

Step into STEM

Bringing engineering into the classroom through an integrative, real-world approach to learning science and mathematics.



MAKING A SUPERBALL

Students played the roll of a chemical engineer by developing the best proportional "recipe" to create a superball that could bounce 30 centimeters high.

Students were given basic guidelines and materials including glue, borax and cornstarch.

After testing their first model students were able to modify and redesign a second superball to improve the outcome.

These challenges, connected to the NJCCCS and NGSS, are available for your classes. Please contact your building's STEM Specialist.



Family Engineering Night

During the last week of October, our school district is planning to host the 2nd annual Family Engineering Night for 8th grades residents of Middletown and their parent. Pre registration is required and information is available on the district website.

The evening night will consist of several competitive design challenges with student teams competing against parent teams. In addition, administrators from High School North and South will be present during the evening to explain the STEM Pathway that is currently in it's third year for students in our high schools who are interested in possibly studying or working in STEM-related fields in the future.

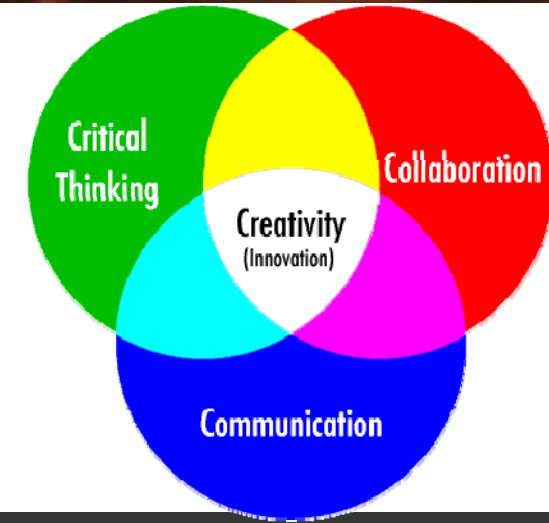
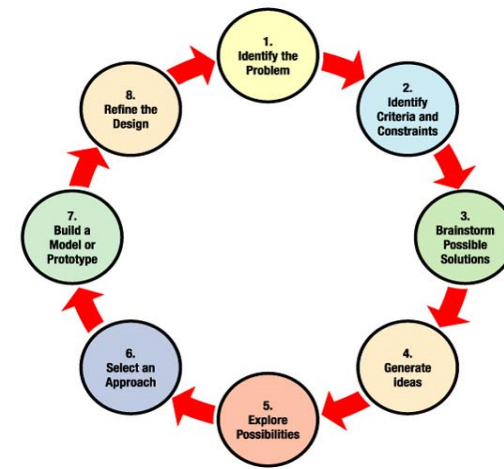


STEM Club Kick Off

The STEM club has begun meeting! They started the year off with an introduction to the *Seaperch* underwater design challenge. Students will design, build and test their underwater rovers throughout the school year. In February and March, club members will be meeting at the Red Bank YMCA to learn how to maneuver and control their rover in the Huber Pool there, culminating with the completion to be held on April 16th at Rowan University.



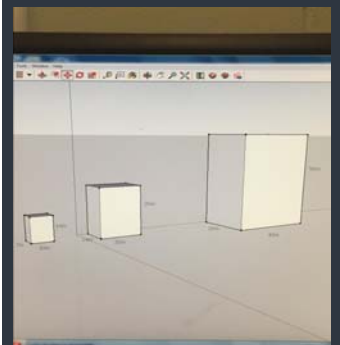
Students participants commit to scheduled dates for meetings during which they complete the building of the rover, prepare an oral presentation and complete a design journal of the Seaperch experience as required for the competition.



SCALE MODELS

Students were given the task of designing three scale models with specific dimensions using Google sketch up for their blueprint. Students were then challenged to become civil engineers by working collaboratively to create the structures using K'Nex rods and connectors.

The models served as a visual representation of the proportional relationship between the models. Students compared and contrasted each. They were also challenged to determine the mathematical relationship between each model.



Middle School STEM Specialists

Bayshore:
JoAnn Layton, ext. 2610

Thompson:
Jeanette VanFechtman, ext. 8776

Thorne:
Kristen Parry, ext7785

Introducing..... MaKey, MaKey

MaKey, MaKey is a unique and innovative approach to engineering in which students are challenged to become artists, designers and innovators by creating game controllers, musical instruments and keyboards out of everyday objects such as playdoh, apples, and bananas! A kit is used that contains everything needed to get started: one USB Cable, seven alligator clips, six connector wires, illustrated instruction guide, and stickers. (Bananas not included.)

MaKey MaKey works on Windows, Mac, Chromebooks and some tablet devices. Students interested in doing this at home can order kits through MakeyMakey.com for \$49.95.



Engineering Resources

The National Science Foundation offers a collection of lessons, activities and web-based resources intended to help interested educators, students, and families learn more about engineering.

<http://www.nsf.gov/news/classroom/engineering.jsp>



Engineering~ Go For It (eGFI) provides a website, magazine, and an e-newsletter as well as free materials for the classroom. Engineering activities are grouped by topic as well as by grade level.

<http://teachers.egfi-k12.org/category/lessons/grades-6-8-lessons/>