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[heath-school]

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Draft

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ECS Newsletter

5/7/18

ECS Mission: To Collaborate with PSB educators to create rigorous, relevant, engaging learning for all students

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Goals of the Public Schools of Brookline

Goal 1: Every Student Achieving

Goal 2: Every Student Invested in Learning

Goal 3: Every Student Prepared for Change and Challenge

Goal 4: Every Educator Growing Professionally

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Psbma

Quote of the Week

[Where you can get free food for teachers in celebration of National Teacher's Day](#)

Current Goings On

Paper Engineering - In Progress

Grade 4 students built paper cam machines, and are now designing and engineering something "cool or useful" to be powered by the cam. Students are engaged, and are making extremely creative projects. They are not deterred when they hit a

snag in their process, because they are so excited to get their idea to work, they persist through problems.

Additionally students are documenting their progress by writing reflections and photographing their work, and saving it in an ebook via the Book Creator app.

"I like it because it's very engaging, and you get to be creative, and you learn to, like, trouble-shoot, and do, like solve problems and stuff like that"

- Grade 4 student re: the paper engineering project
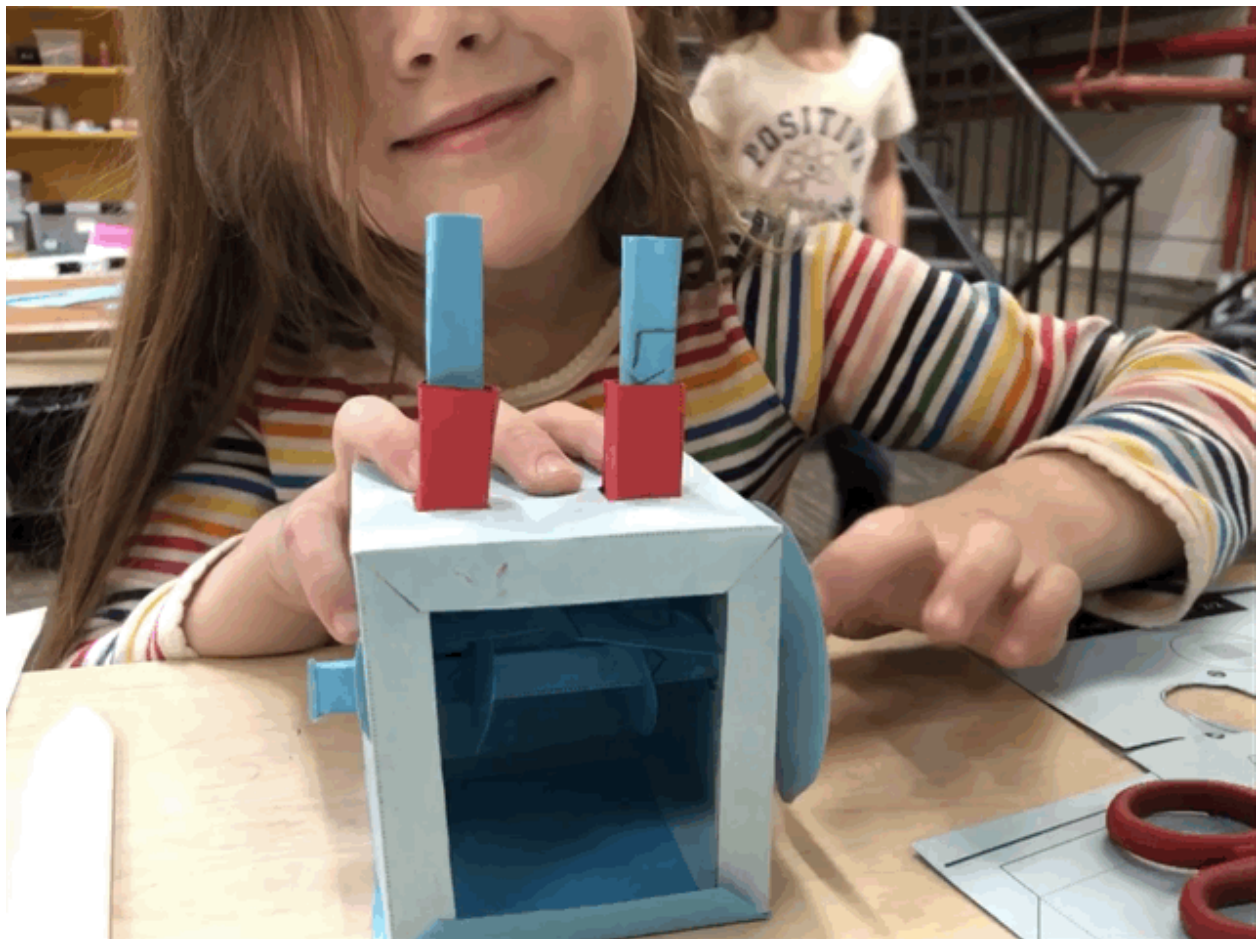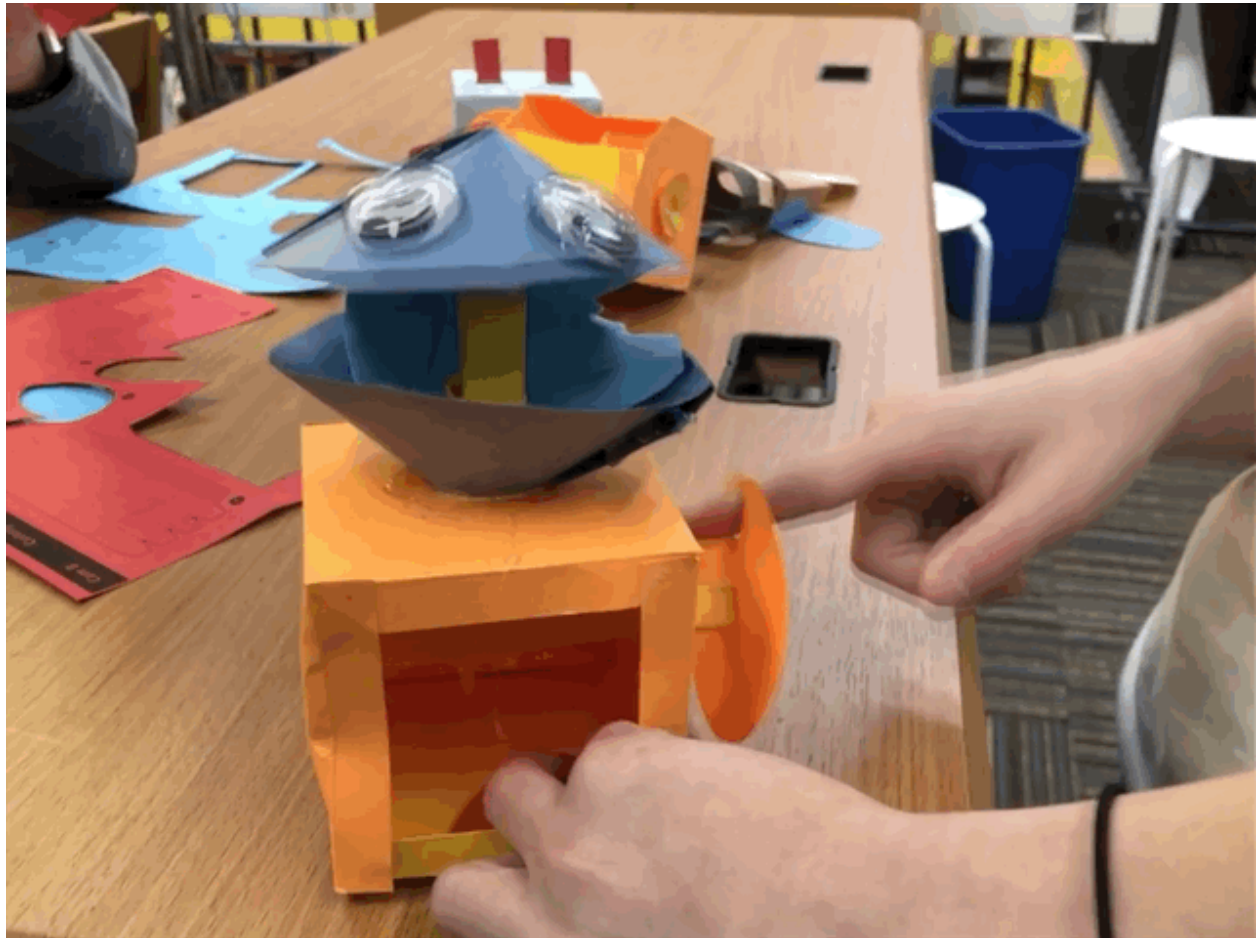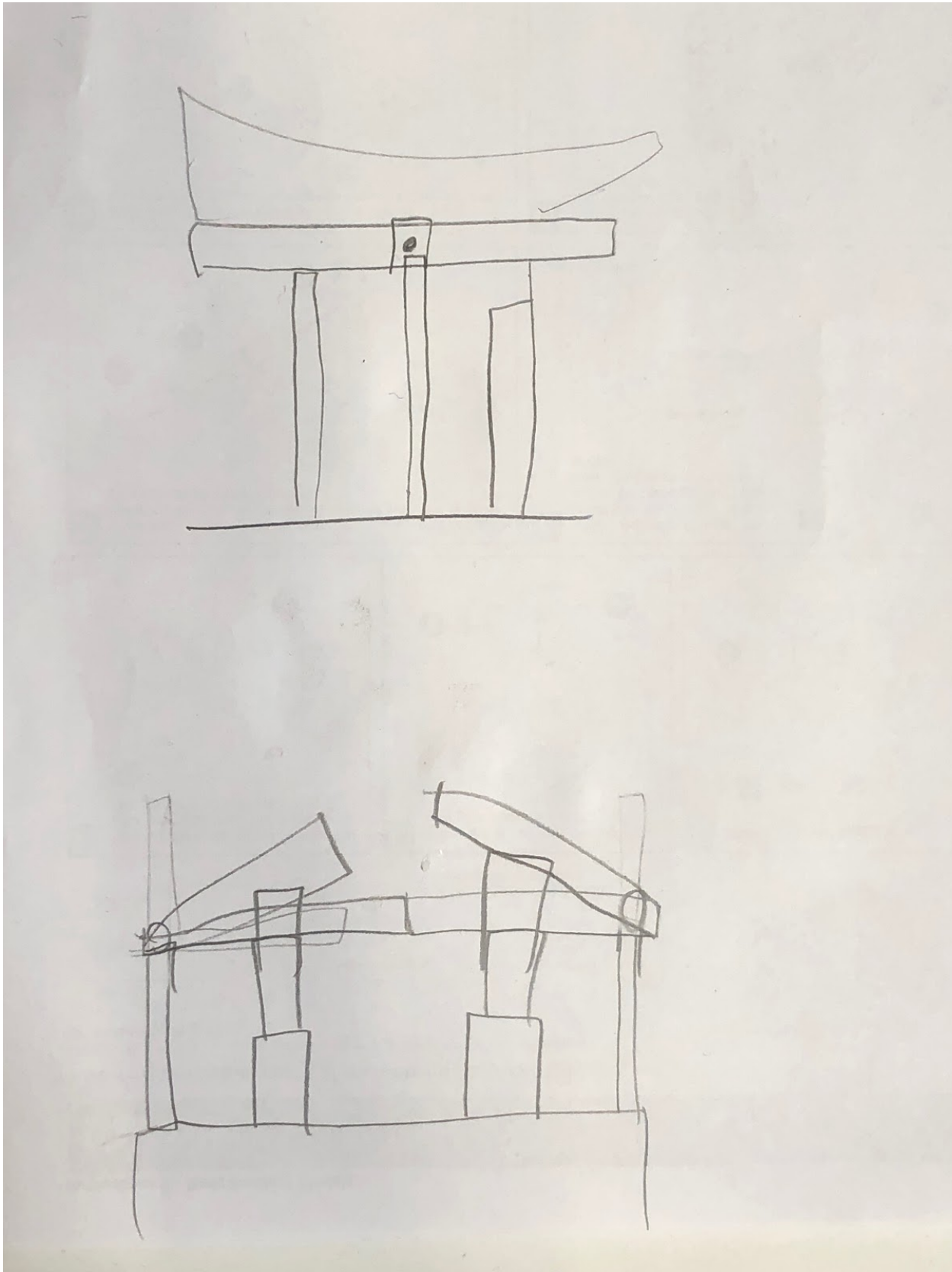
Cardboard Arcade (Thanks Leslie F.!)
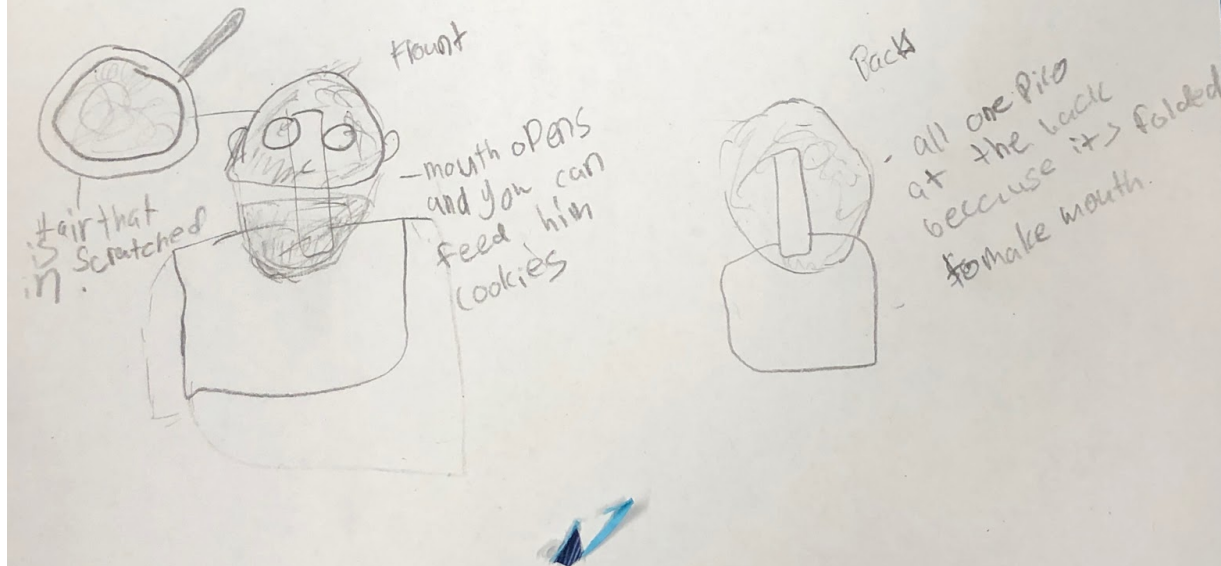
Grade 5 students have created cardboard arcade games and will run an arcade for their grade 2 buddies. Students practice collaboration, engineering, design, persistence, problem solving and creative thinking.
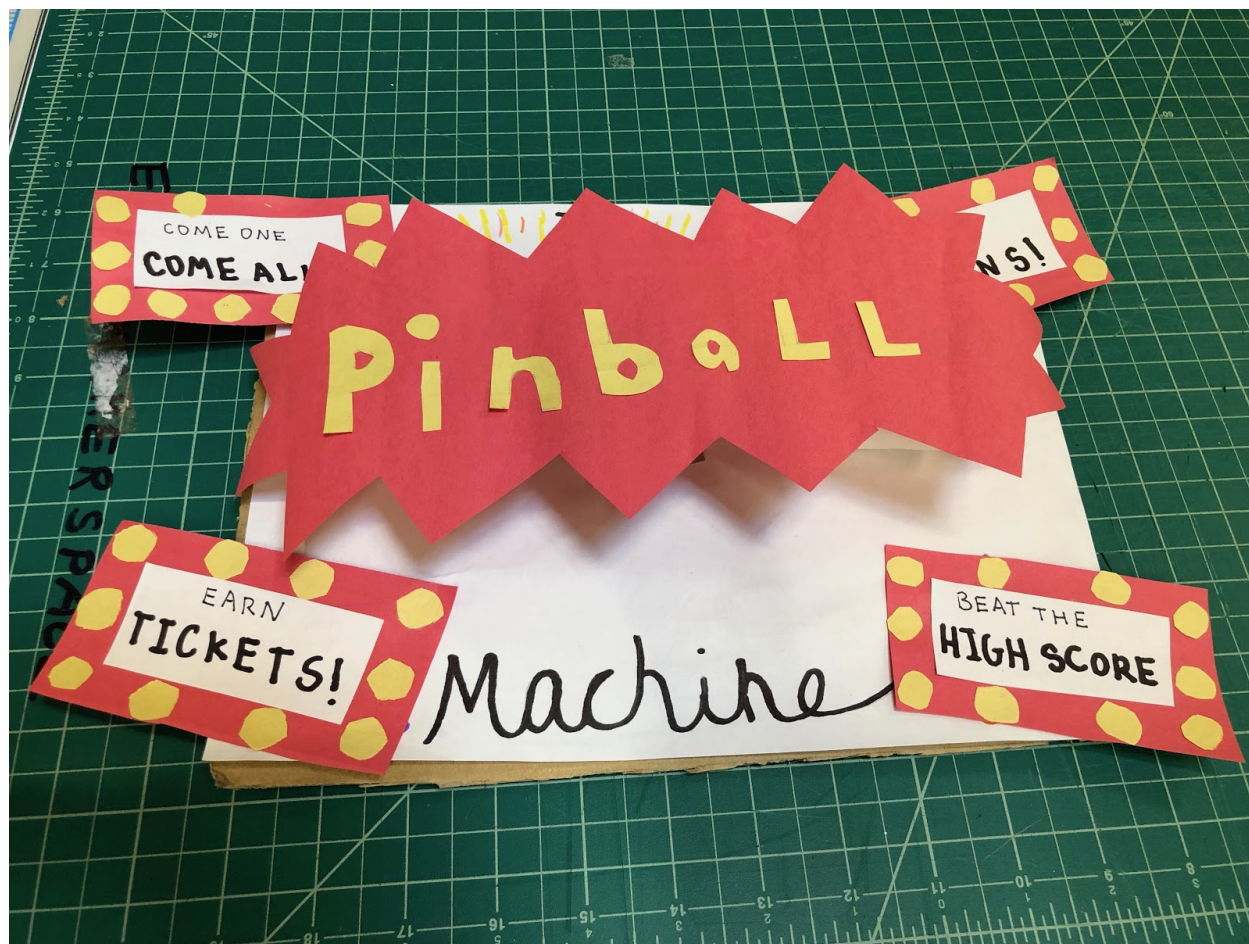
"This has shown me how to be a partner, how to structure and plan, and figuring out what works and what doesn't"
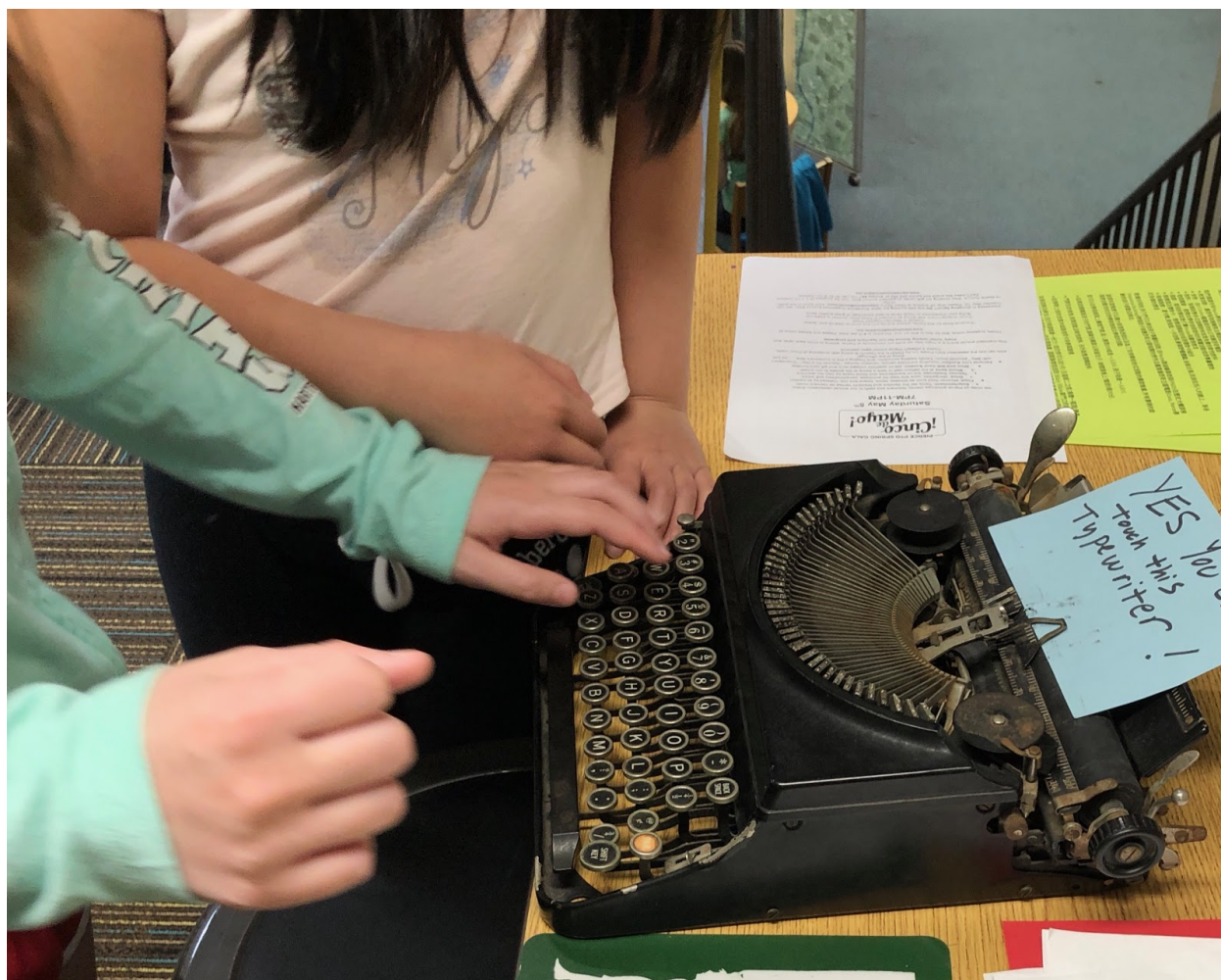
- Gr 5 student

Old Typewriter to Explore

I've donated an old typewriter to the makerspaces. Students love exploring it. They learn about the mechanics of linkages, and levers while experiencing "old school" technology

<u>Articles and Resources</u>

Putting Students in Charge of their Learning

<u>From the article:</u> Giving students choices and the means to assess their progress fosters metacognition and independence. (I would also add that this fosters deep engagement! tg)

Promoting Productive Struggle in Math

From the Article: After I watched a TED talk about the power of visual learning, I had an idea to challenge my students with activities that would promote productive struggle. I called these exercises math hooks and began using them in my classes before providing instruction about how to solve them. Math hooks changed the feel in class right away. There was confusion, conversation, wonder mixed with frustration, some magical revelations, and lots and lots of rigorous thinking. This was all exactly what I was looking for.

What is a rich math problem?

- **Accessible to all learners ("low floor, high ceiling")**
- **Real life task or application**
- **Multiple approaches and representations**
- **Collaboration and discussion**
- **Engagement, curiosity, and creativity**
- **Making connections within and/or across topics and domains [Boaler, "Mathematical Mindsets"]**
- **Opportunities for extension**

adapted from Heinemann at http://www.heinemann.com/blog/6-characteristics-rich-math-tasks/

Some Resources for Rich Math Problems

There are others as well. What are your favorites?

You Cubed (This is Jo Boaler's website. Look under the "tasks" tab for problems. There are a lot of other great resources here as well; PD, info for parents etc.

Mathalicious

Math Pickle

NRich

When Math Happens (3 Act Math)

Estimation 180

How long is this entire roll of toilet paper?

Design Thinking: Connecting Students to the Larger World (Thanks to Deb M. for sharing this article.)

This is a good introduction to design thinking. It's an easy read, and relevant to teaching students.

Equity/All Students Achieving

12 Resources to Help You Address Mental Health in School

From the article: May is Mental Health Awareness Month and it is becoming increasingly clear that mental health in schools is an important topic the nation cannot afford to ignore. According to Center for Disease Control and Prevention, one in seven U.S. children aged 2 to 8 years have a diagnosed mental, behavioral, or developmental disorder. The National Institute of Mental Health reports that one in five youths ages 13–18 experiences a serious mental health condition.

One additional resource: **Child Mind Institute** Resources for Educators Page)

From their website: When children are struggling with emotional, behavioral and learning challenges, teachers are often the first ones to detect a problem. The Child Mind Institute is committed to helping educators identify and respond effectively to children with signs of a mental health or learning disorder. And since behavioral issues can disrupt learning for the whole class, we offer strategies that have been shown to help kids behave successfully — making the learning environment better for everyone.

Mini PD

8 Big Ideas of Constructionist Learning

This is a quick, easy-read list of 8 ideas that support maker learning. It was compiled by Seymour Papert (a huge supporter (some say the founder) of the maker movement. Some of the ideas: **Learn by Doing, Hard Fun, Learning to learn, You can't get it right, without getting it wrong….**

This quote from John Dewey is as relevant today as it was 80 years ago, perhaps even more so! To me, this relates to a lot of what we are doing with makerthinking:

"It is part of the educators responsibility to see equally two things: First that the problem grows out of the conditions of the experience being had at the present, and that it is within the range of capacity of students; and, secondly that it arouses in the learner an active quest for information and production of new ideas. The new facts and new ideas thus obtained become ground for further experiences in which new problems are presented. The process is a continual spiral"
(Dewey 1938)

Tinker Time

Build Math Patterns With Legos

Talk about rich math problems! This one integrates math, art and engineering. It is also adaptable for most grades and ability levels.

From the article: Encourage them to come up with a math expression to go with their pattern. Expressions may be simple, like:

1 x 3

2 x 3
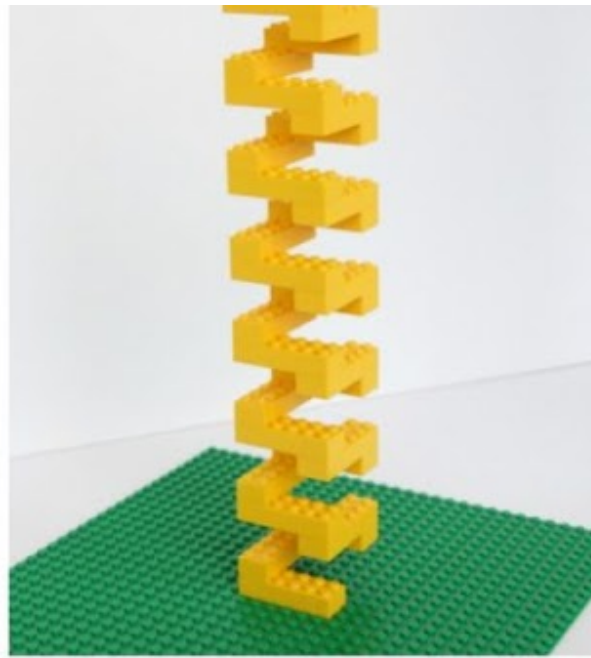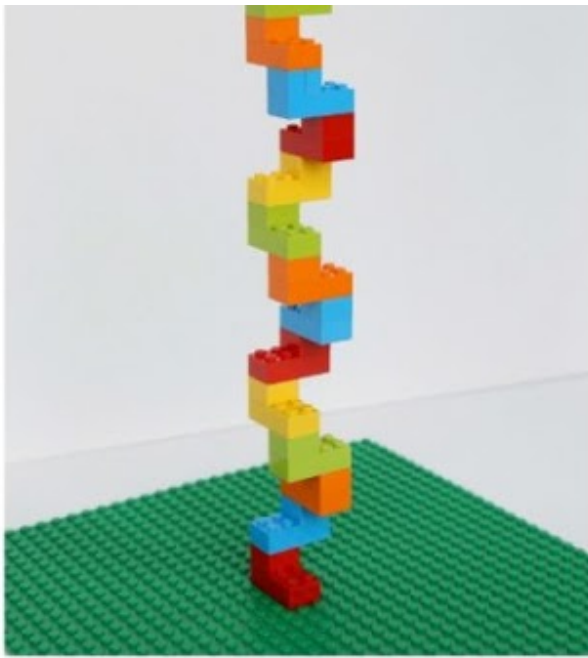
etc.

Or they may just describe their pattern in words. "I built a tower with 2 x 4 bricks. Each brick that you add rotates 90 degrees to the right."
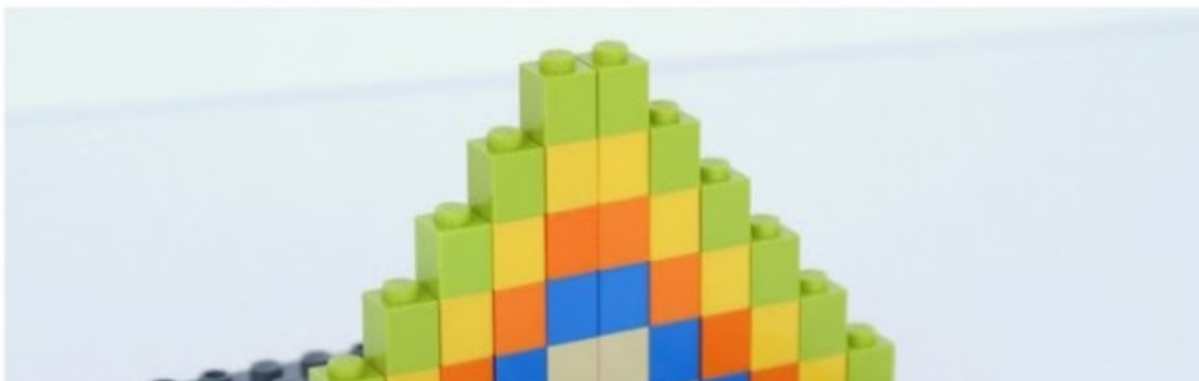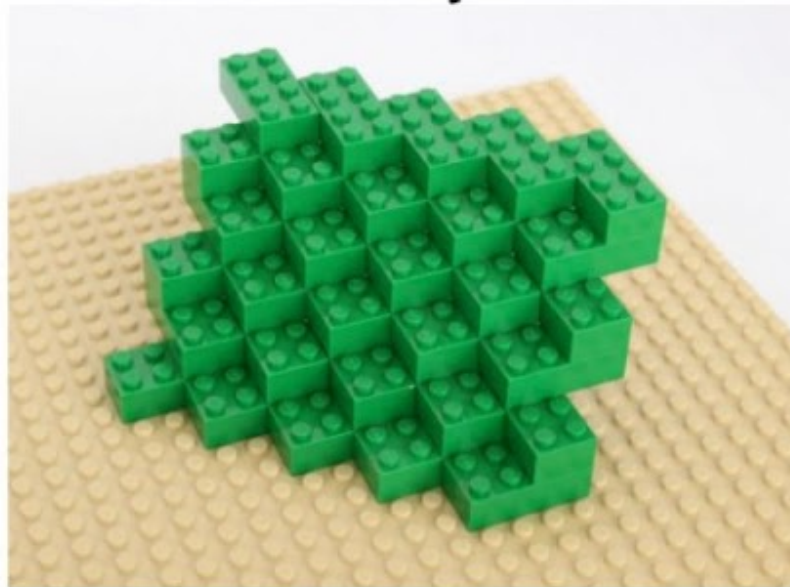
This is a great time to discuss math vocabulary such as perpendicular, parallel, horizontal, vertical, etc.
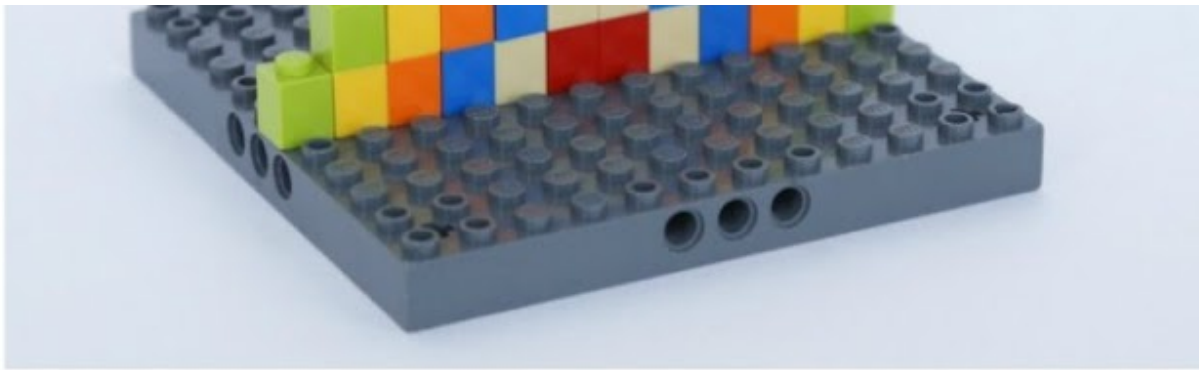
LEGO Math Patterns
Build & Write An Expression

[Pro Tips for Using Cardboard](#)

You know how I love cardboard for creating! This is a great Instructables article on best practices for working with cardboard.

Things to do

Girls Who Code Summer Immersion Program

From their webpage:

What Will I Learn, Do, or Make?

Each week of the program covers projects related to computer science, such as art, storytelling, robotics, video games, web sites, and apps. You'll also hear from guest speakers, participate in workshops, connect with female engineers and entrepreneurs, and go on field trips. The program culminates in a final project where you build your own product and share it with your class. Check out our project gallery!

World Robot Summer Olympiad: Info Session, May 16 (Thank you Newton STEM)

Semia USA and **WRO USA** will hold a free **information session** on May 16, 7:30-9PM, for students ages 7-16 and their parents to learn more about the World Robot Olympiad (WRO) and summer competition. It will be held in the South Medford Community Room, 20 Main Street in Medford. **Register here**. WRO involves over 66,000 students in over 60 countries. For more information contact **jeannette@wro-usa.org**.

Blockchain: Bitcoin and Beyond, May 19

(Thank you Newton STEM)

The Indian Institutes of Technology Association of Greater New England will host a seminar, **Blockchain: Bitcoin and Beyond**, on May 19, 1:45-5PM, at the Cambridge Innovation Center (**1 Broadway, Cambridge**). Tickets are $10 ($5 with student ID).

KTBYTE Summer Classes in Newton and Lexington

(Thank you Newton STEM)

KTBYTE, based in Lexington, will offer a week-long, camp-styled summer class in **Game Design with Processing** for ages 9-12 in its Newton location (437 Cherry Street), July 9-13, 9AM-3PM (extended day available). Other classes and schedules will be offered in its **Lexington location** (**4 Militia Drive, #15**).

CSRecitations Summer Programming Sessions in Natick, Grades 1-12

(Thank you Newton STEM)

CSRecititations in **Natick (4 Mechanic Street, Suite 102**) will offer a range of **programming classes** in two summer sessions: June 25-July 13 and July 16-August 2. For more information, call 781-349-7370 or email **info@CSRecitations.com**.

- **Little Bytes, Grades 1-3**

- **Advanced Scratch Game Project, Grades 4-6**
- **Game Studio Using Construct, Grades 5-7**
- **Game Studio Using Unity, Grades 7-12**
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