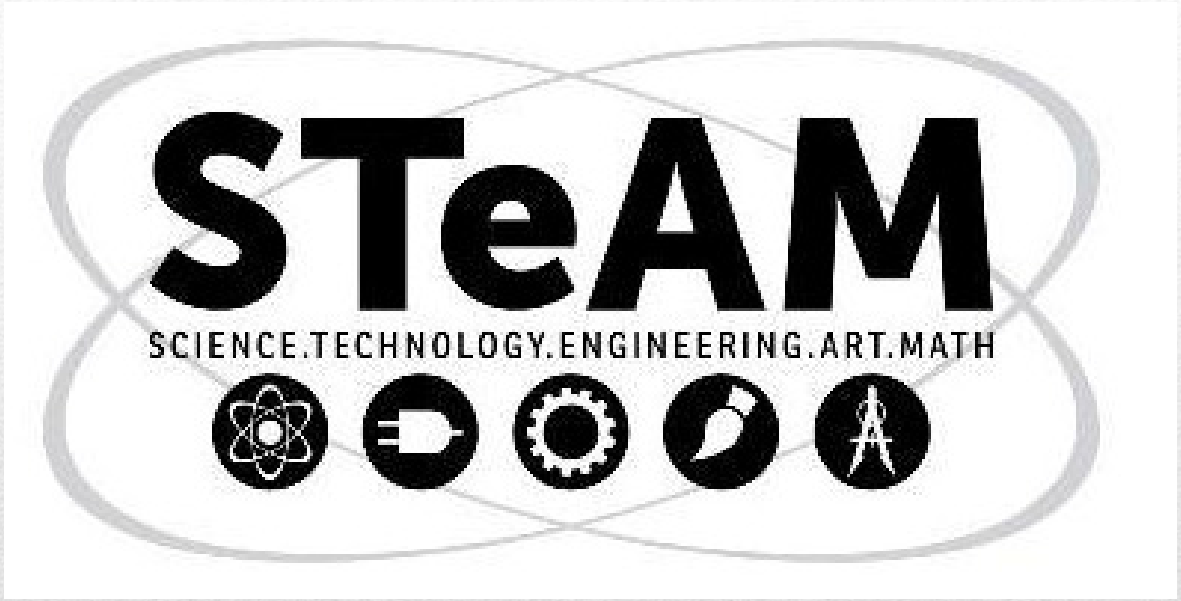
MATHEMATICS



Presentation to the Board of Education
March 19, 2015

...For a Lifetime of Learning
Mineola
PUBLIC SCHOOLS

Goals & Objectives

- Continued implementation of Common Core Math Standards by adapting state curriculum to meet the needs of our students.
- Continued digitization of all math curriculum in grades 5 thru 12.
- Continued development of multi-disciplinary opportunities for student by integrating components of STEAM into different classes.
- Electronic portfolio development for all students.
  - School 4 One – Middle School

Mathematics at the Middle School

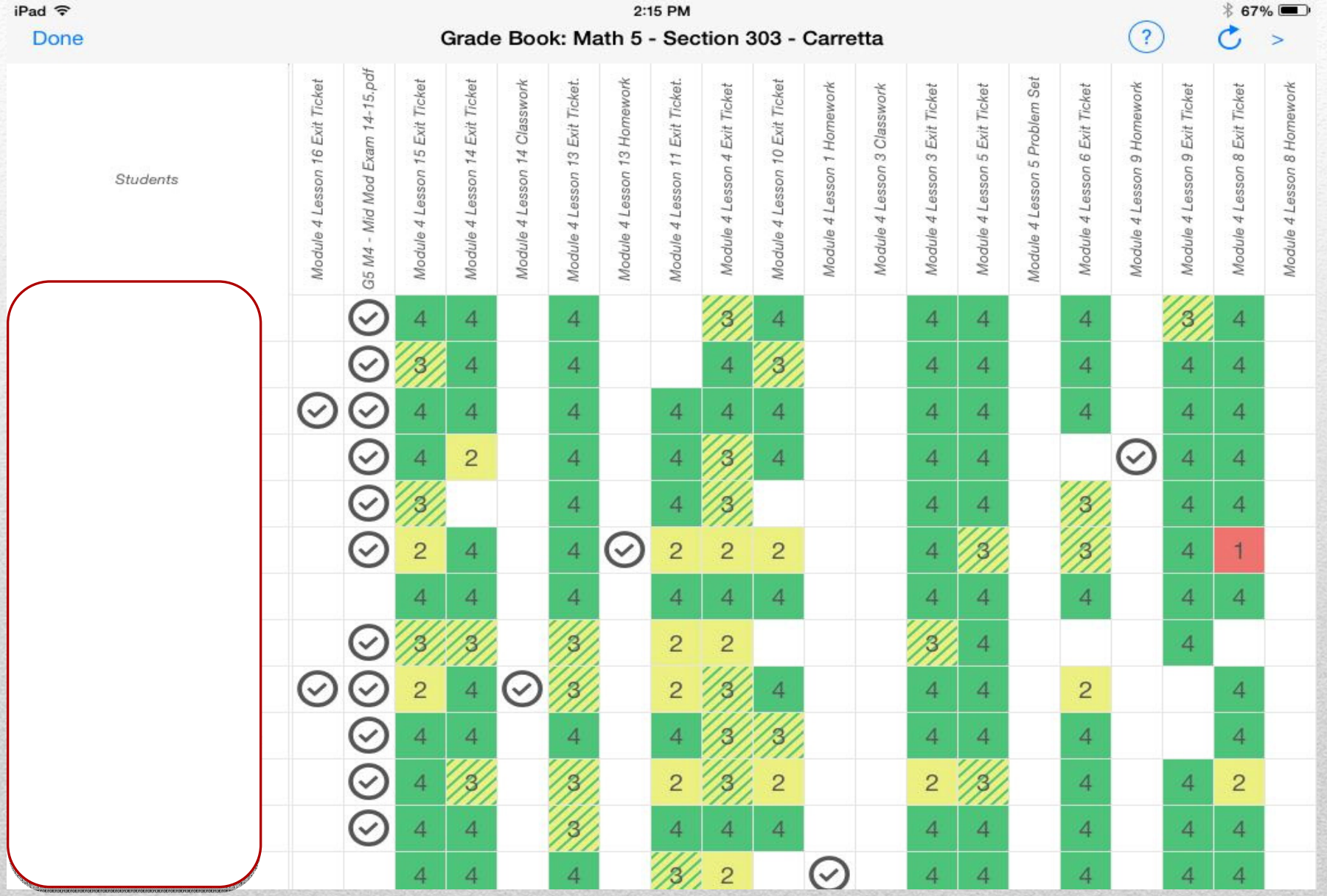
- Students in grades 5 & 6 have a double period of math every day.
- 7th Grade students have one period daily.

*Next year students will have two periods every other day.

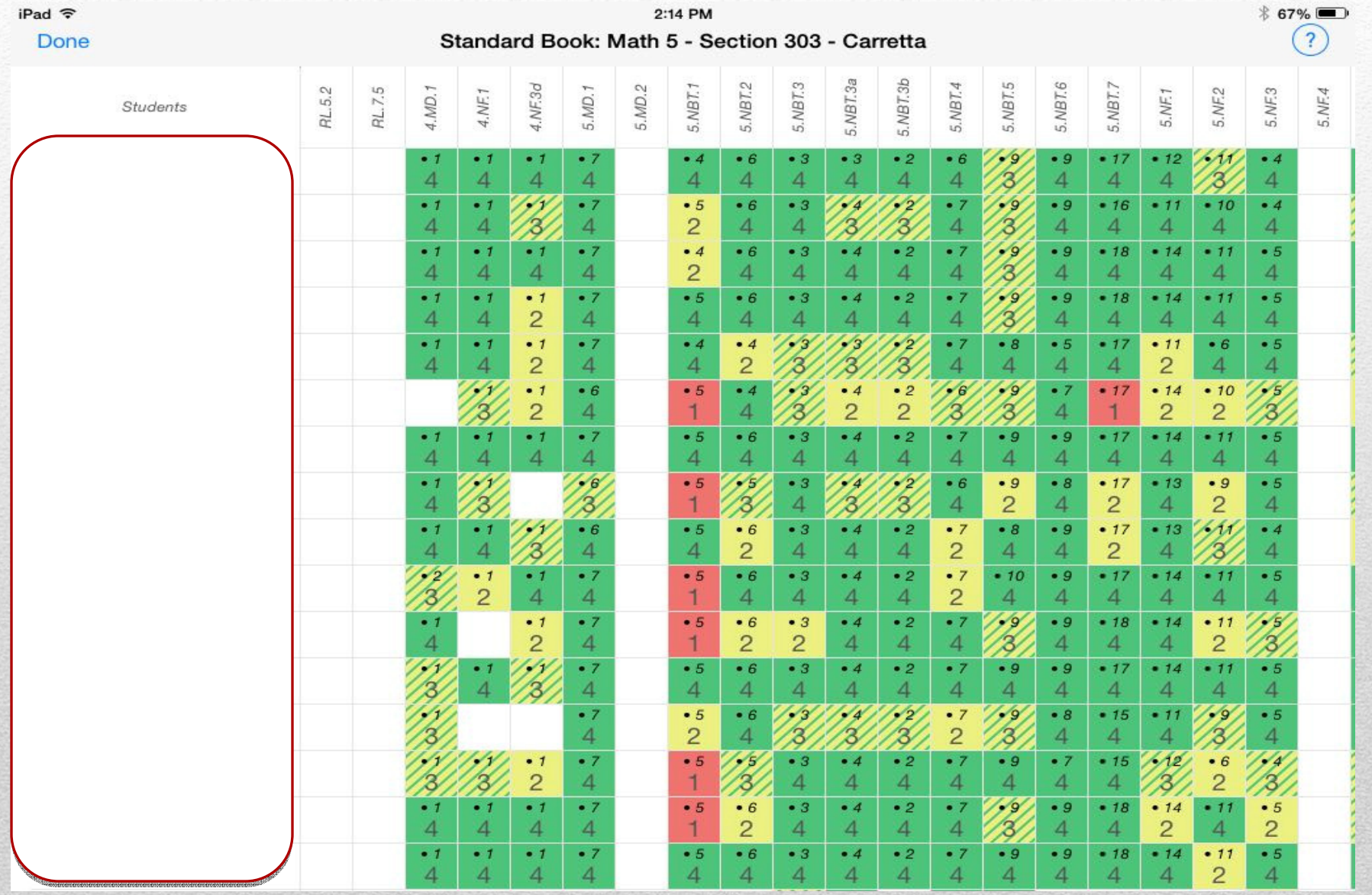
Online Math Resources

- "Show Me" Videos – homemade video collection available on MMS website. (Long Island Video Project)
- School 4 One – Digital portfolio of student work over the course of the entire school year. Tracks progress by standard.
- MathSpace – iPad App that is available for 5th & 6th graders. Gives students instant feedback on each math problem. Has hints and helpful videos.
- MobyMax, Khan Academy, Castle Learning

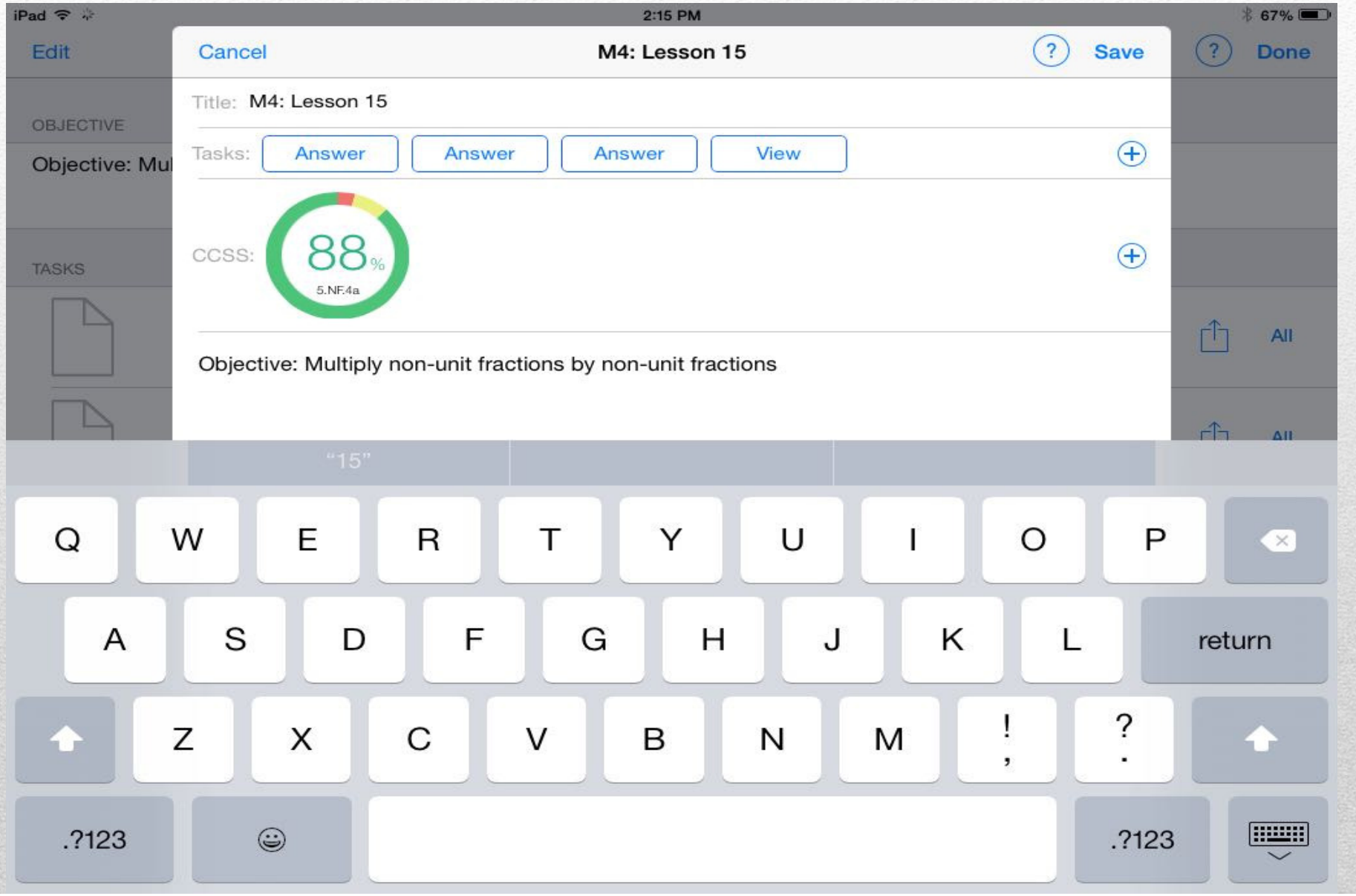
School 4 One – Teacher Gradebook



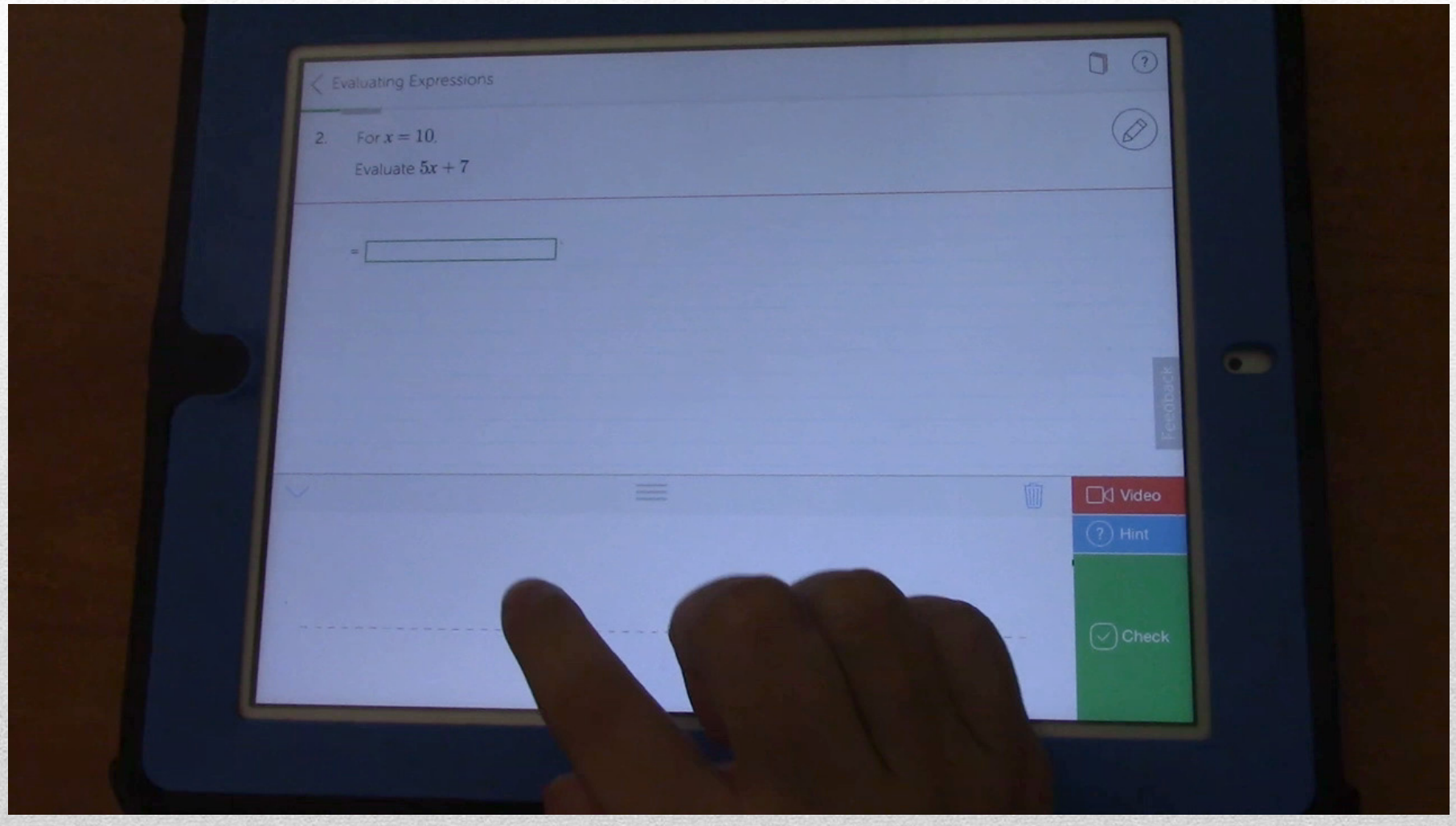
School 4 One – Data by Standard



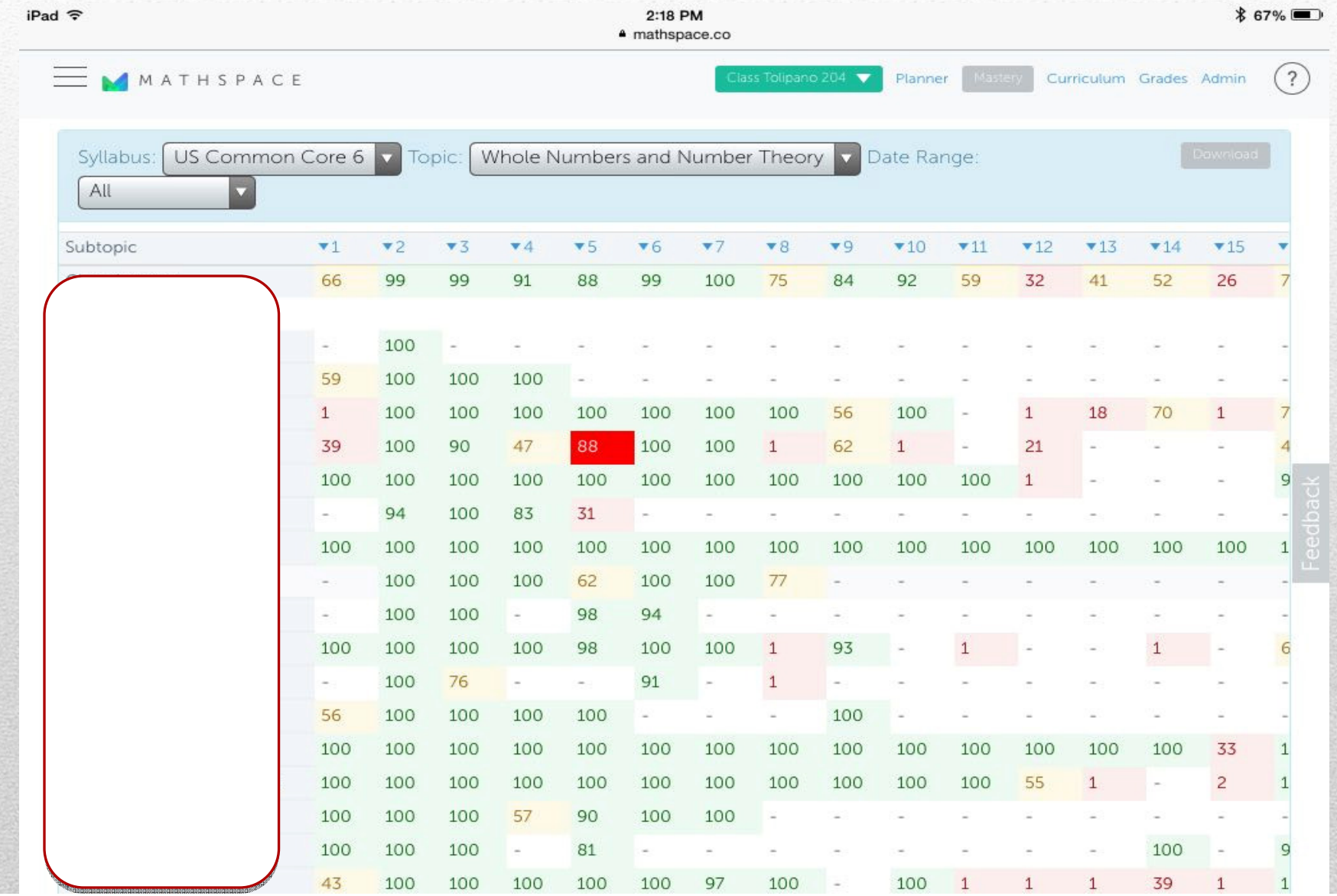
School 4 One - Snapshot



MathSpace – Student Interface



MathSpace - Dashboard



What's Next?

- Greenhouse & Mathematics
  - Students will use tables, graphs, and line plots when testing different soils and fertilizers.
- 2015/16 School Year
  - STEAM Projects in elective courses and in the additional time in 7th grade math.
  - Long Island Math Fair ??

MS Competitions Update

Competitions we have participated in this year:

- Wind Turbine Competition @ Cradle of Aviation
- Egg Drop Competition @ Cradle of Aviation
- MagLev Competition @ Cradle of Aviation
- Discovery Education Epic Story Competition
- Rube Goldberg Online Competition

Competitions coming this SPRING:

- Team America Rocketry Challenge
- Junior Solar Sprint @ Cradle of Aviation
- Nassau County Science Competition – June @ SUNY Old Westbury

Math at the High School

Grade	Course	Options
8	Common Core Algebra 1	Single Period Double Period
9	Geometry Common Core	Single Period Double Period (alt. days)
10	Algebra 2 & Trigonometry	Single Period Double Period (alt. days) Double Period
11	College Pre Calculus* AP Statistics	Single Period Single Period
12	AP Calculus AB or BC AP Statistics College Algebra**	Double Period (alt. days) Single Period Single Period

*** Students have the option to earn 3 college credits for this course.**

**** New for 2015-16 to better align with skills needed to be successful as college freshman**

Quarter 1 – STEAM

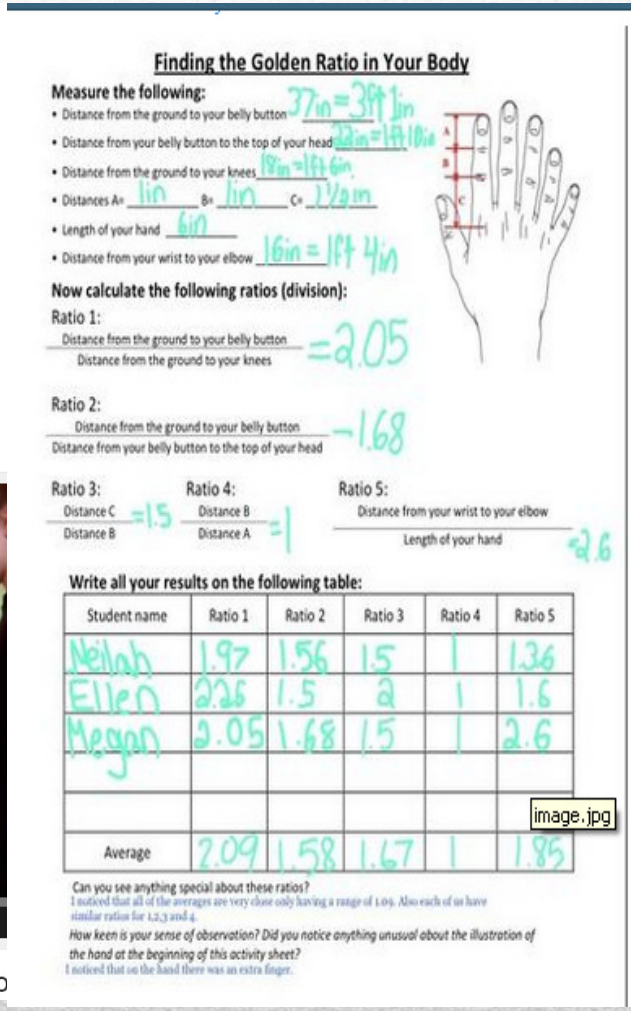
The Art of the Fibonacci Numbers

- Watch Cyberchase: EcoHaven CSE (Ep. 301)
- Complete the activity below with your group. Submit one completed pdf per group into your team's wiki homepage.

Finding the Golden Ratio in Your Body.pdf
Details Download 71 KB

- **Due Friday October 3rd**: Choose the group member whose body proportions best exemplify the Golden Ratio. Create one video per group summarizing how this was determined using mathematical vocabulary. Post that video into your team's wiki homepage.

Math Quarter One Steam Project: The Go



Finding the Golden Ratio in Your Body

Measure the following:

- Distance from the ground to your belly button 37in = 3ft 1in
- Distance from your belly button to the top of your head 22in = 1ft 10in
- Distance from the ground to your knees 18in = 1ft 6in
- Distances A= 1in B= 1in C= 1½ in
- Length of your hand 6in
- Distance from your wrist to your elbow 16in = 1ft 4in

Now calculate the following ratios (division):

Ratio 1: Distance from the ground to your belly button / Distance from the ground to your knees = 2.05

Ratio 2: Distance from the ground to your belly button / Distance from your belly button to the top of your head = 1.68

Ratio 3: Distance C / Distance B = 1.5

Ratio 4: Distance B / Distance A = 1

Ratio 5: Distance from your wrist to your elbow / Length of your hand = 2.6

Write all your results on the following table:

Student name	Ratio 1	Ratio 2	Ratio 3	Ratio 4	Ratio 5
Neilah	1.97	1.56	1.5	1	1.36
Ellen	2.26	1.5	2	1	1.6
Megan	2.05	1.68	1.5	1	2.6
Average	2.09	1.58	1.67	1	1.85

image.jpg

Can you see anything special about these ratios?
I noticed that all of the averages are very close only having a range of 1.09. Also each of us have similar ratios for 1,2,3 and 4.

How keen is your sense of observation? Did you notice anything unusual about the illustration of the hand at the beginning of this activity sheet?
I noticed that on the hand there was an extra finger.

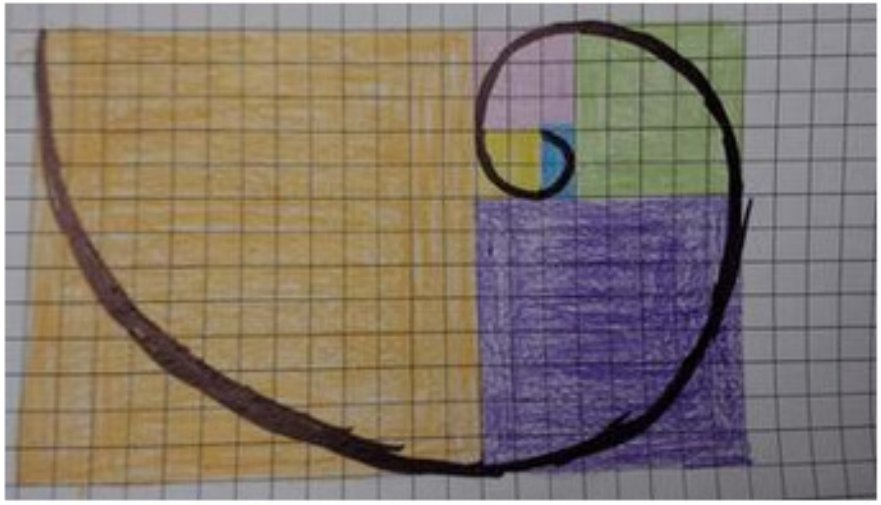
Quarter 1 – STEAM

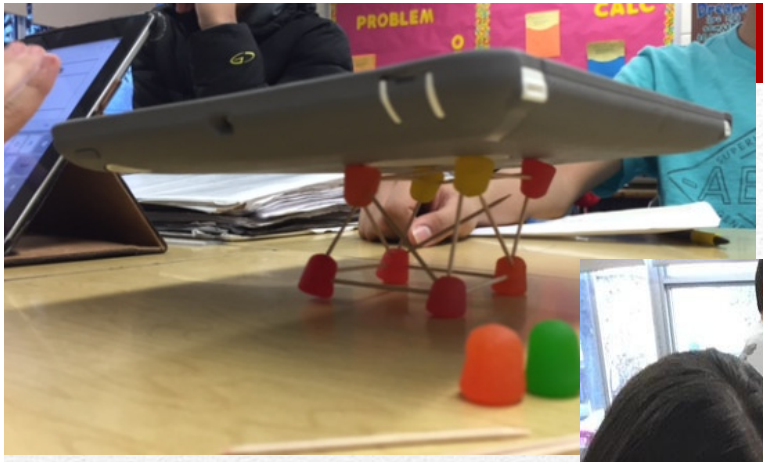
The Art of the Fibonacci Numbers

WGilberg *Oct 20, 2014*

My favorite logo is the Chicago Blackhawks logo from the NHL. It's been called the best logo in hockey because of the way it fits on their jersey. It has a bunch if different colors and shapes and a lot of geometry in it too. It is a Native American tribal person, Sioux, to be exact. It's been given an award for the best logo in sports, believe it or not. I think most designers would want to use mathematics in their logo. This is because they want to make their design perfect and symetrical to appeal to the human eye. That's what the designer of the Chicago Blackhawks logo did and that's why it's been called one of the best logos in sports history.

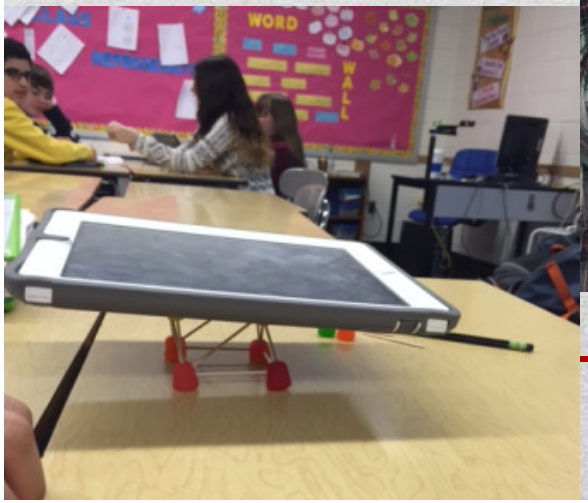
Neilah's Drawing:

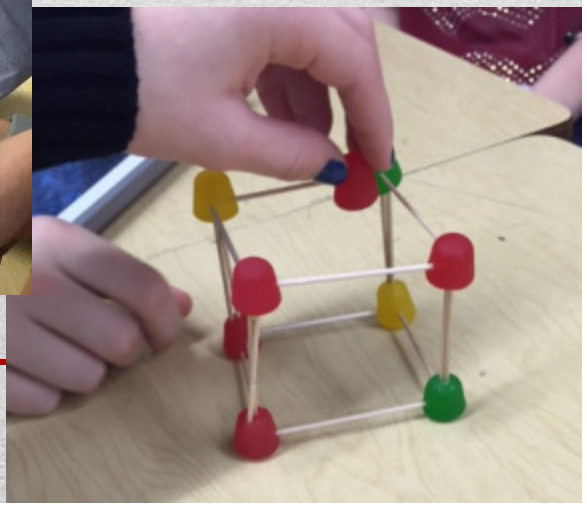




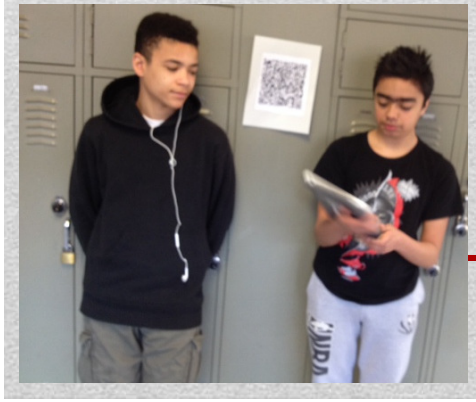
Quarter 2 – STEAM

Math in Architecture





Quarter 3 – STEAM/Pi Day Conference



Periscope

- **Complete implementation of the CCLS**
  - Common Core Algebra I
  - Geometry Common Core
  - Algebra 2 & Trigonometry Common Core
- **Increase number of students enrolled in college-level classes**
  - 2014-15 - **157** students enrolled in College Pre Calculus

Periscope

- **Closing the Achievement Gap / "College Ready" Curriculum**
  - Added sections of Common Core Math courses taught by dual certified teachers (Algebra; Geometry; Algebra 2 & Trigonometry)
  - Alignment of College Algebra to the requisite skills needed for college freshman

Periscope

- **Continue STEAM initiatives**
  - 8th → Quarterly in Algebra I
  - 9th → Exploring Computer Science
  - *10th -12th → Additional Electives:* Gamemaker Programming; Robotics; Digital Production; AP Computer Science
- **Complete Digitizing 8-12 curriculum**
  - iTunes U
  - Increase focus on Creativity, Collaboration, Communication, and Critical Thinking

HS Competitions Update

- Long Island Math Fair
- Institute for Creative Problem Solving (SUNY Old Westbury)
- Toshiba ExploraVision*
- DuPont Challenge*
- North Shore LIJ Medical Marvels Competition*
- Siemens
- Junior Science & Humanities Symposium
- Molloy High School Science Fair
- Long Island Science Congress
- Long Island Science & Engineering Fair (Intel Division)
- New York State Science & Engineering Fair (Intel Division)
- New York State Science & Engineering Fair (Andromeda Division)
- Intel
- NSF Noyce High School Science and Mathematics Poster Competition and Symposium (Tentative)
- Science Bowl at Brookhaven National Laboratory

***new this year**

Rube Goldberg Update

Rube Goldberg Walkthrough

http://www.youtube.com/watch?v=JcK8bZiyKs8&sns=em

Rube Goldberg Final Run

https://www.youtube.com/watch?v=vDvM8T87ET8&feature=youtu.be