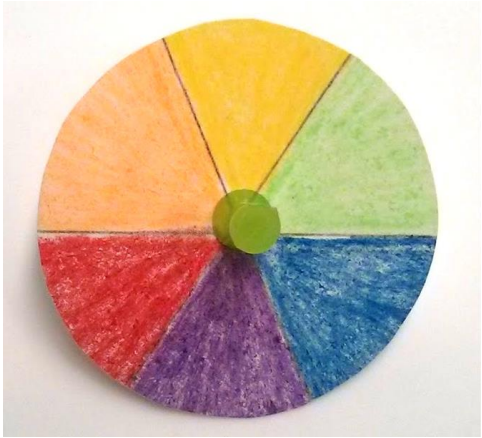
Science: study of how the physical world works
Technology: “anything that was created by humans that makes life easier or solves a problem.” Tony Montez
Engineering: the design, building, and use of engines, machines, and structures
Arts: using creativity and innovation to design things
Mathematics: science of number, quantity, and space

Why is STEAM education important?

- Less than ⅓ of U.S. eighth graders show proficiency in math and science
- Only 16 percent of undergraduates choose STEM majors
- By 2018, 1 in 20 jobs will be STEM related
- U.S. ranked 48th in quality of science and math education

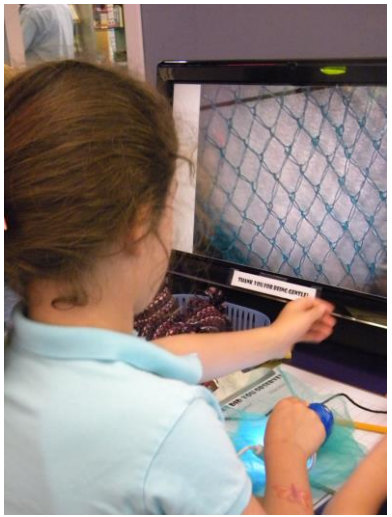
What to look for in your current programming: Science

- Can we explore the world somehow?
- Can we do an experiment here?



What to look for in your current programming: Technology

- Is there an app we can use?
- Is there a way to incorporate some technology?
- Is there a way the CHILD can use technology?



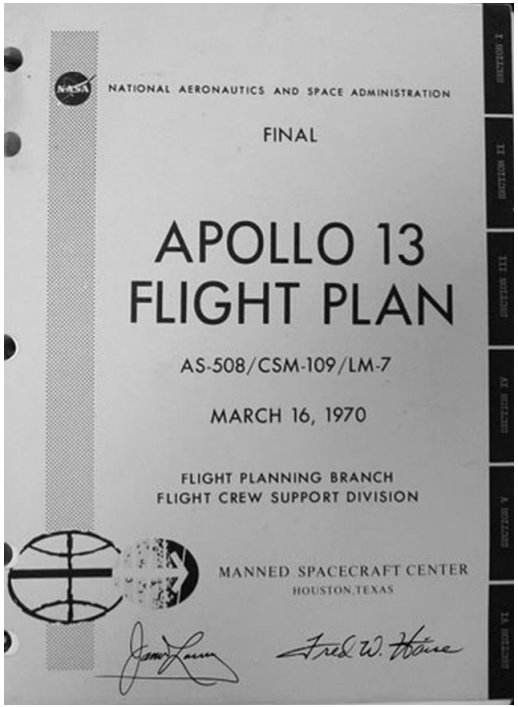
What to look for in your current programming: Engineering

- Can we build something?
- Can we find new ways to use something already built?

What to look for in your current programming: Arts

- Instead of following a pattern, can we create something out of our own heads?

Why Art belongs in STEM:

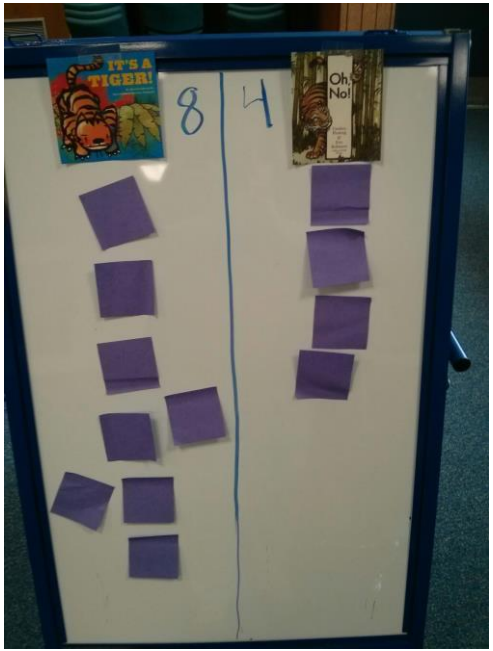


- Cover to the Apollo 13 flight plan (to cover and protect the hose entry)
- 2 lithium-hydroxide canisters
- Roll of gray duct tape
- 2 LCG bags
- 2 hoses from the red suits
- 2 socks
- 1 bungee cord (to secure the modified filtration device to the wall of the LM)

The Crew Systems Division's inventiveness saved the astronauts' lives.

What to look for in your current programming: Math

- Can we count, look for patterns, talk about shapes?
- Is there a way to bring numbers in?
- Can you make a graph?



Storytimes

Photo from http://cdn.makezine.com/

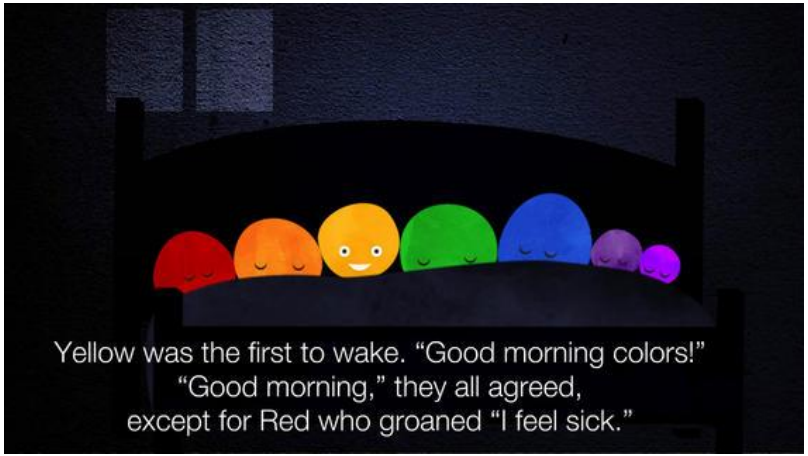
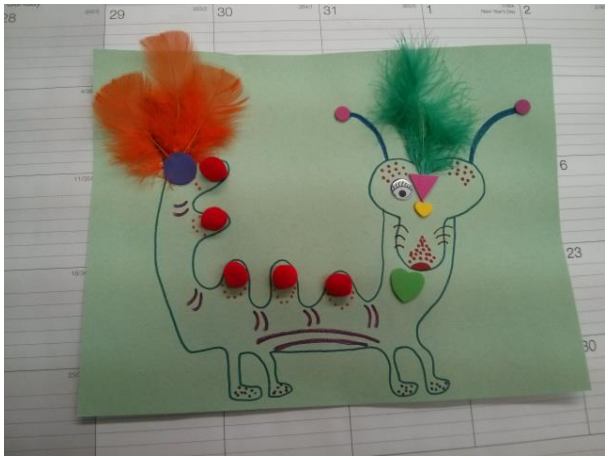


Photo from http://www.independent.co.uk/

Storytimes

Science and Stories

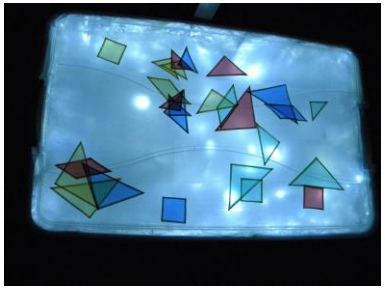
Crafts



Hard Hat Saturday

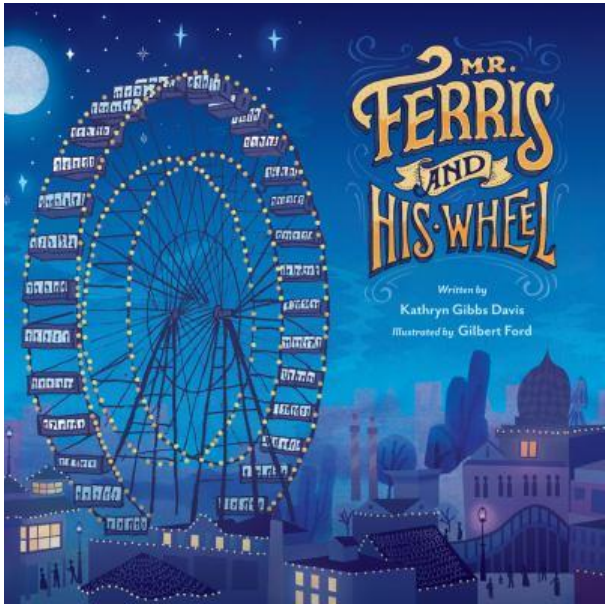
Marble Run

Super Science Night



Attack on a Fort

Stories and Such



Goosebumps

Superhero Science

Math Night

Osmo

- Uses input from physical world to influence digital playground
- Includes word puzzles, art, physics, and tangrams games
- Added a math-related game in September

For Grownups Blog

Toca Robot Lab App Review

Posted on Thursday, 31 July 2014 Print Bookmark

Apps for Early Literacy

Posted on Thursday, 22 May 2014 Print Bookmark

These are some great apps to help preschool children (a

Wee Sing and Learn ABC by iStoryTime, Inc
$2.99
Fun exploration of the ABC's. Includes musica instrument sound, animal sounds, and letter recognition. A great way to enjoy the alphabet with your child

Science Shorts

X

Your Turn!

Let’s STEAMify a Storytime

S: Explore the world; do an experiment?
T: Use an app or other technology?
E: Build or find new ways to use something?
A: Create something without a pattern?
M: Incorporate counting, geometry, graphs?

Questions?

Resources:

STEAM Resources

- http://www.mastersindatascience.org/blog/the-ultimate-stem-guide-for-kids-239-cool-sites-about-science-technology-engineering-and-math/
- www.HowToSmile.org
- www.pinterest.com
- http://librarymakers.blogspot.com/search/label/WonderWorks
- http://www.slj.com/2015/07/feature-articles/surprise-its-stem-for-toddlers/
- http://showmelibrarian.blogspot.com/
- https://cheshirelibraryscience.wordpress.com/
- http://robottestkitchen.com/
- http://bedtimemath.org/
- http://www.science-sparks.com/

Webinars

- https://infopeople.org/civicrm/event/info?id=400
- http://floridalibrarywebinars.org/stem-steam-everything-in-betweenondemand/
- https://infopeople.org/civicrm/event/info?reset=1&id=455

Resources continued:

Why STEAM is important:

- http://blogs.scientificamerican.com/guest-blog/from-stem-to-steam-science-and-the-arts-go-hand-in-hand/
- https://www.nms.org/Portals/0/Docs/Why%20Stem%20Education%20Matters.pdf
- https://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-stem-ed-final.pdf
- http://www.nsf.gov/nsb/publications/2010/nsb1033.pdf

Links from the presentation

- Magic Bag Directions: https://drive.google.com/open?id=0B7yCMlMHjnuLUGN4QU0yN01saWM
- Science Shorts Videos Link: http://www.henricolibrary.org/component/finder/search?q=science+shorts&Itemid=318
- Henrico County App Reviews: http://www.henricolibrary.org/component/finder/search?q=app+review&Search=
- Appy Parents Brochure: https://drive.google.com/open?id=0B4l70hW0xZEVUXUteFlQR0tXUXc