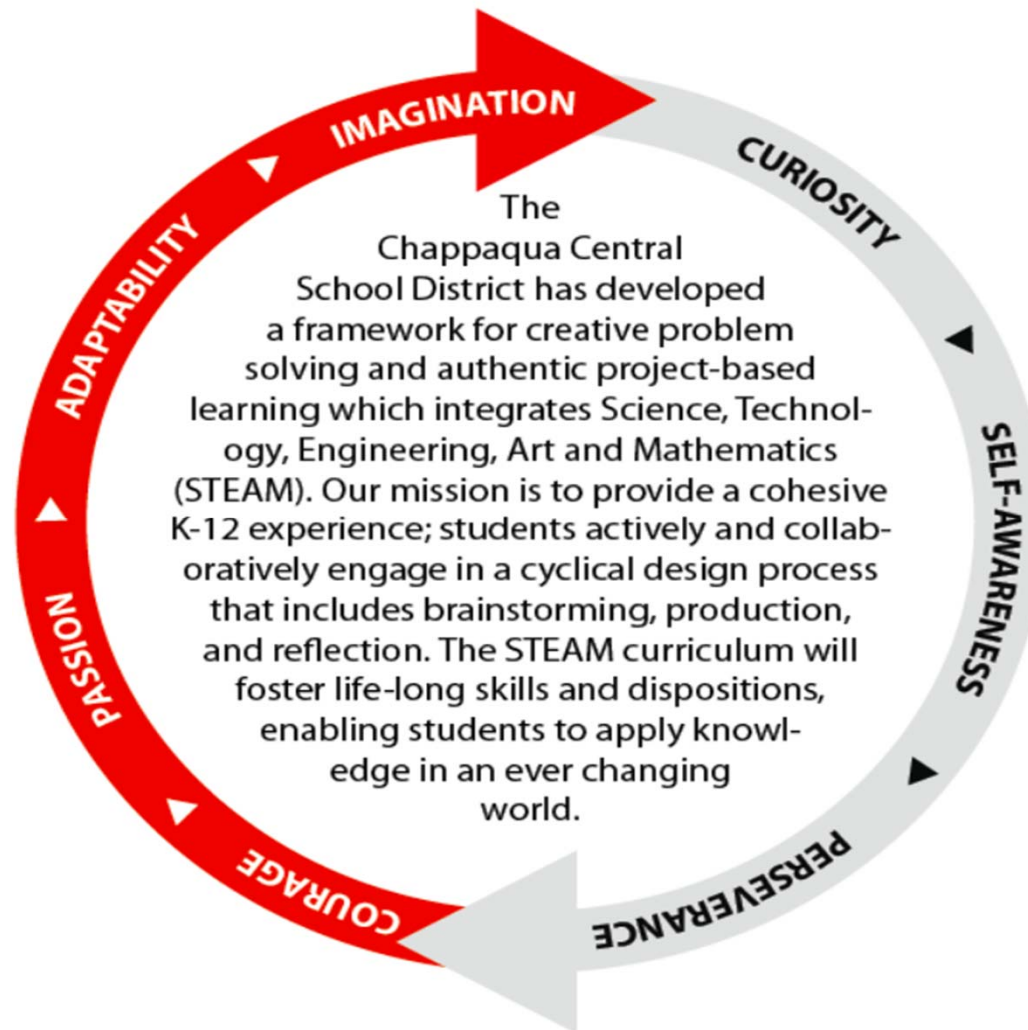# STEAM in Chappaqua

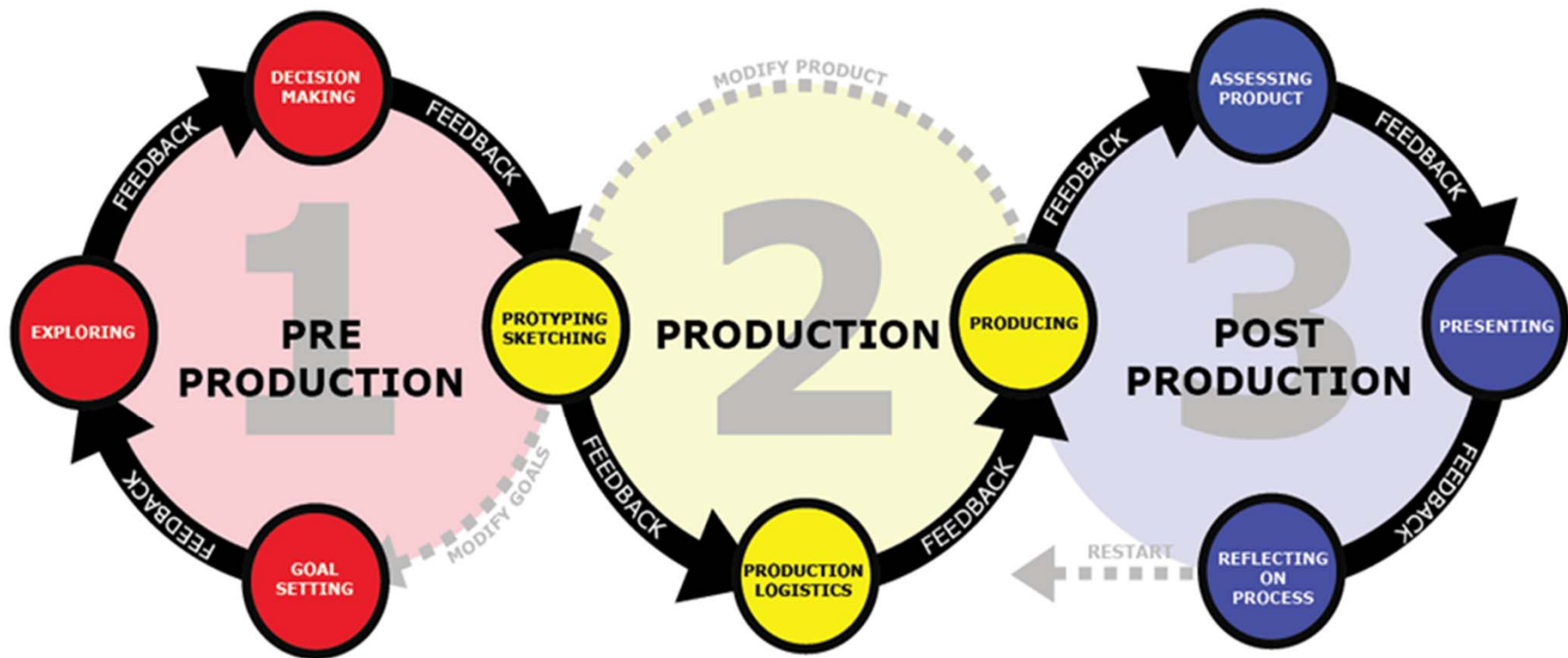**Chappaqua Schools**

October 18, 2016

Eric Byrne, Assistant Superintendent for Curriculum & Instruction
Josh Block, Director of Mathematics
Ellen Moskowitz, Instructional Technology Coach
Zach Arnold, Instructional Technology Coach

Mission Statement

IMAGINATION

CURIOSITY

ADAPTABILITY

SELF-AWARENESS

PASSION

COURAGE

PERSEVERANCE

The Chappaqua Central School District has developed a framework for creative problem solving and authentic project-based learning which integrates Science, Technology, Engineering, Art and Mathematics (STEAM). Our mission is to provide a cohesive K-12 experience; students actively and collaboratively engage in a cyclical design process that includes brainstorming, production, and reflection. The STEAM curriculum will foster life-long skills and dispositions, enabling students to apply knowledge in an ever changing world.

Chappaqua Schools

Design Process

PRODUCT DESIGN (STEAM)

STEAM Design Process

2nd Grade
Innovative Tools Project

Ms. Diskin's Class

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Schools

Design Challenge:
Create a Flying Delivery Device

Directions: Using Sculpey or sketching, rapid prototype a flying object that can autonomously deliver a package to your home.

▸ Pre-preproduction
▸ Production
▸ Postproduction

Chappaqua Schools

Student Presentations

HIGH SCHOOL

Ethan Rich: Card Reader

MIDDLE SCHOOL

Nate Meyer & Teddy Meyer: Solar Cooker

Technology Class: Montessori Chair

ELEMENTARY SCHOOL

Emilia Martinez & Gillian McCann: Water Park

Chappaqua
Schools

Elementary School STEAM

Emilia Martinez & Gillian McCann

Water Park

Chappaqua Schools

Skills Training

Skills Training

Prototyping

Planning, Building, Collaborating and Problem Solving

Testing and Revising

Finished Product!

Obstacle Course

Finished Product!

Chappaqua Schools

Water Park

Solar Cooker

Solar Cooker

By Nate and Teddy Meyer
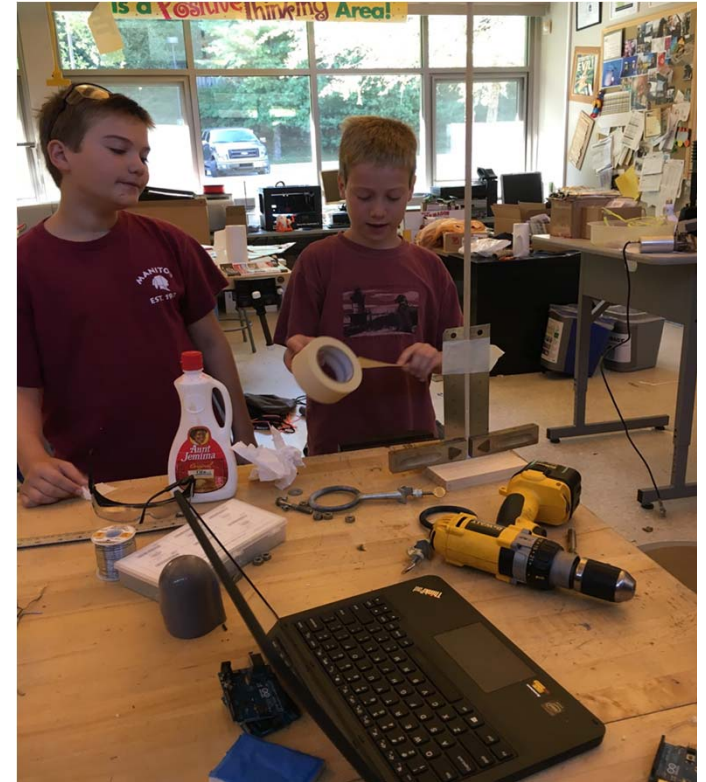
Goals

Direct the rays of the sun at a singular spot

Boil water 212 F° or 100 C°
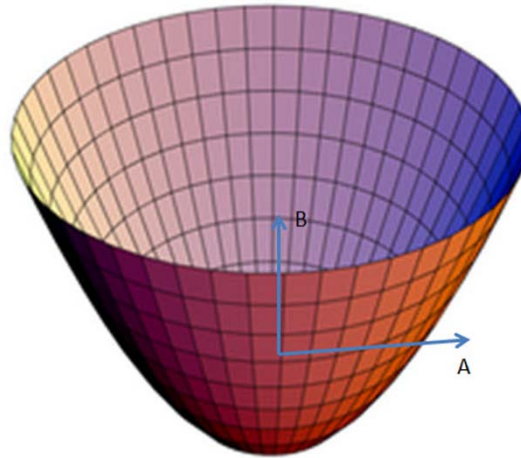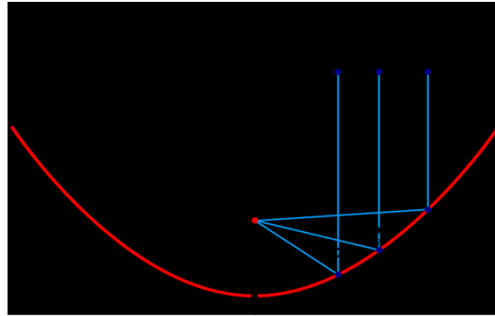
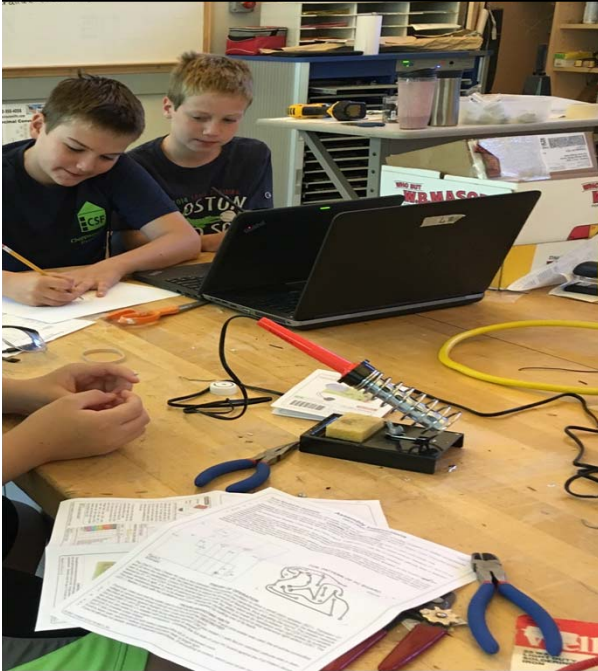Eventually cook an egg

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Prototypes

Before we could start building our final product we needed to build prototypes to see what would work. This was important and useful for our final design.
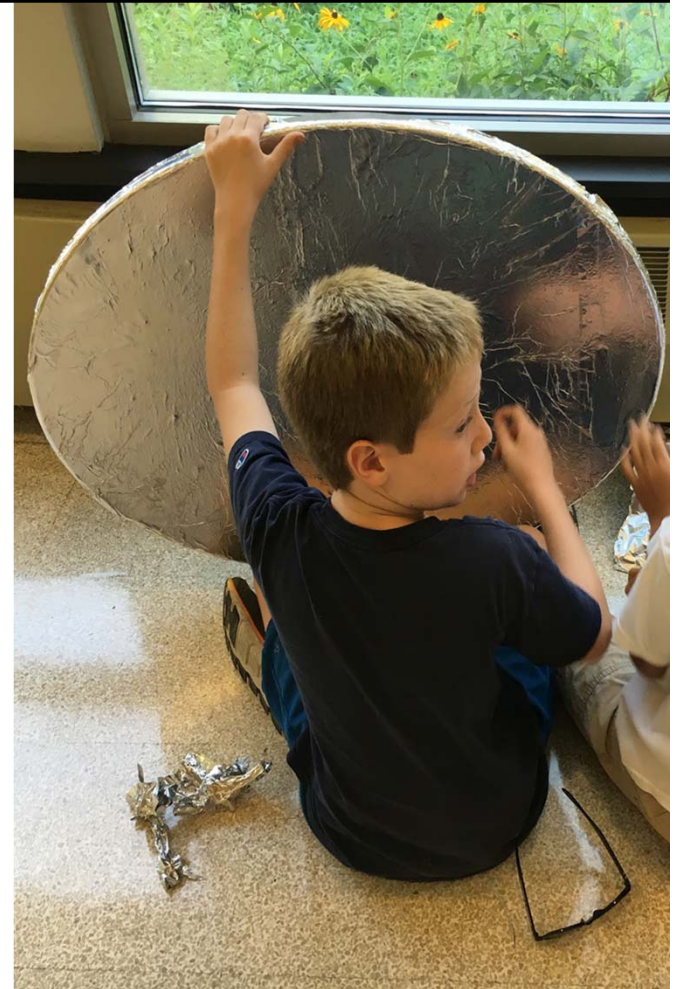
Brainstorming

A parabola is a symmetrical curve that is formed in a 2 dimensional plane. A 3D parabola is called a paraboloid. The type of paraboloid we used is called an elliptic paraboloid because it is shaped like an oval cup.

Building

On the left we are building our first design for the stand.
On the right we are building the dish.

Testing

We needed to test our solar cooker before we could start cooking.

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Cooking

We cooked an egg using the sun!

Student Montessori Chair Design Challenge

TABLE

CHAIR FOR K-2

CHAIR FOR 3-4

High School

Ethan Rich: Card Reader

Chappaqua Schools

CCSD STEAM Development Timeline

Summer 2016

▶ Develop initial STEAM vision and the Design Process

▶ Experience STEAM PBL and the Design Process

▶ Develop common philosophies and goals

School Year 2016-17

▶ Create pilot STEAM projects and mini projects

▶ STEAM & PBL workbooks

▶ Create K-12 skills and competencies continuum

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CCSD STEAM Development Timeline

Summer 2017

- Develop instructional structures
- Develop projects and curriculum

School Year 2017-18

- Professional development opportunities
- Prepare initial units of study and projects aligned to skills

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SUMMER STEAM Cooperative

Chappaqua Schools

Summer STEAM Cooperative

Chappaqua
Schools
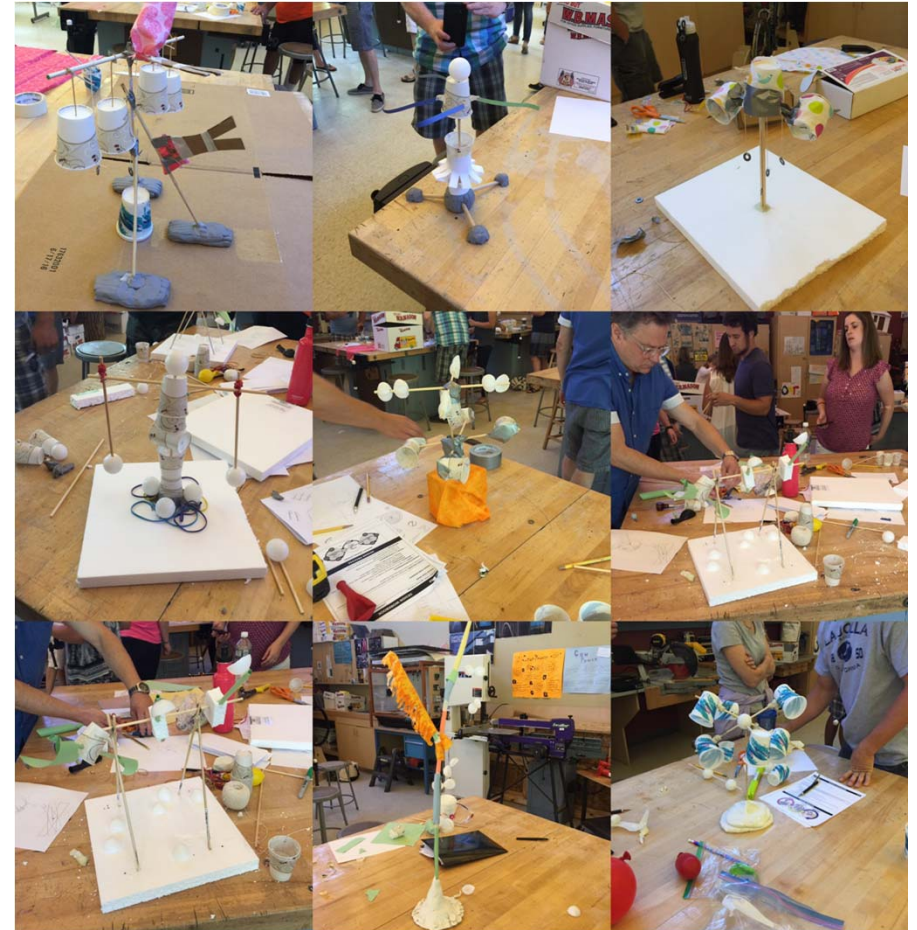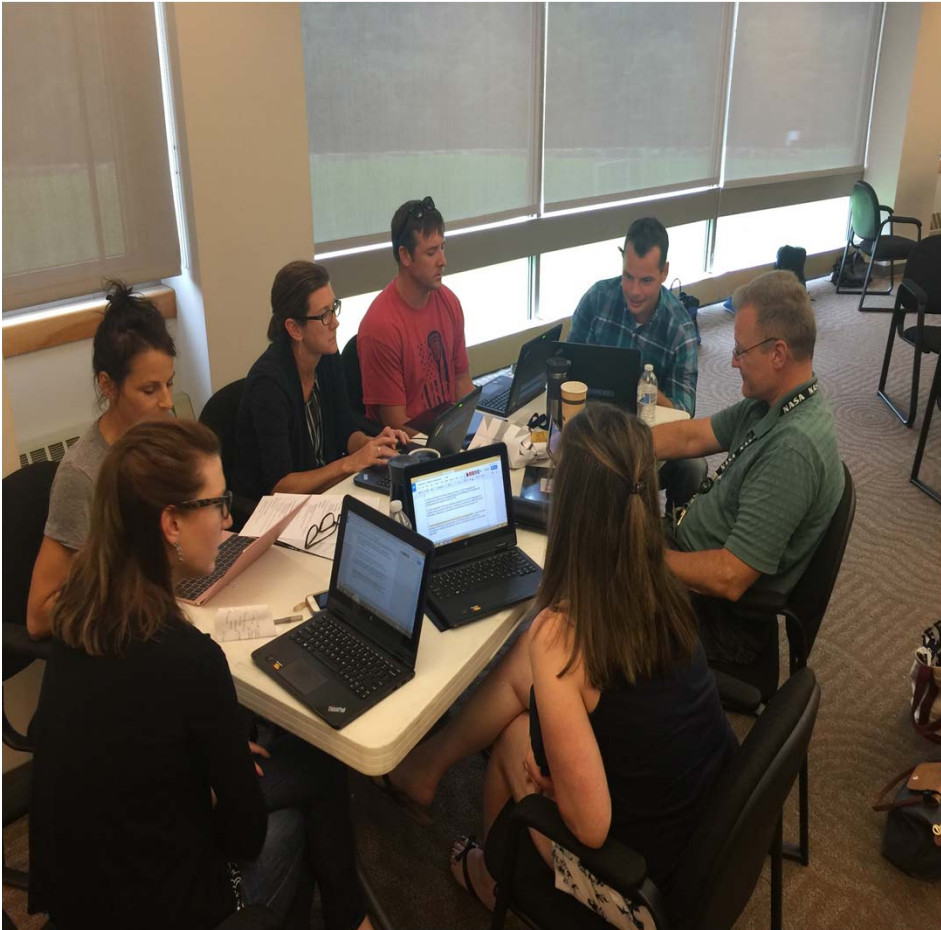
Learning Team

▶ Project Based Learning unit development

▶ Skills and competencies continuum

▶ K-12 interdisciplinary curriculum

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Next Steps:
Professional Development Team

▸ 2016-2017 STEAM Learning Team

▸ Faculty meetings

▸ STEAM space design team

▸ Staff Development days

▸ Summer Work: STEAM Cooperative & STEAM Camp

▸ Integrate STEAM philosophies and curriculum, K-12

Chappaqua Schools

Q & A

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