

# 50 Fun & Easy STEM Ideas

Chris Woods

19 years teaching HS math

1 wife, 3 kids, 4 trucks

Twitter: [@dailySTEM](https://twitter.com/dailySTEM)

Email: [cwoods@clkschools.org](mailto:cwoods@clkschools.org)

Subscribe to the [STEM Everyday Podcast](https://www.dailystem.com/)

[dailystem.com/50-ideas](https://www.dailystem.com/50-ideas)

“Uuuuuuuur Ahhhhhhhhh  
Uhhhh Ahhhhhhhhh  
Aaaarhg...”



- Chewbacca

[dailystem.com/50-ideas](http://dailystem.com/50-ideas)



STEM is for...

Every student.

Every class.

Every day.

Every teacher is a STEM teacher

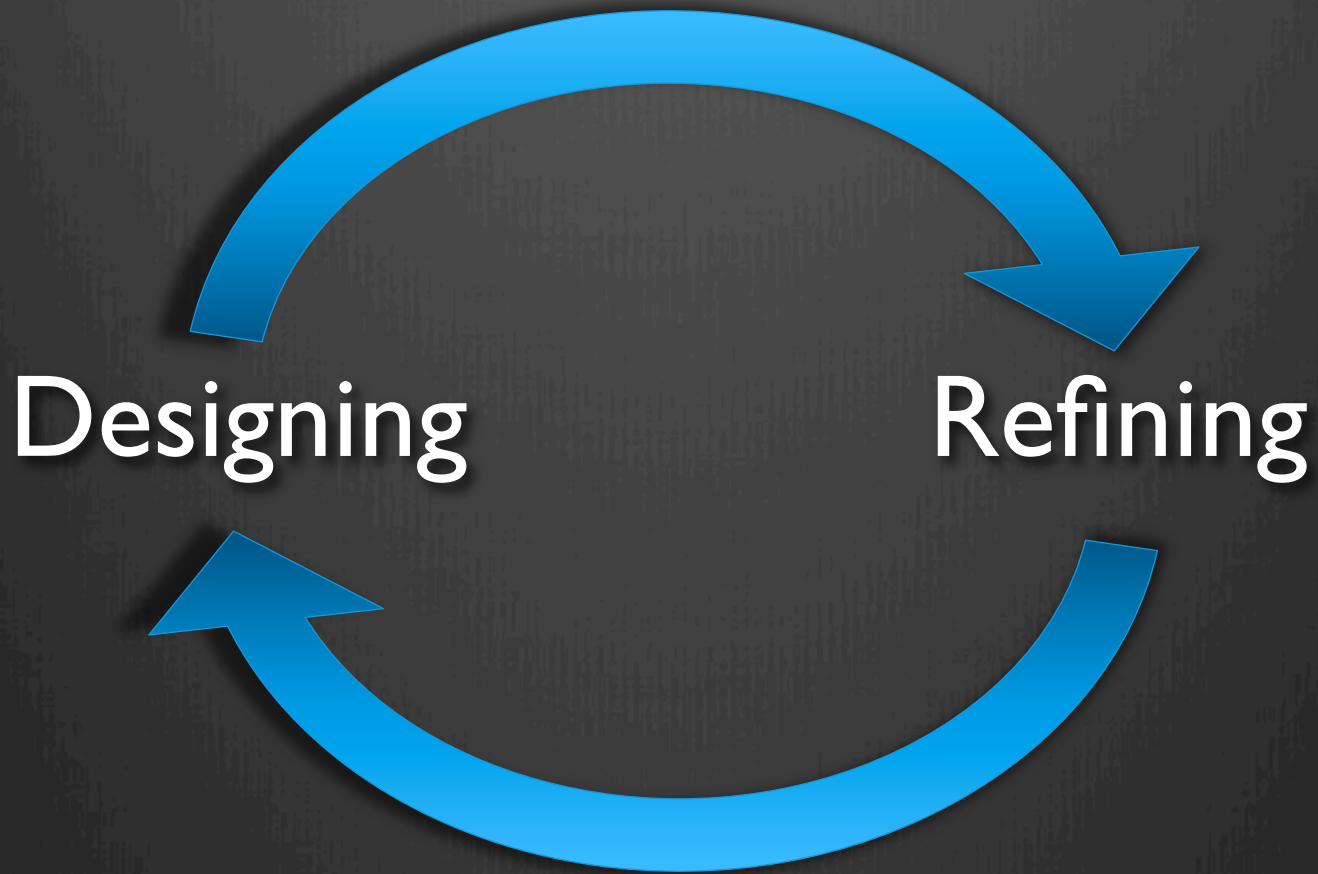
Kids need to see  
STEM in everything

Or is STEM like standardized testing?

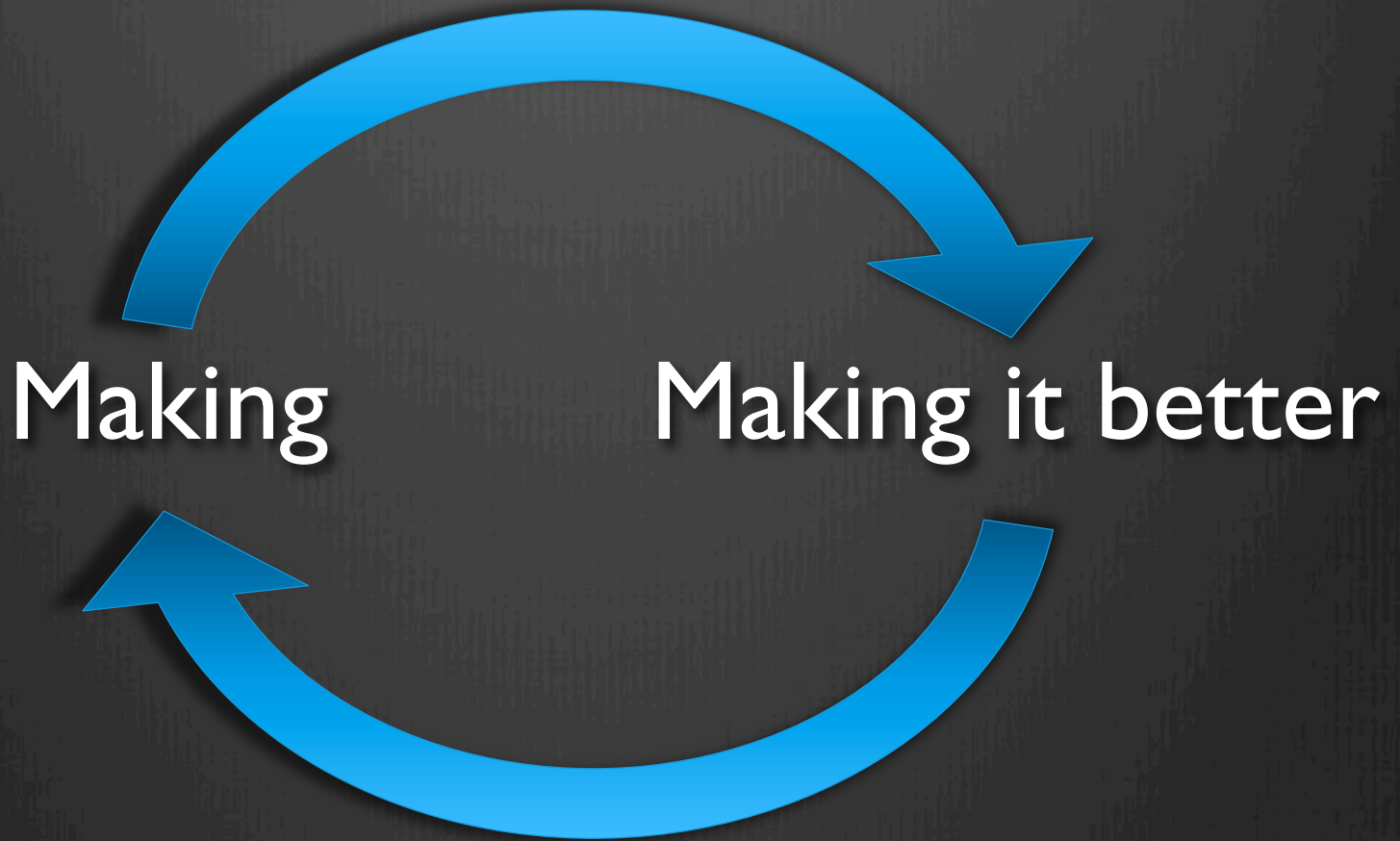
Which STEAM subject is your  
least favorite?

...be careful!

# What is Engineering?



# What is Engineering?





# Problem Solving...





# A quick word about STEM vs STEAM

# 50 Fun and Easy STEM Ideas

Are you ready?

# CES...January

1



THE LATEST

NEW PRODUCTS

MUST-SEE



# CES 2018

SPECIAL COVERAGE

01

02

03

04



CES 2018: The final word



All the cool new gadgets at CES 2018



Alexa, Google Assistant want to be everywhere in 2018



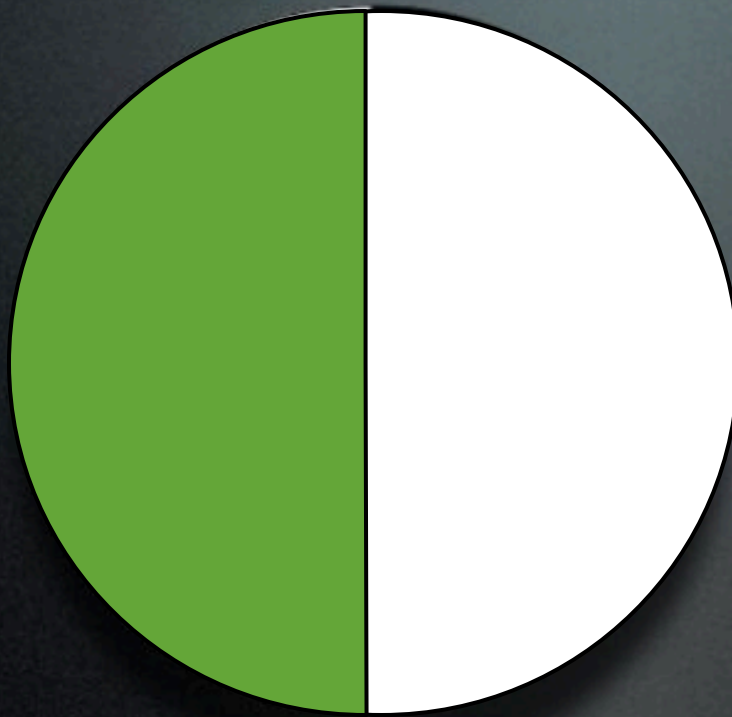
CES gets serious about health, wellness and medical tech

50 Fun & Easy STEM Ideas

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# Funny graphs...

**Your options according to Yoda.**

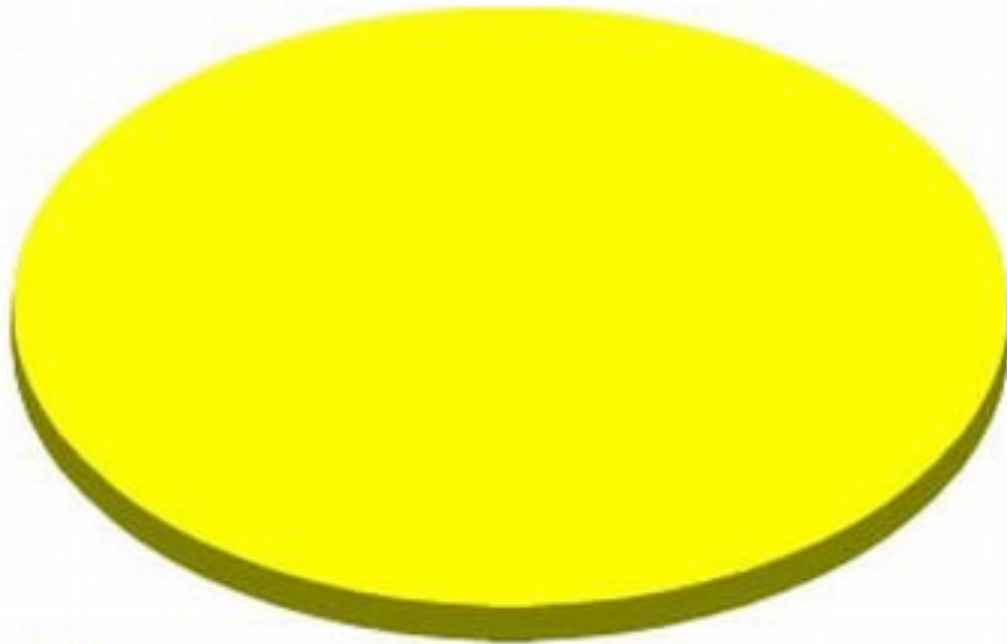


- Do.
- Do not.
- Try.

Source: GraphJam.com

# Time for a STEM song...

## Popular colors of residential submarines



Yellow



# #MythbustersMarch ...or...

4

# #MythbustersMay



Adam Savage ✓  
@donttrythis

Hi, I'm Adam. I'm 19 & want to make a living making things. This is my shop in my parents' basement. #NationOfMakers



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Chris Woods @dailySTEM



MORE THINGS TESTED



James Bond "Moonraker" Prop Collection!



PROJECTIONS, Episode 47: Oculus Go VR Headset Review!



LEGO with Friends: Custom Stay Puff Marshmallow Man!



Adam Savage needs your help for next build!

LATEST STORIES

## James Bond "Moonraker" Prop Collection!

BY NORMAN CHAN ON MAY 2, 2018

0 Comments

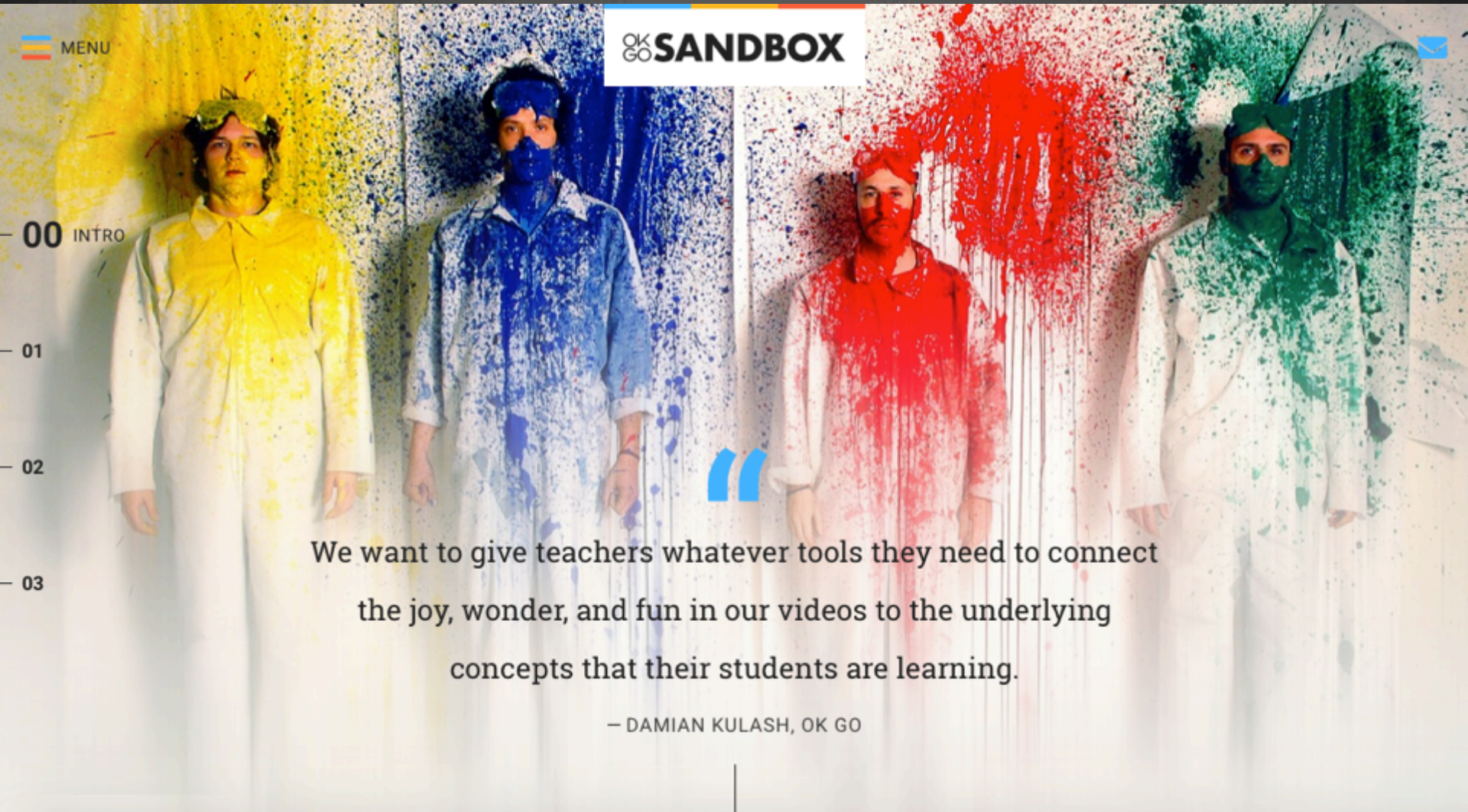


# Twitter

6

The image shows a screenshot of a Twitter profile for Adam Savage (@dontrythis). The profile header includes navigation icons for Home, Moments, Notifications, and Messages, a search bar, and a 'Tweet' button. The profile picture is a circular portrait of Adam Savage. Below it, the name 'Adam Savage' is followed by a verified badge and the handle '@dontrythis'. The bio reads: 'Obsessive maker of things. Editor-in-Chief of [Tested.com](#) and host of MythBusters: Junior. Former co-host of MythBusters.' The location is 'San Francisco', the website is 'tested.com', and the join date is 'Joined July 2008'. There is a 'Tweet to Adam Savage' button. Below the bio, it says '320 Followers you know' and shows a row of profile pictures. At the bottom of the profile section, it says '3,137 Photos and videos'. The main content area shows a tweet from 'dailySTEM @dailySTEM · 35m' which Adam Savage retweeted. The tweet text is: 'it's pretty easy...sign in with your Google account, click a button, and it gives you a part file & instructions. Thank you @NationOfMakers @dontrythis'. The tweet includes a screenshot of a website with the heading 'We the Rosies' and a video thumbnail. The tweet has 2 retweets and 12 likes. On the right side, the 'Who to follow' section lists Kari Byron, Neil deGrasse Tyson, and Bill Nye. At the bottom right, there is a 'United States trends' section with '#WednesdayWisdom' and 'Boy Scouts'.





MENU

OK GO SANDBOX

00 INTRO

01

02

03



We want to give teachers whatever tools they need to connect the joy, wonder, and fun in our videos to the underlying concepts that their students are learning.

— DAMIAN KULASH, OK GO

# PhET Simulations



SIGN IN REGISTER

Go to the PhET home page

## Simulations

### ► New Sims

- HTML5
- Physics
- Biology
- Chemistry
- Earth Science
- Math
- By Grade Level
- By Device
- All Sims
- Translated Sims

- Teaching Resources
- Research
- Accessibility
- Donate



PhET for Every Classroom

## Be an HTML5 Hero!

By converting our sims to HTML5, we make them seamlessly available across platforms and devices. Whether you have laptops, iPads, chromebooks, or BYOD, your favorite PhET sims are always right at your fingertips.

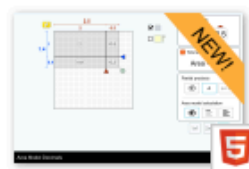
Become part of our mission today, and transform the learning experiences of students everywhere!

DONATE

## New Sims



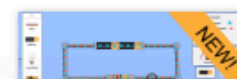
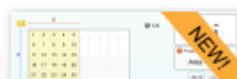
Area Model Algebra



Area Model Decimals



Area Model Multiplication







[Start learning](#)

[Watch the video](#)

SPOTS OPEN - 2018 Professional Learning  
for Middle and High School teachers



[Join us](#)

## WE'RE MAKING A DIFFERENCE

25%

of U.S. students have  
accounts on Code.org

11M

of our students are  
female

800K

teachers use Code.org

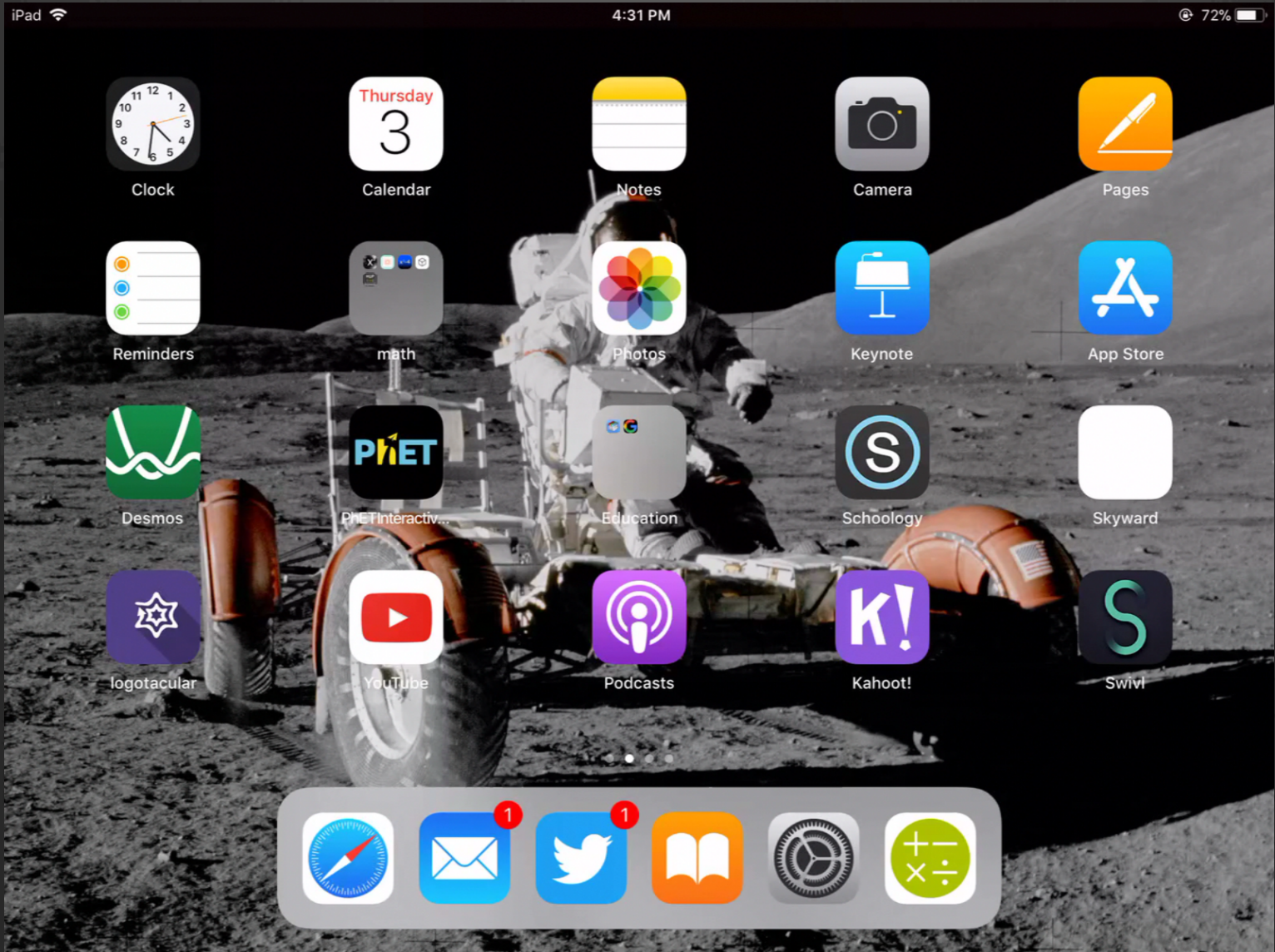
10%

of the world's students  
have tried the Hour of  
Code

40

U.S. states changed policy  
to support computer  
science

# LOGO

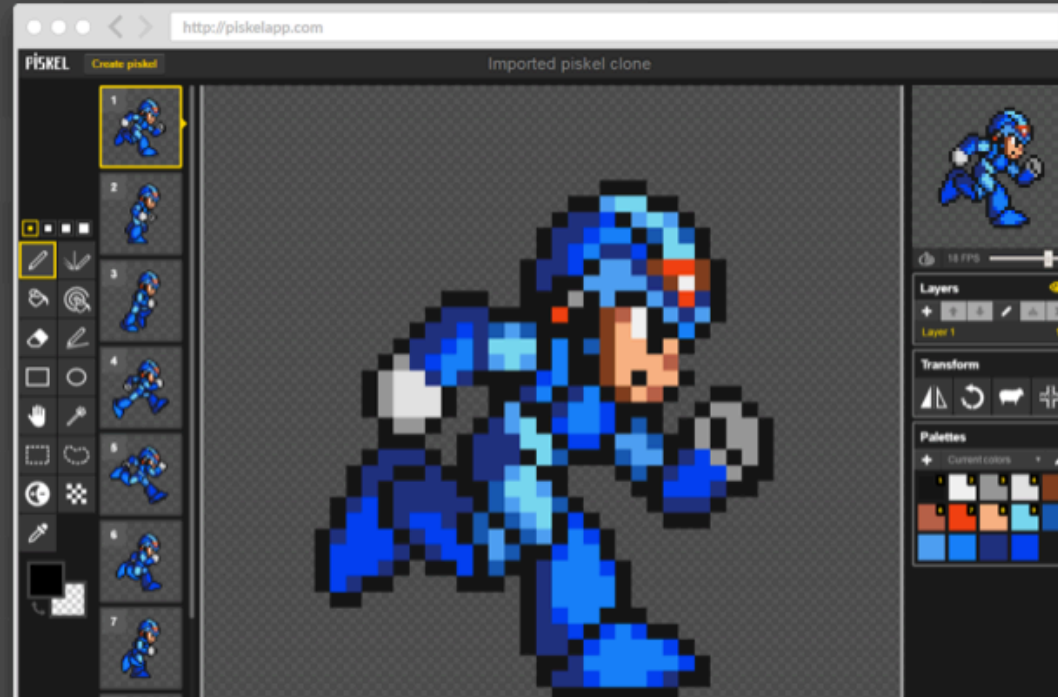




## Piskel is a free online editor for animated sprites & pixel art

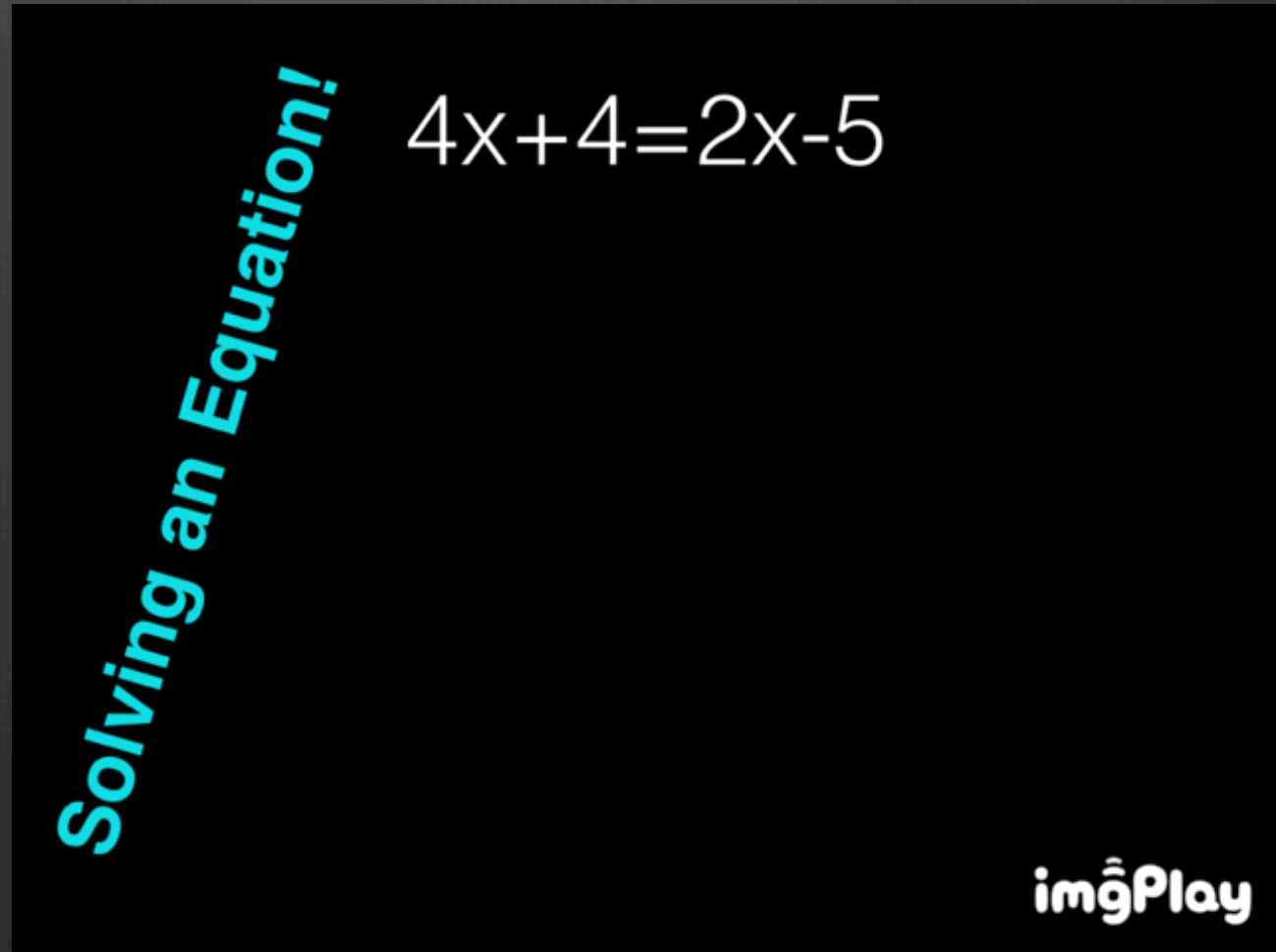
Create animations in your browser. Try an example, use Google sign in to access your gallery or simply create a new sprite.

Sign in Create Sprite



# What could you GIF?

10



Skype a  
Scientist

FAQs For Scientists For Teachers Other Resources for Teachers SciComm Resources  
Where We Are



## Skype a Scientist

For Scientists

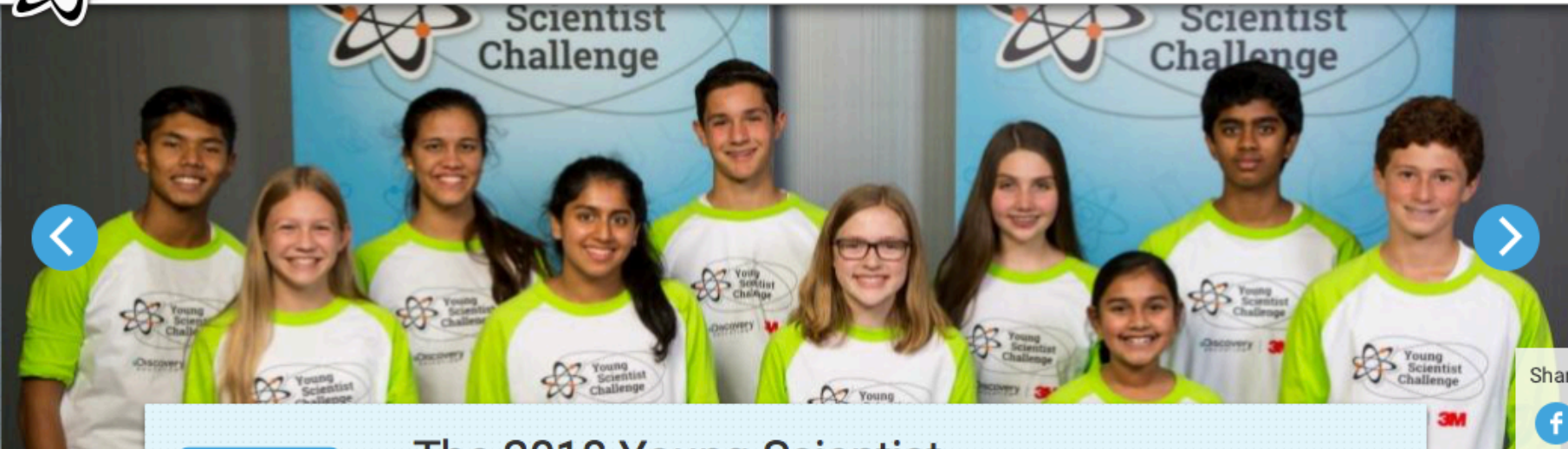
For Teachers



Young Scientist Lab

CHALLENGE ▾ TEACHERS ▾ STUDENTS ▾ PARENTS ▾ NEWS & EVENTS ▾

LOG IN



## The 2018 Young Scientist Challenge is now closed.

Check back in June to meet the finalists.

[Learn More](#)

Share



In and After Class

## Teacher Resources

Science is about ideas. Teaching is about bringing it to life. Bring

Safe Science Fun

## Student Activities

As a #YoungScientist you have a unique view on the world. Explore

Around the House

## Parent Ideas

Enjoy exploring the science of everyday life together as a family.

50 Fun & Easy STEM Ideas

Chris Woods @dailySTEM



# Class contests!

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**Mrs. Lang**

@Mrslang205

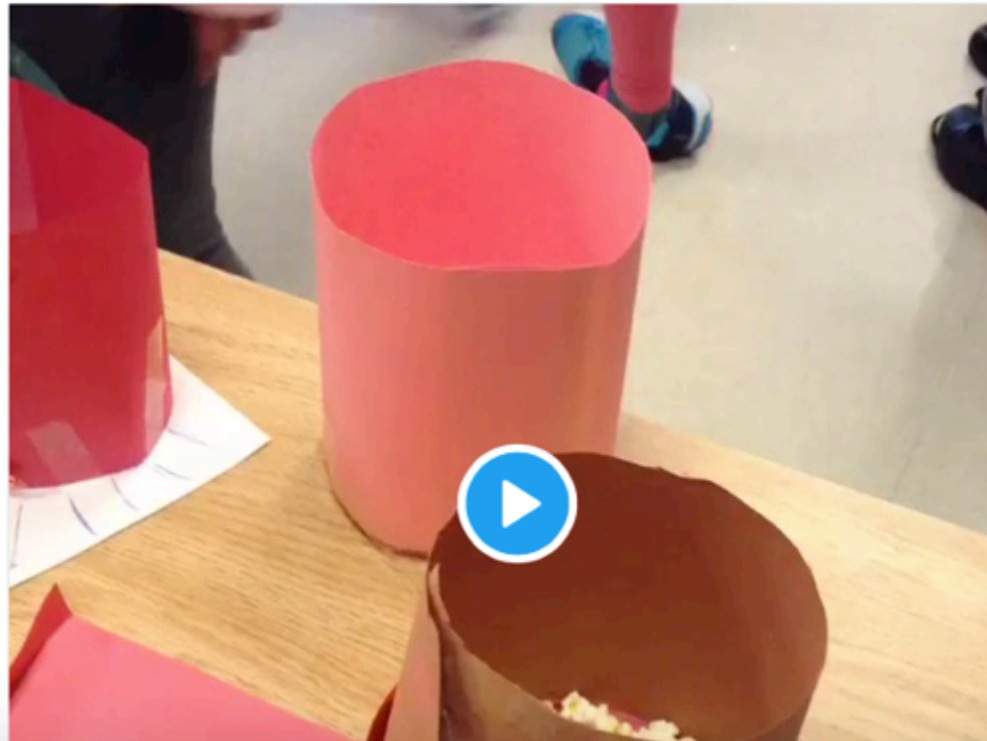
Following



Friday's Design Challenge: Make a container that holds exactly 293 popped popcorn!

[@SMCDSB\\_SPA](#) [@dailystem](#)

[@ImagineerSTEAM](#)



# Sport Science by ESPN

14

The screenshot shows a YouTube video player with the following elements:

- Header:** YouTube logo, search bar, and navigation icons (upload, notifications, profile).
- Video Player:** A snowboarder is shown in mid-air against a blue sky. A text overlay reads: **-1 MPH = 3 LESS FEET OF AMPLITUDE**. The video progress bar shows 0:32 / 2:48.
- Right Sidebar:** A playlist titled "Sport Science | ESPN" with 1/39 videos. It lists several related videos:
  - 36 Jason Tatum Can Dunk Even With Armor On | Sport Science | ESPN
  - 37 Even A Pro Dodgeball Team Can't Stop Markelle Fultz | Sport Science | ESPN
  - 38 The Science Behind Kyrie Irving's Step-Back 3-Point Shot | Sport Science | ESPN
  - 39 Trying To Unravel The 12th Hole At The Masters | Sport Science | The Masters Golf Tournament
- Notification:** A blue banner at the bottom of the player area says "Video not approved for clkschools.org" with an "Approve" button.
- Video Title:** "How does Shaun White get such huge air? | Sport Science | ESPN Archives"
- Channel:** ESPN (verified), with a "Subscribe" button.
- Views:** 15,582 views.

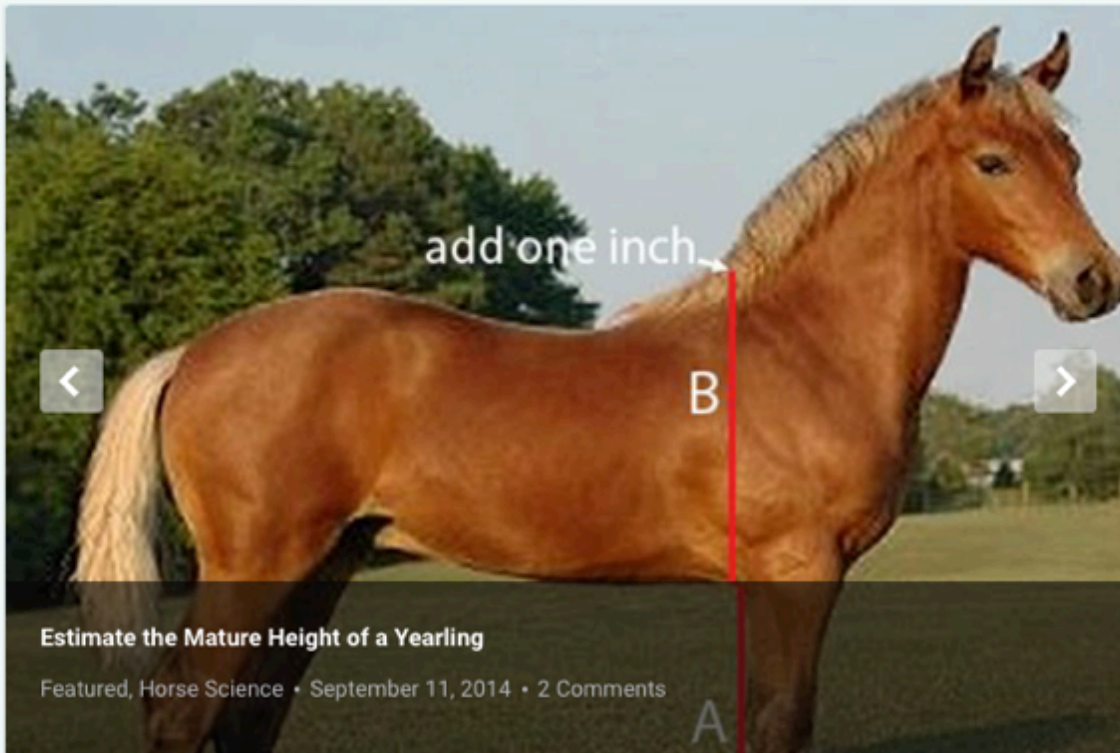


# Future Goals by EVERFI

15

The image shows a YouTube video player interface. The video content is a 3D wireframe model of a hockey skate on a blue background. Two callout lines point to specific parts of the skate: one points to the upper boot area labeled "LIGHTER SKATES", and another points to the blade area labeled "SHARP BLADES". Below the video player, there is a blue notification bar that says "Video not approved for clkschools.org." with an "Approve" button. The video title is "NHL & NHLPA Future Goals" by the channel "EVERFI". There is a "Subscribe" button and a view count of "15,029 views".





## LATEST TWEETS

Tweets by @HorseLoversMath



**Deborah Stacey**  
@HorseLoversMath

World Equestrian Games individual ticket sales begin Wednesday, May 2 [buff.ly/2GA1K0j](https://buff.ly/2GA1K0j)  
#equestrian #horselovers #horses #equestrian



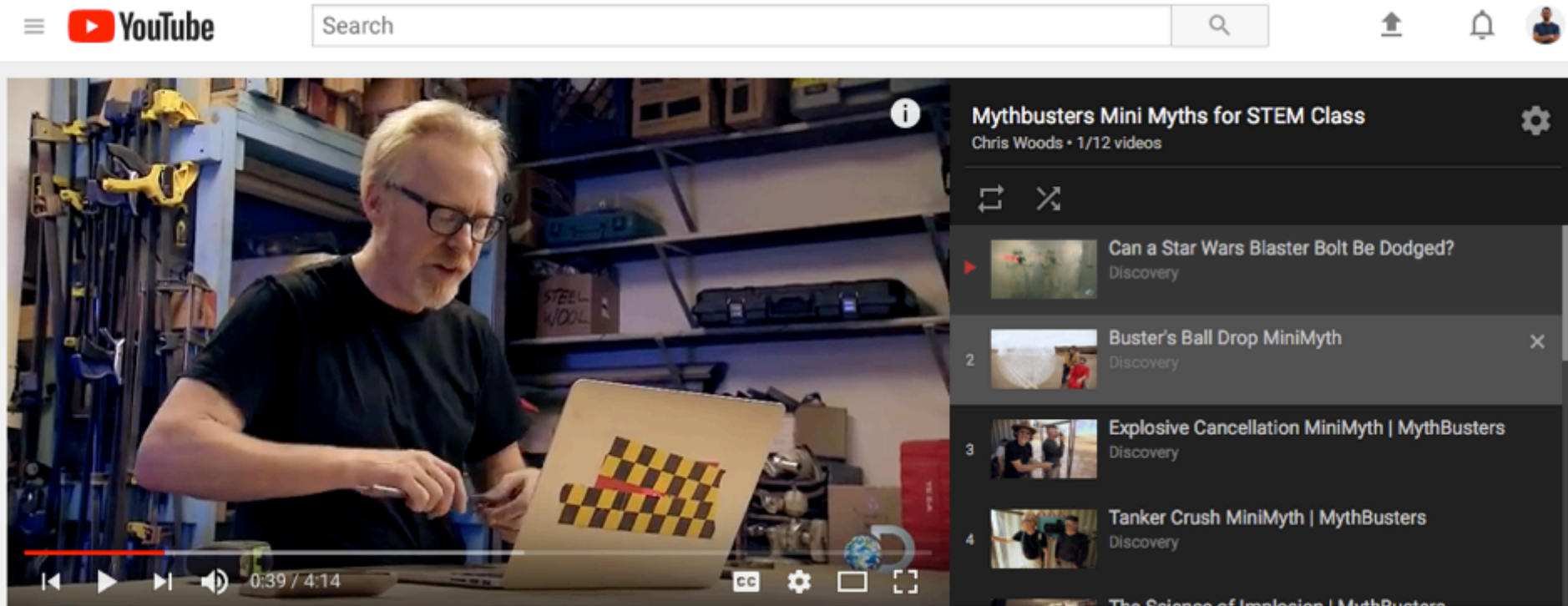
**FEI WORLD**  
EQUESTRIAN GAMES™

# Rube Goldberg Machines



# YouTube playlists

18



The image shows a YouTube interface. At the top left is the YouTube logo. A search bar is in the top center. On the right are icons for home, notifications, and profile. The main content area is split into two parts. On the left is a video player showing a man with glasses working on a laptop in a workshop. The video title is "Can a Star Wars Blaster Bolt Be Dodged?". Below the video player is a blue banner that says "Video not approved for clkschools.org." with an "Approve" button. Below the banner is the video title "Can a Star Wars Blaster Bolt Be Dodged?", the channel name "Discovery", a "Subscribe" button, and view counts: "631,273 views", "3,434" likes, and "116" dislikes. On the right is a playlist titled "Mythbusters Mini Myths for STEM Class" by Chris Woods, containing 1/12 videos. The playlist items are: "Can a Star Wars Blaster Bolt Be Dodged?", "Buster's Ball Drop MiniMyth", "Explosive Cancellation MiniMyth | MythBusters", and "Tanker Crush MiniMyth | MythBusters".

50 Fun & Easy STEM Ideas

Chris Woods @dailySTEM



# Oreos

19





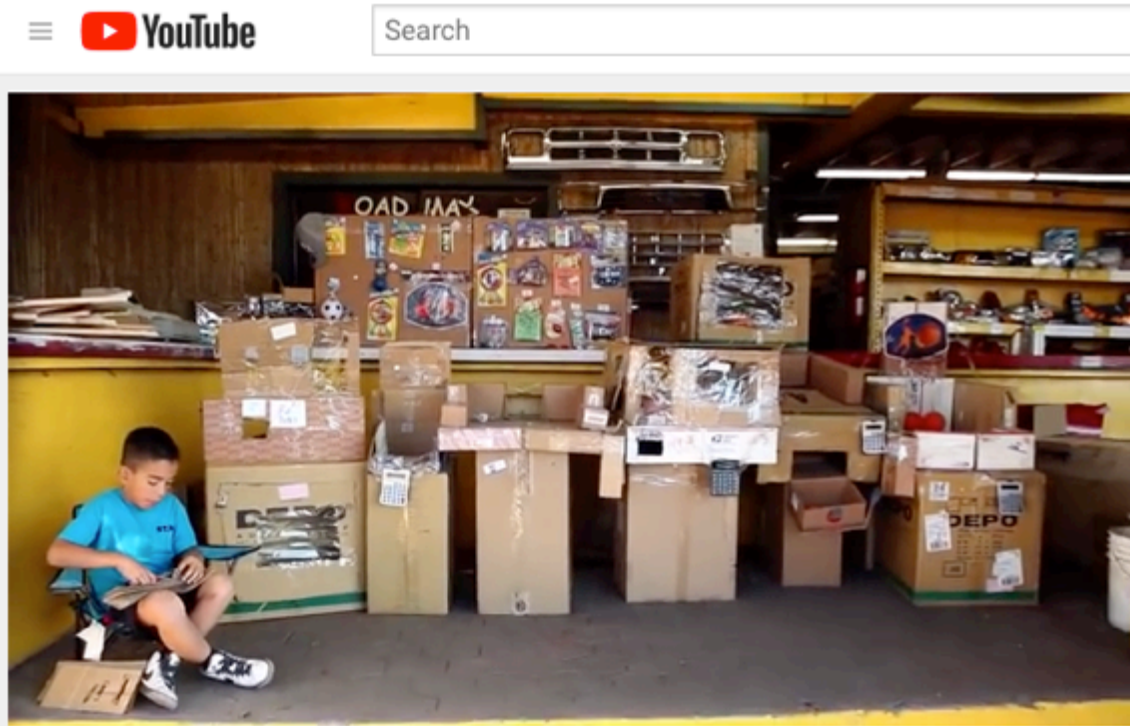
# Create your own game...

20



# Caine's Arcade

21



\* Video not approved for clkschools.org.

Approve x

## Caine's Arcade

Nirvan Mullick

Subscribe 11K

6,258,500 views

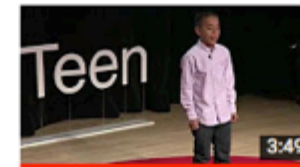
Up next

Autoplay



**Caine's Arcade 2: From a Movie to a Movement**

Imagination Fdn  
2,067,418 views



**Outside the Box: Caine Monroy at TEDxTeen**

TEDx Talks  
93,138 views



**Ticket Grab: New Game at Caine's Arcade!**

Nirvan Mullick  
390,137 views



**The Phillies crush two grand slams and score 20 runs to blow out Marlins**

MLB  
Recommended for you



**Jack Black & Family Visit**



# Makerspace

22

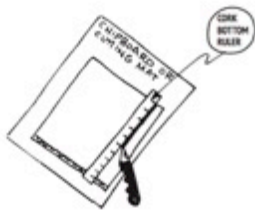


# Cardboard

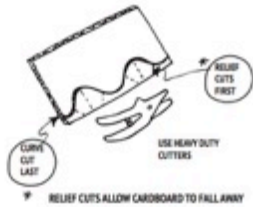
## CARDBOARD TECHNIQUE INVENTORY

E. Riley  
E+D Lab

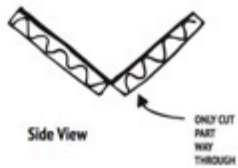
### 1 STRAIGHT CUTS



### 2 CURVES



### 3 SCORE



### 4 SCORE BEND

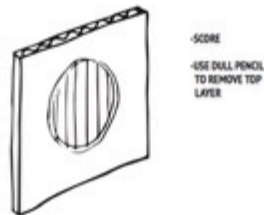


### 5 SMOOTH BEND

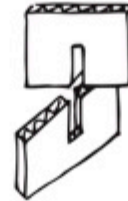


Side View

### 6 EXPOSE CORREGATION



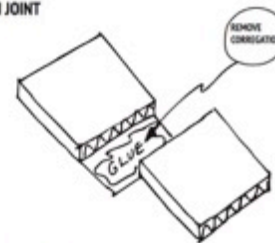
### 7 NOTCHES



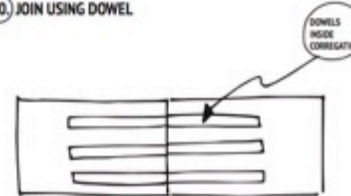
### 8 LAMINATING: GLUE AND CLAMP



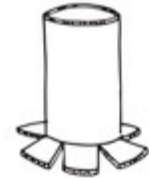
### 9 SMOOTH JOINT



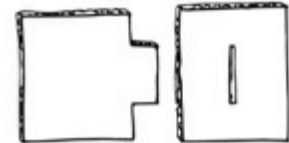
### 10 JOIN USING DOWEL



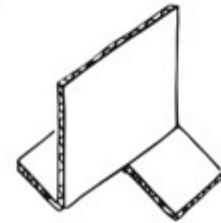
### 11 FLANGE



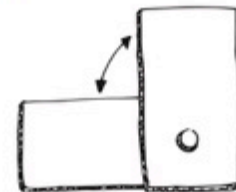
### 12 TAB



### 13 FOOT



### 14 MOVABLE LINK



CARDBOARD TECHNIQUE INVENTORY

# Music & Making...

23





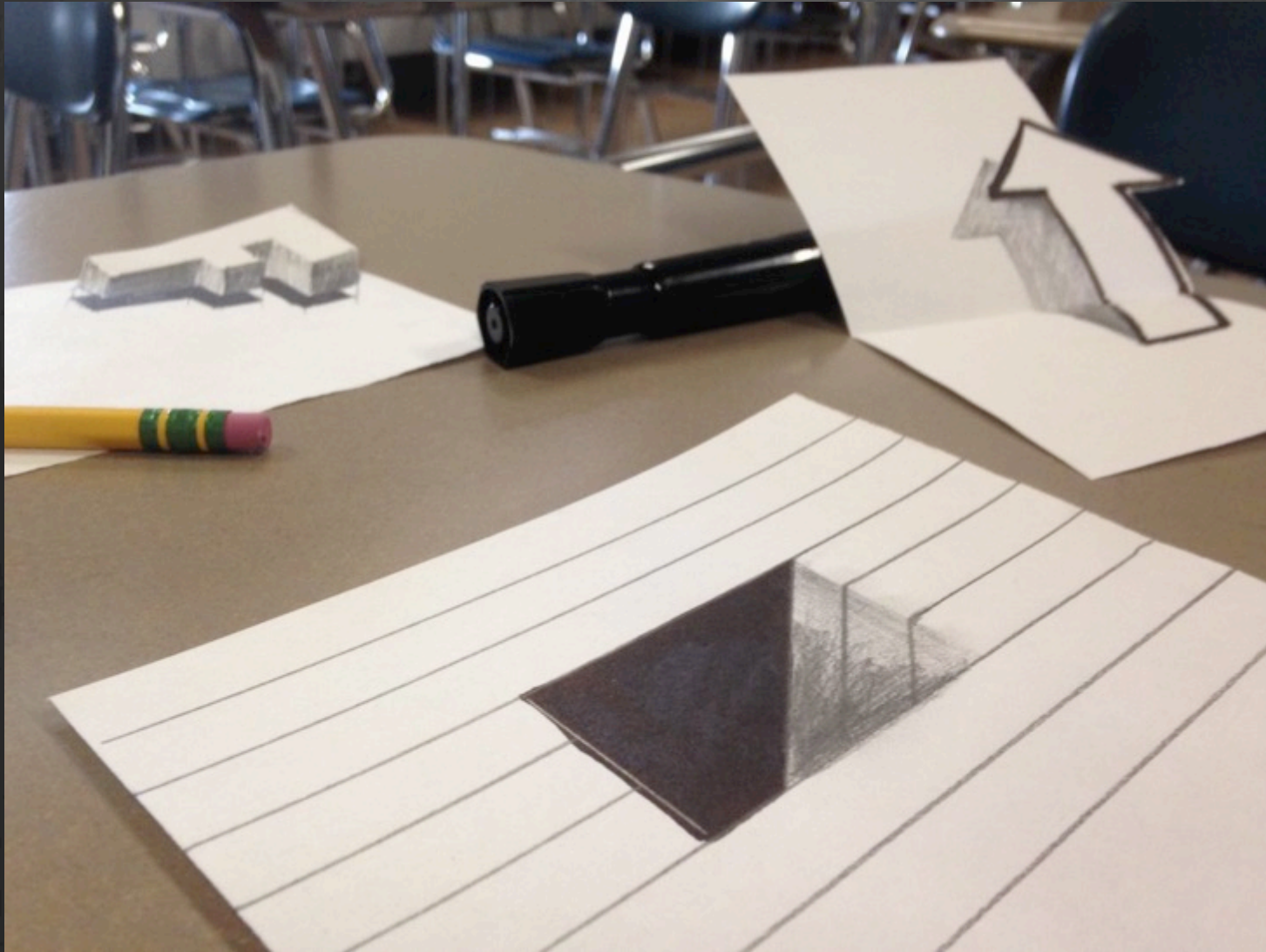
# Robots (and Art) for cheap...

24



# Anamorphic Drawings

25



# Jokes & Memes...



Normal Distribution



Paranormal Distribution

# #TshirtTuesday

27





Teacher: What do you want to be when you grow up?

28

Student: Tony Stark





# Share STEM you see on TV

29



# #STEMeverywhere

30





# STEM Scavenger Hunt

31



“Mr Woods, look what I made!”

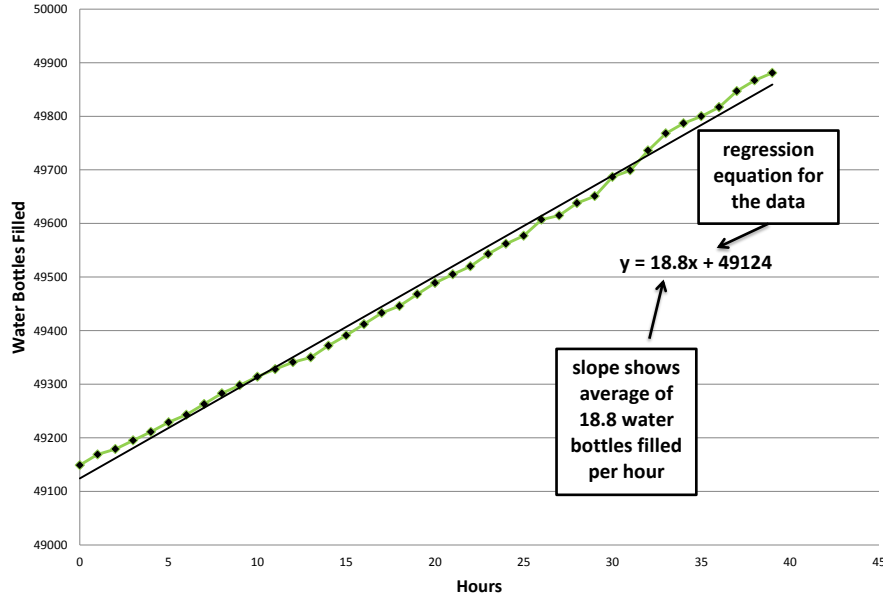
32





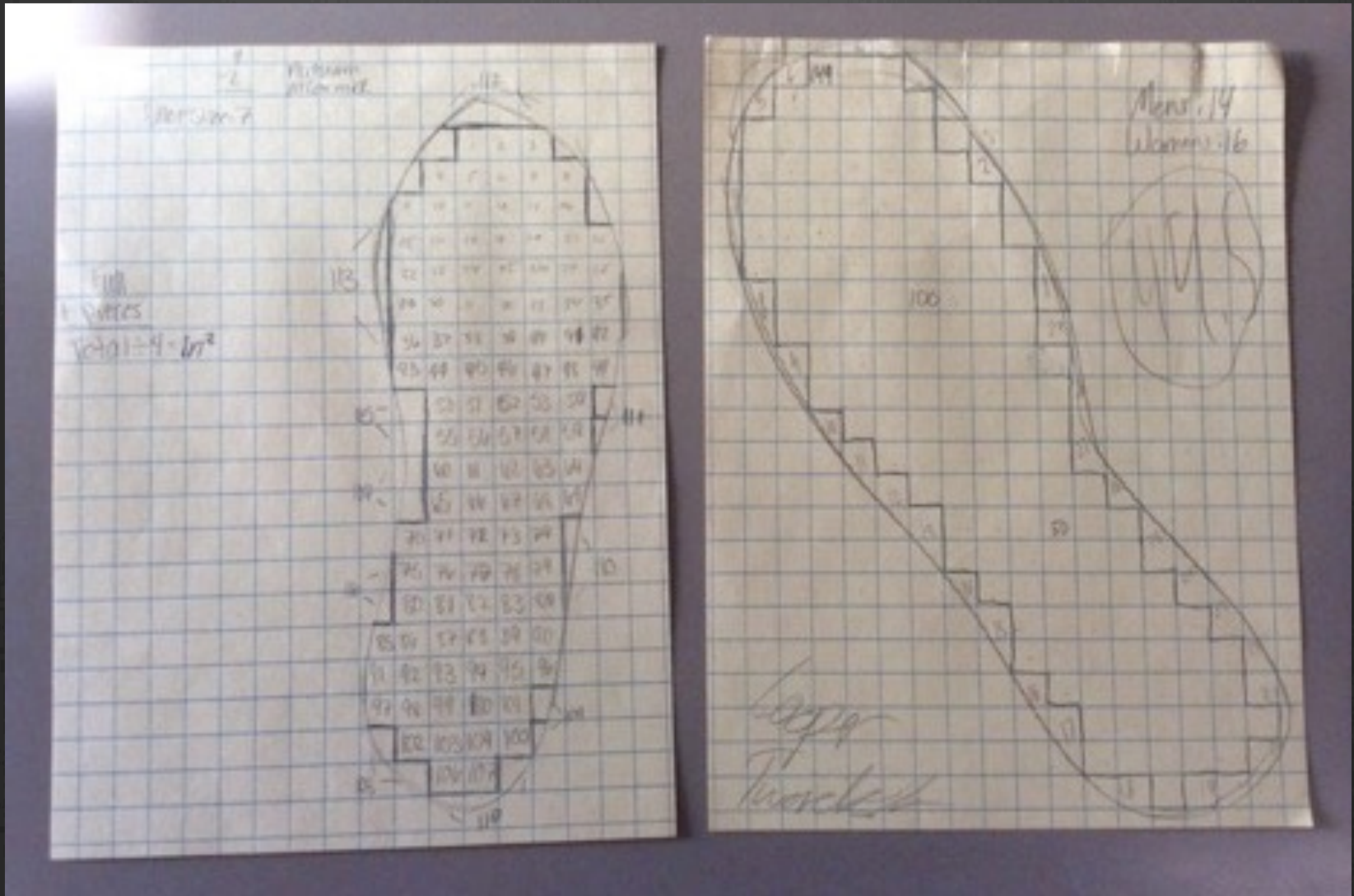
# Use REAL data...No #FakeData

Total Waterbottles Filled over a 5 Day Period



# Ditch Fake Story Problems!

34





# Build off student ideas...

35



MAKE  
DO WITH  
WHAT  
YOU'VE  
GOT



# Learning through failure...

36





**instructables**

Let's Make ...



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**AUTODESK.** Make anything.



Let's Make rockets



- EVERYTHING
- TECHNOLOGY
- WORKSHOP
- CRAFT
- HOME
- FOOD
- PLAY

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Chris Woods @dailySTEM





# Nature...

39







## NAE GRAND CHALLENGES FOR ENGINEERING

NATIONAL ACADEMY OF ENGINEERING

Challenges

News

Community

14 Grand Challenges for Engineering in the 21st Century



Home

Challenges

**With input from people around the world an international group of leading technological thinkers were asked to identify the Grand Challenges for Engineering in the 21st Century.**

From urban centers to remote corners of Earth, the depths of the oceans to space, humanity has always sought to transcend barriers, overcome challenges, and create opportunities that improve life in our part of the universe.

In the last century alone, many **GREAT ENGINEERING ACHIEVEMENTS** became so commonplace that we now take them mostly for granted. Technology allows an abundant supply of food and safe drinking water for much of the world. We rely on electricity for many of our daily activities. We can travel the globe with relative ease, and bring goods and services wherever they are needed. Growing computer and communications technologies are opening up vast stores of knowledge and entertainment. As remarkable as these engineering achievements are, certainly just as many more great challenges and opportunities remain to

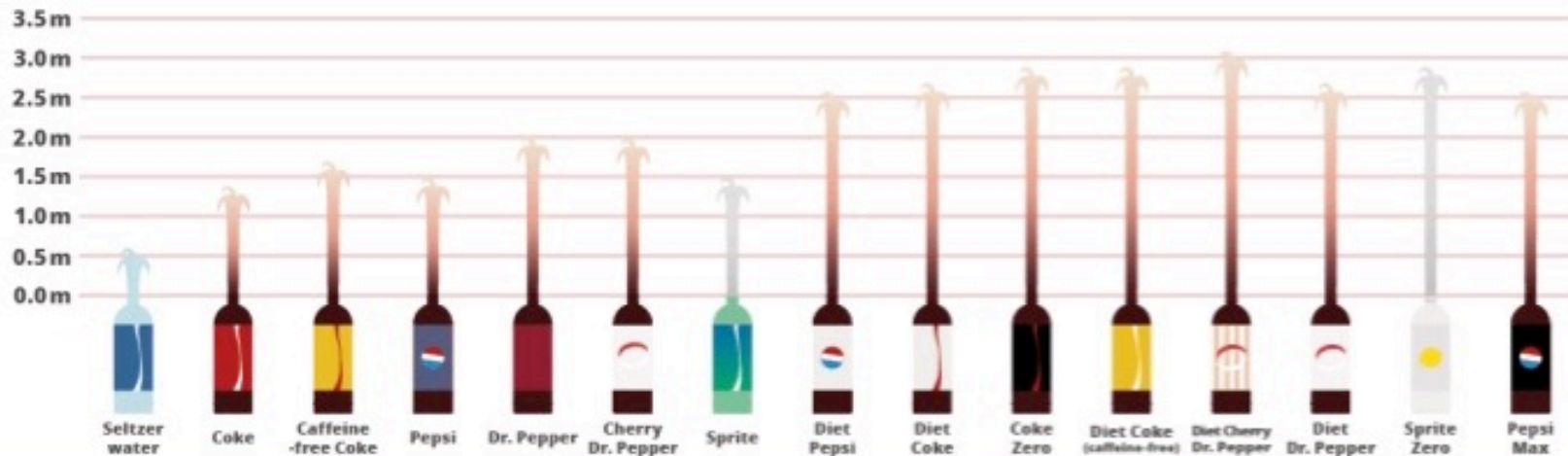
Engineers Can Make A World of Difference

BUILD YOUR DREAM

Sometimes we have to  
break the “rules” & do  
some STEM because its  
awesome!

## THE SECRETS OF THE COKE AND MENTOS FOUNTAIN

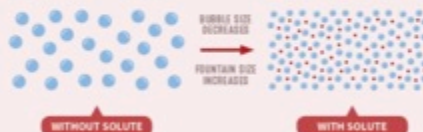
### HOW DOES THE TYPE OF CARBONATED BEVERAGE AFFECT THE FOUNTAIN HEIGHT?



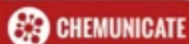
In each case 11 Mentos candies were introduced to two-litre bottles of commercial carbonated beverages. Generally diet sodas showed the highest fountains, followed by sugar-sweetened sodas (likely due to increased viscosity), then seltzer water.

#### THE SCIENTIFIC EXPLANATION

Dissolved solutes in carbonated drinks stop bubbles combining into bigger bubbles. With smaller bubbles there is a higher surface area for carbon dioxide to enter the bubbles, increasing the rate of degassing.



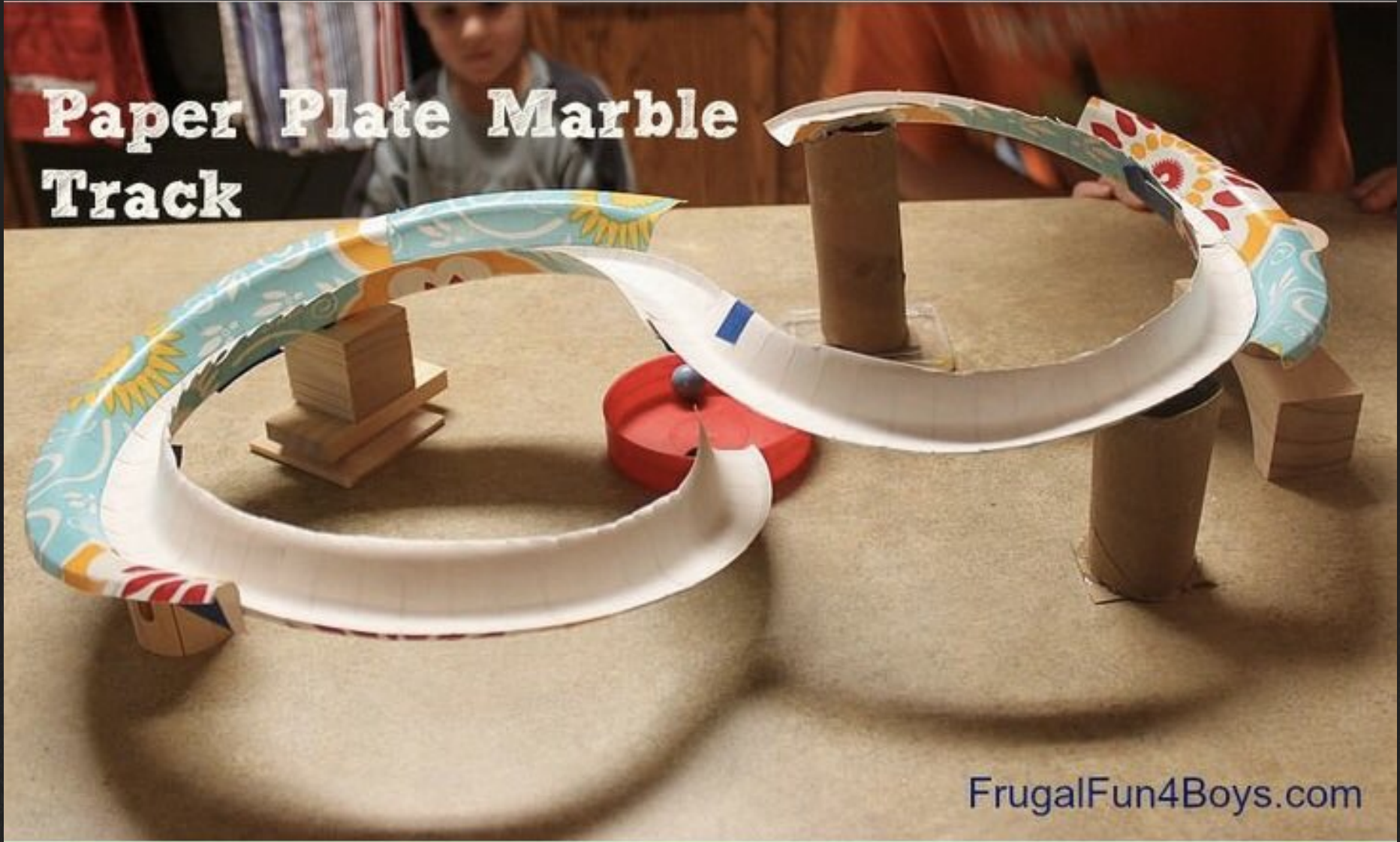
New demonstrations and new insights on the mechanism of the Candy-Cola soda geyser – T S Kurtzleman, L S Davenport, V I Cothran, J T Kurtzleman, D J Campbell; *J Chem Educ*; DOI: 10.1021/acs.jchemed.6b00862



© Andy Binzring 2017 – www.compoundchem.com/chemunicate  
Based on materials provided by Thomas Kurtzleman, Department of Chemistry, Spring Arbor University



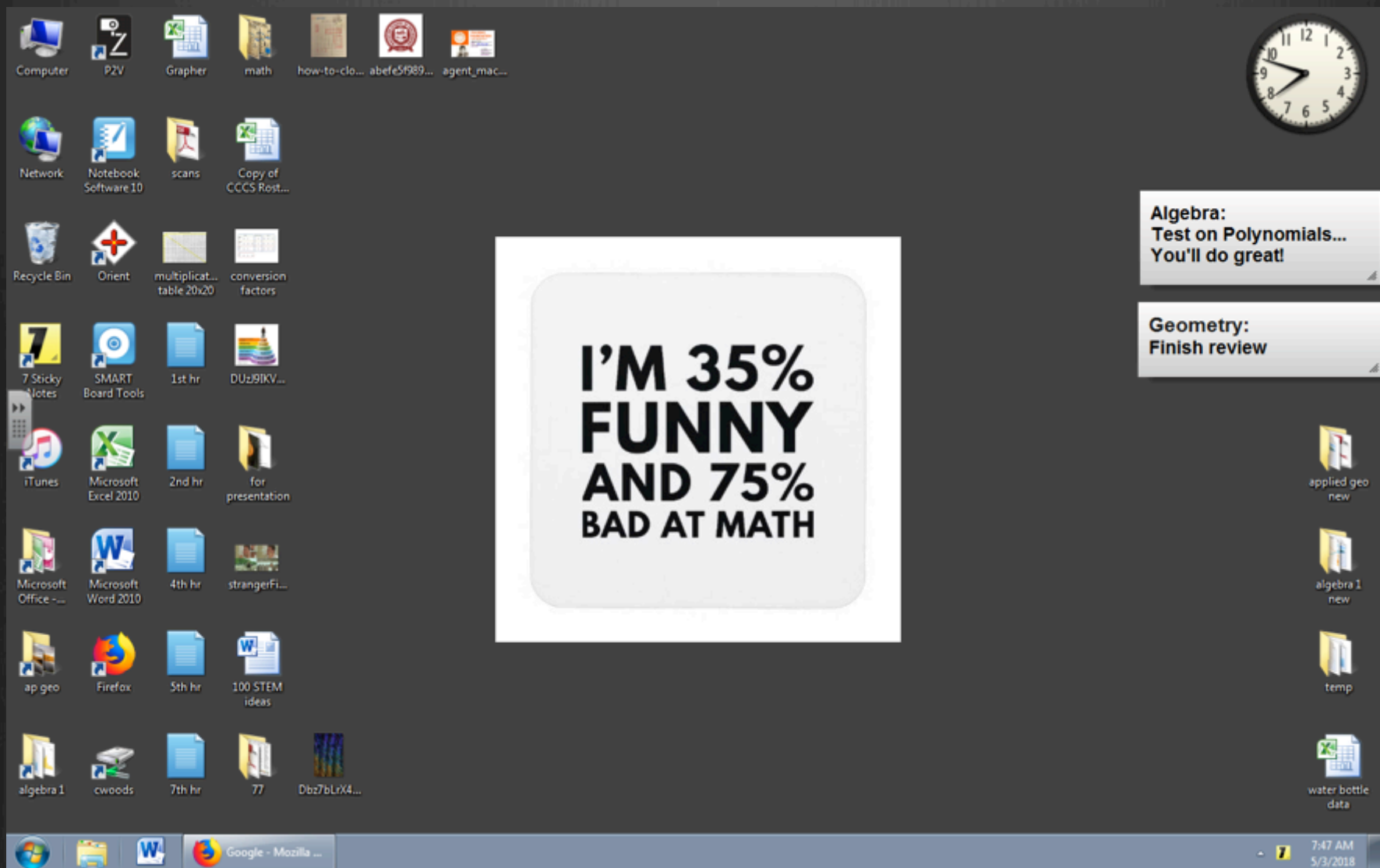
## Paper Plate Marble Track



FrugalFun4Boys.com

# Change your Desktop every day

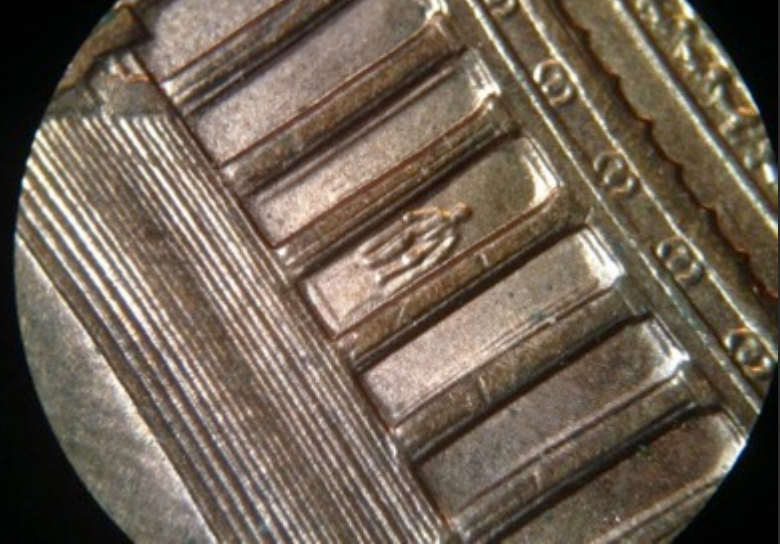
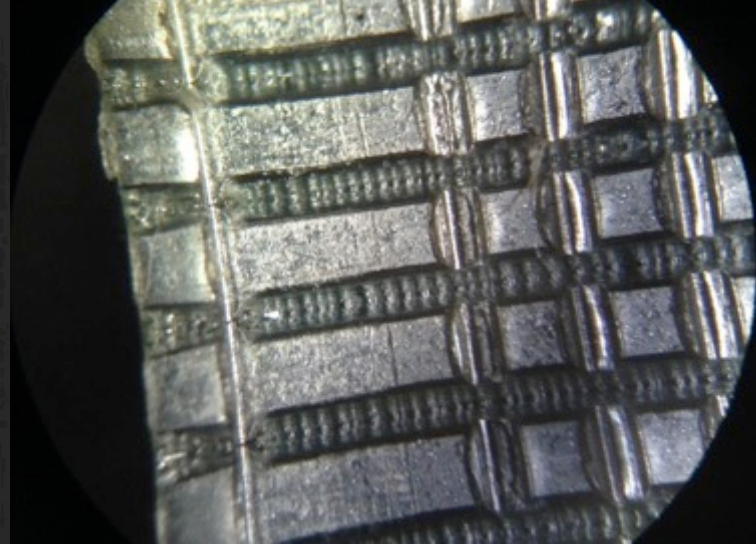
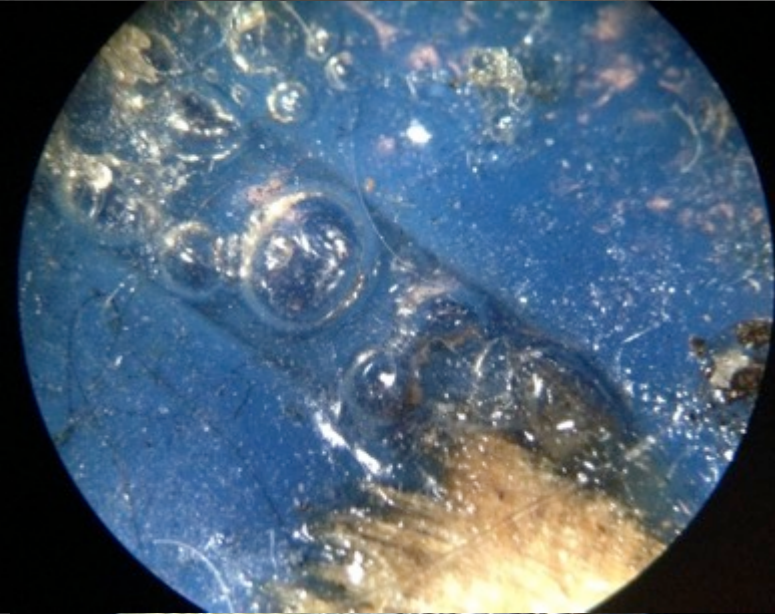
43





# #MicroscopeMonday

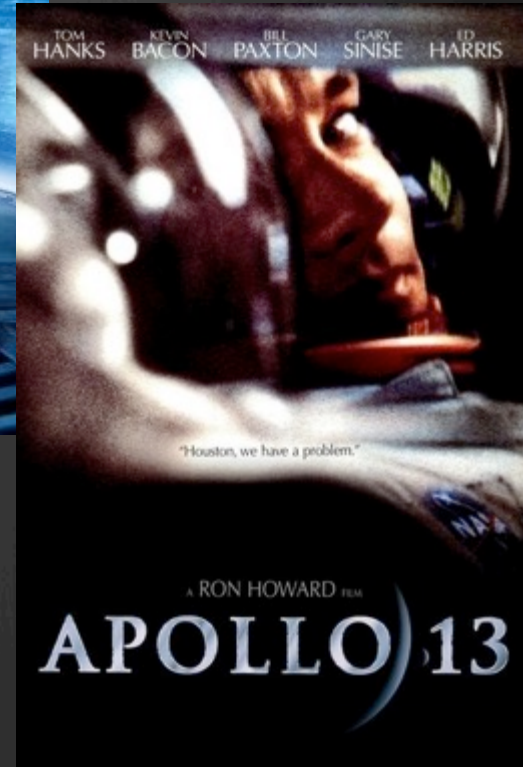
44





# STEM Movies...

45



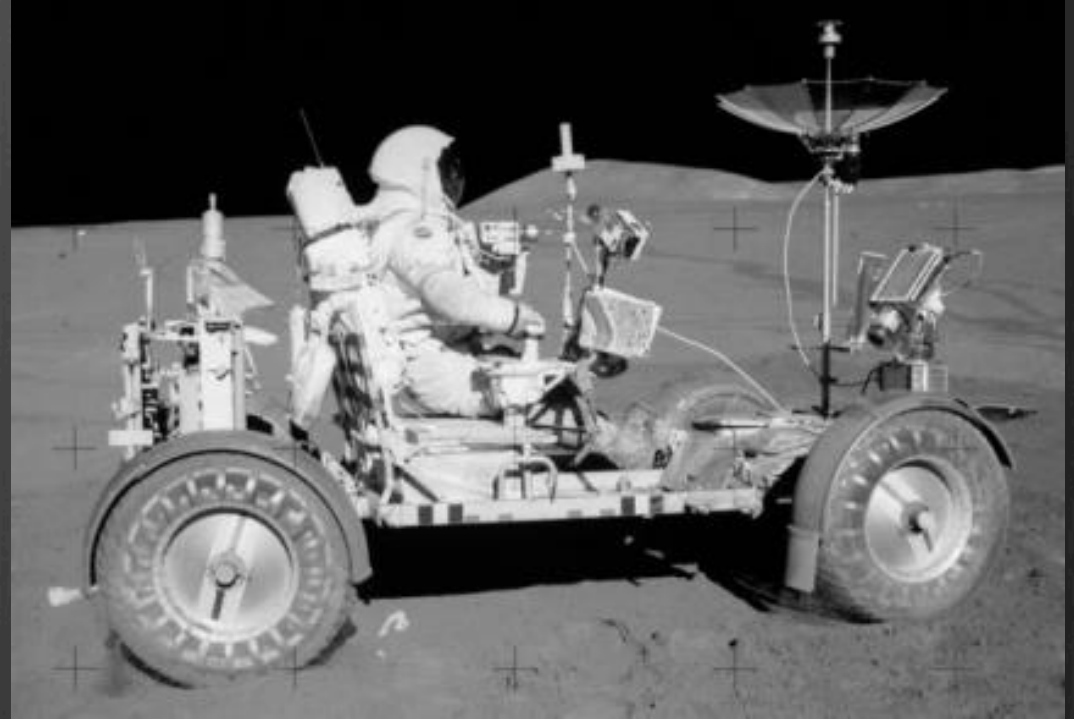
50 Fun & Easy STEM Ideas

Chris Woods @dailySTEM



Pixar in a Box is a behind-the-scenes look at how Pixar artists do their jobs. You will be able to animate bouncing balls, build a swarm of robots, and make virtual fireworks explode. The subjects you learn in school — math, science, computer science, and humanities — are used every day to create amazing movies at Pixar. This collaboration between Pixar Animation Studios and Khan Academy is sponsored by Disney. If you have questions or ideas, email us at [piab@khanacademy.org](mailto:piab@khanacademy.org).

# History and STEM





# History and STEM



**GREAT CONVERSATIONS START WITH GREAT QUESTIONS.**

**HUNGRY FOR MORE?**  
Download the free StoryCorps App and record an interview.

Tell me about your parents or grandparents.

What are your hopes for the future of this country?

What is one of your happiest memories?

**THE Great THANKSGIVING LISTEN**

Where did you grow up?

What are you most grateful for?

What are you proudest of in your life?

How would you like to be remembered?

**#THEGREATLISTEN**

What advice would you give to your younger self?

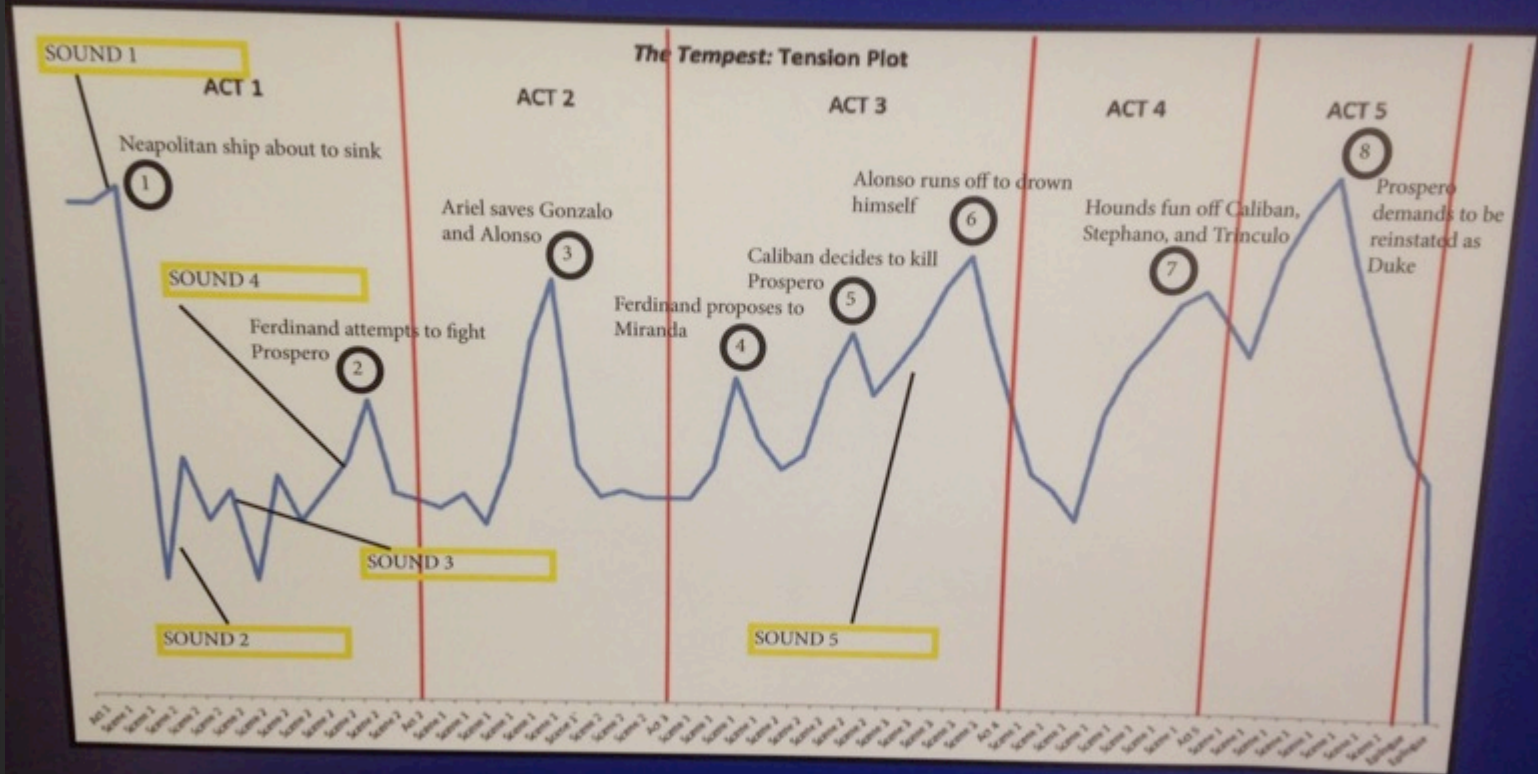
Tell me about a family tradition you have.

*Story Corps*

THEGREATLISTEN.ORG

strates how I imagine the setting  
<http://www.buin.corsica/fr/>

## Tension Plot:



## Sound Cues:

**01 : Tempest Storm : Act 1 Scene 1 : Cue #1**  
This cue is the opening sound for the play. It sets a precedent for the rest of the sounds of the play by meshing together

**02 : Island Ambiance : Act 1 Scene 2 : Cue #6**  
This cue serves as a backdrop for the opening scenes on the island



# Dear Mr. Henshaw and The Lunch Box Alarm

---



Summary: A thief is stealing the lunch out of Leah's lunch box when no one is looking.

Challenge: Develop an alarm that goes off when someone opens the bag or box to steal the lunch.

Julie Smith @JGTechieTeacher  
Mary Ledford @SuperStars2ndGr

# Parents need to know that Rocket Science isn't Rocket Science.

Give parents suggestions

Plan a STEM night at school

Ask parents to volunteer

## 77 Simple STEM Activities for Families

- Take a walk in the backyard
- Go to a museum
- Buy something at a garage sale & take it apart
- Fix a broken toy (instead of throwing it away)
- Take a calculator to the grocery store & find the best prices
- Use a big cardboard box to create a rocketship
- Play a card game that involves numbers
- Play Connect 4
- Play Checkers
- Play Chess
- Create a stop-motion video using LEGOS or clay
- Read a biography of a scientist
- Watch an episode of How Its Made
- Use a magnifying glass to search the ground for bugs
- Use a magnifying glass to start a fire
- Read the news & look for numbers
- Read the news & look for science
- Interview a Senior Citizen about their experiences with STEM
- Watch a keep st
- Plant a
- Weed a the wee
- Go rock
- Design to float
- Visit a f
- Start a
- Build a someth
- Make a someth
- Make a
- Play Mo
- Look at

We tell Parents to **READ** to their kids  
Let's tell Parents to do **STEM** with their kids



**S**tories...talk about STEM

**T**rips...visit STEM places

**E**xploring...go outside

**M**aking...make stuff together





We have enough  
Instruction

We need more  
Inspiration

Will YOU join the STEM Revolution?  
How will you start?

Every teacher can be a STEM teacher

Every parent can do STEM with their kids

it's not \$\$\$STEM...it's STEM

# Thank You!

I'm always willing to help &  
chat & share ideas!

Chris Woods

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