

Presentation to the Board of Education
October 23, 2014



STEAM Initiative

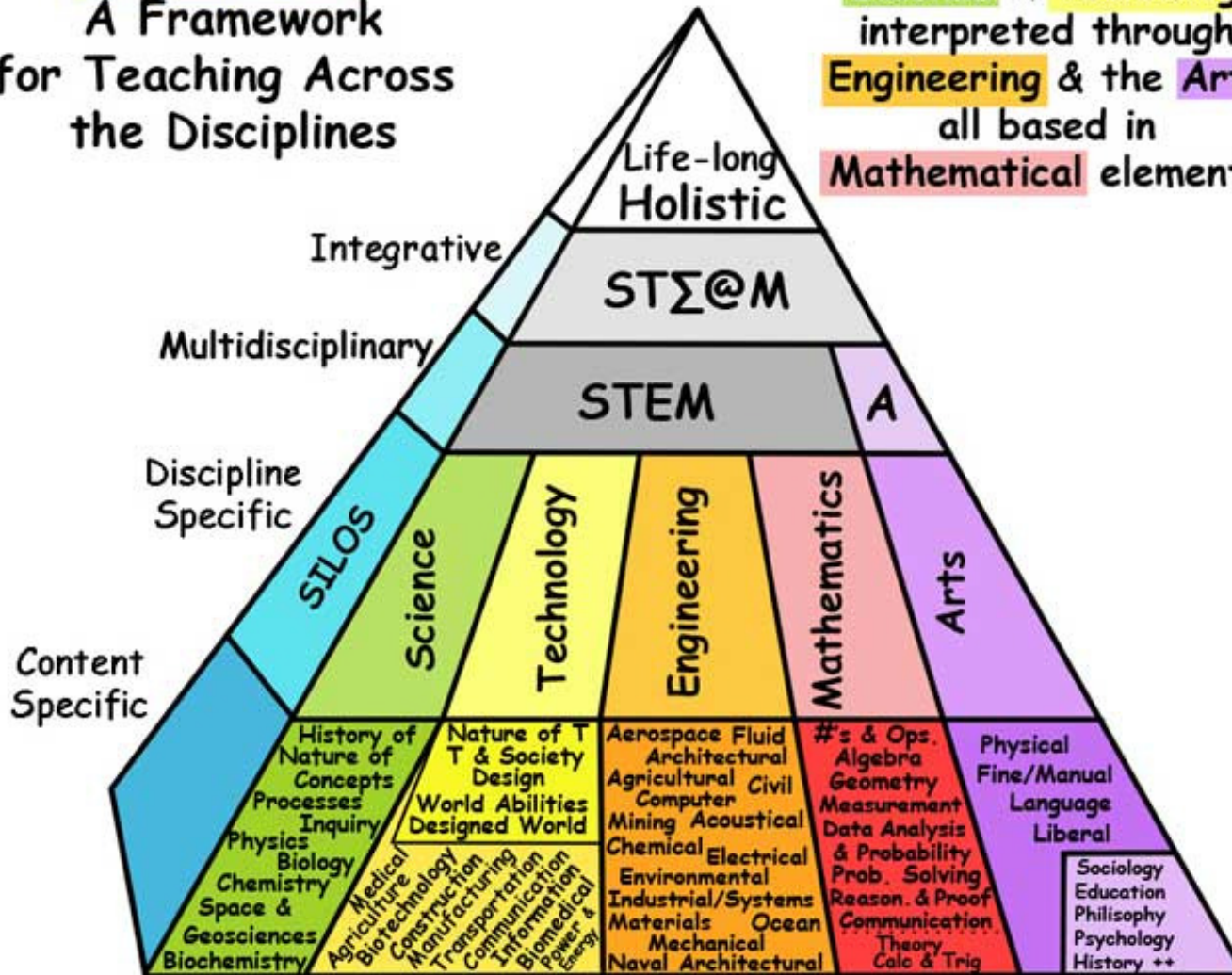
STEAM is a movement that encourages the integration of Science, Technology, Engineering, the Arts, and Mathematics in our classrooms.



STΣ@M:

A Framework
for Teaching Across
the Disciplines

STΣ@M =
Science & Technology
interpreted through
Engineering & the Arts,
all based in
Mathematical elements.





STEAM

C

Goals & Objectives

I

- Students will have fun learning science.

E

- Students will begin to analyze and solve real-world problems.

N

- Students will be able to apply scientific knowledge to other subject areas and the outside world.

C

- Continue to integrate the Next Generation Science Standards (NGSS) in our science curriculum.

E

Science at the Middle School

- 5th & 6th Grade students are in their second year of using the Knowing Science Program.
- Three periods every 6-day cycle of science with their classroom teacher.
- Two periods in the science lab where they discover concepts/ideas through fun hands-on experiments.

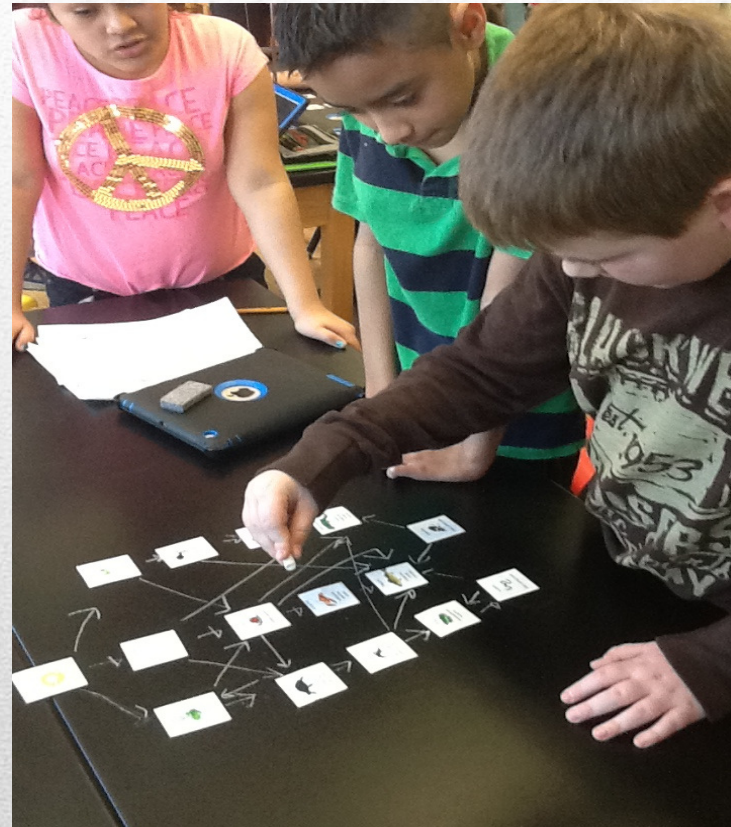


Science at the Middle School

- 7th Grade students are using new curriculum aligned to the NGSS this school year.

Includes:

- Physical Science,
- Earth Science
- Life Science
(Heavy Emphasis)



- In November, we will begin tracking student progress by standard (NGSS) using School 4 One.
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Greenhouse Project

Why Build a Greenhouse?

The greenhouse is an inter-disciplinary project that can involve all students in some capacity.

- Research Class - Students investigate properties of greenhouses., plants & vegetables that can be harvested by June. How greenhouse can alter/affect our growing zone.
 - Art - Making clay containers to grow seeds/plants in. Scan them digitally using iPad and reproduce with the 3D Printer.
 - Technology (Engineering & Design) – Students will construct shelving for planters/pots and botany boxes to hold cell packs. Design and construct a PVC Irrigation System?
 - Science – Water and Soil Analysis, Rain Water vs. Tap-Water, Fertilizer (Organic vs. Non-organic), discussions about different forms of energy and monitoring temperature changes, analyze plant cells.
 - Home & Careers – Discuss benefits of a healthy diet. What nutrients fruits and vegetables can do for our body. Farm to Table or Organic Lunch/Snack Day in the Spring?
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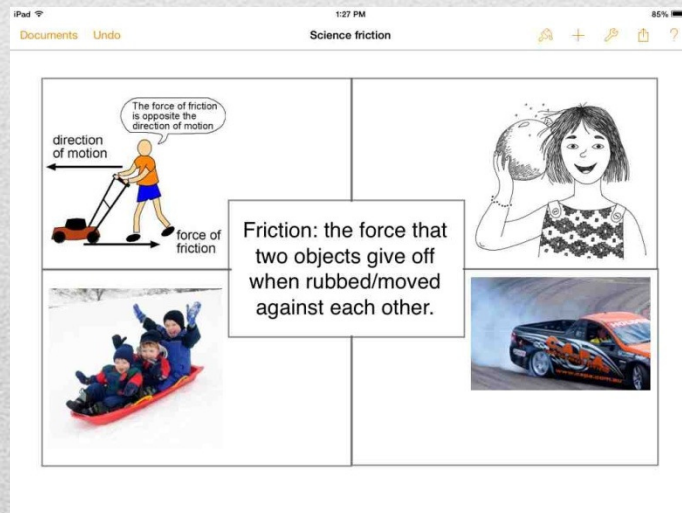


Middle School Competitions

- Wind Turbine Competition – October 29th @ Cradle of Aviation
 - Egg Drop Competition - March 11th @ Cradle of Aviation
 - MagLev Competition - March 18th @ Cradle of Aviation
 - Team America Rocketry Challenge – Spring 2015
 - Rube Goldberg Online Competition – Spring 2015
 - Discovery Ed. Epic Story Competition
 - Nassau County Science Competition – June @ SUNY Old Westbury
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Science Program Structure

- Grade 8
 - 8R: NYS 8th grade Science Curriculum
 - Accelerated: Earth Science
- Grade 9:
 - 9R: Earth Science
 - Accelerated: Living Environment





Science Program Structure

- Grade 10:
 - 10R: Living Environment
 - Accelerated: Chemistry
- Grade 11:
 - 11R: Chemistry, Physics, or AP Science course
 - Accelerated: Physics, or AP Science course
- Grade 12:
 - Physics, or AP Science course

AP Science Course Options:

- AP Biology
 - AP Chemistry
 - AP Physics
 - AP Environmental Science
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Science at the High School

- Articulation with the 8R teachers and the middle school teachers to facilitate the continuation of the NGSS standards for 2015-2016 school year
- Science 8R teachers are adapting their labs to align with the NGSS standards
- All AP courses (Biology, Chemistry, Physics, & Environmental Science) have aligned their labs with the new College Board standards to be more inquiry based
- All Regents courses have modified at least 1 lab to align with the NGSS lab standards (inquiry based)
- Earth Science and Biology labs incorporated the use of iPads
- Melting Glass Project in Art using Chemistry



Competitions

- 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 (tentative)

*new this year



STEAM Night

- Expanding on the High School Science Symposium
 - Wednesday May 27 @ 6:30 at the High School
 - Research Projects from grades 9-12
 - National Science Honor Society Induction
 - 8th Grade STEAM project
 - Middle School and Jackson Avenue Science Showcase
 - Robotics Demo
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FULL
STEAM
AHEAD!