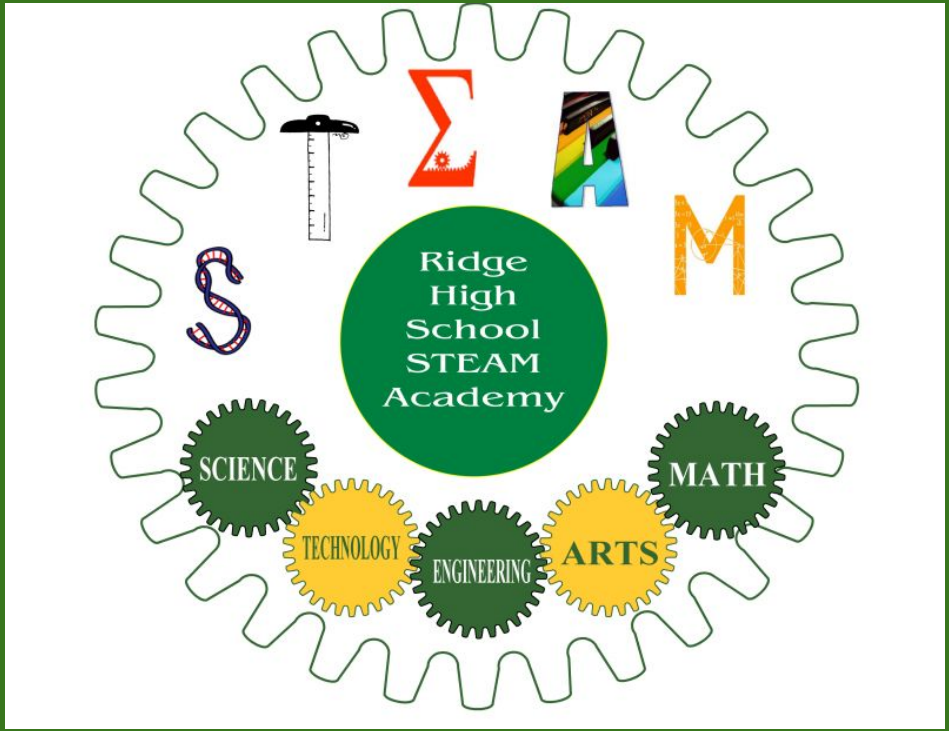
STEAM Update and Showcase 2017



Ridge High School
STEAM Program - Year 1

New STEAM Courses for 2016 - 2017

Introduction to Engineering Design

Principles of Biomedical Science

Computer Science Principles

Design and Creation

Over the next three years

Principles of Engineering
Human Body Systems
Cybersecurity
Civil Engineering and Architecture
Medical Interventions
AP Seminar

PLTW | Biomedical Science

Unit 1: The Mystery

- 1.1 Lesson 1.1 Investigating the Scene
- 1.2 Lesson 1.2 DNA Analysis
- 1.3 Lesson 1.3 The Findings

Unit 2: Diabetes

- 2.1 Lesson 2.1 What is Diabetes?
- 2.2 Lesson 2.2 The Science of Food
- 2.3 Lesson 2.3 Life with Diabetes

Unit 3: Sickle Cell Disease

- 3.1 Lesson 3.1 The Disease
- 3.2 Lesson 3.2 It's In the Genes
- 3.3 Lesson 3.3 Chromosomes
- 3.4 Lesson 3.4 Inheritance

Unit 4: Heart Disease

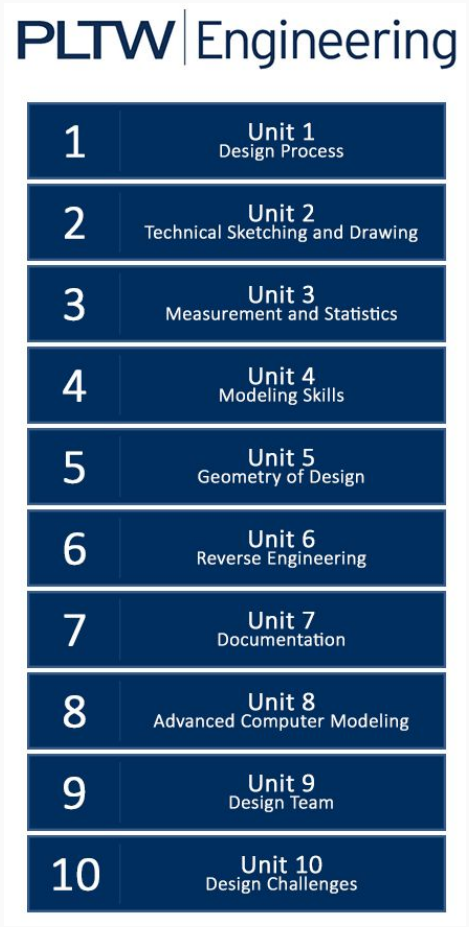
- 4.1 Lesson 4.1 Heart Structure
- 4.2 Lesson 4.2 The Heart at Work
- 4.3 Lesson 4.3 Heart Dysfunction
- 4.4 Lesson 4.4 Heart Intervention

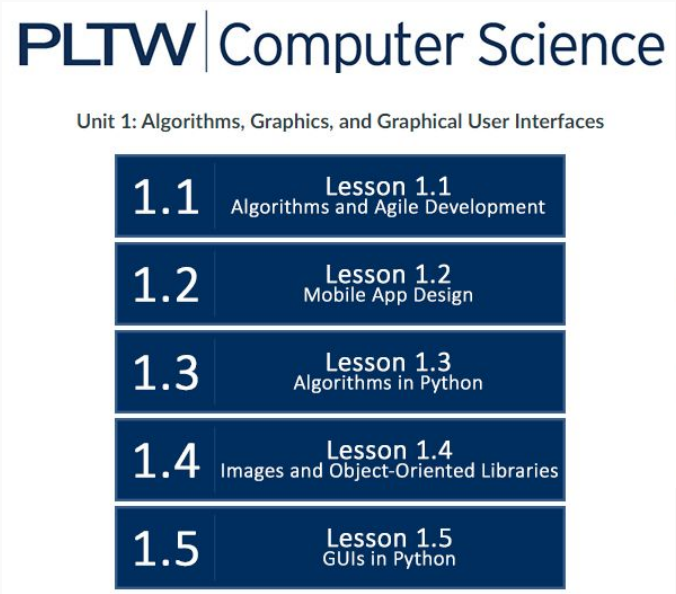
Unit 5: Infectious Disease

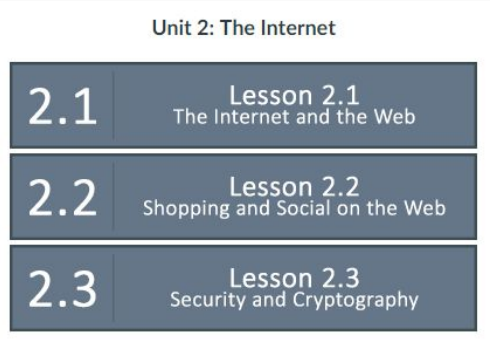
- 5.1 Lesson 5.1 Infection

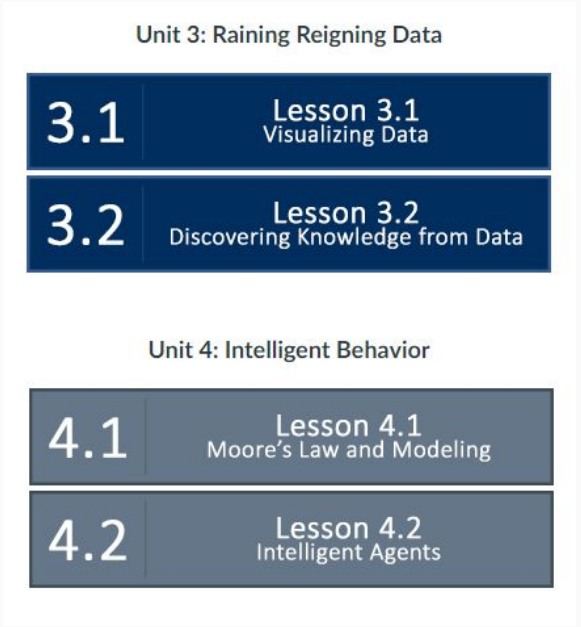
Unit 6: Post Mortem

- 6.1 Lesson 6.1 Analyzing Anna


PLTW | Engineering
1
Unit 1
Design Process
2
Unit 2
Technical Sketching and Drawing
3
Unit 3
Measurement and Statistics
4
Unit 4
Modeling Skills
5
Unit 5
Geometry of Design
6
Unit 6
Reverse Engineering
7
Unit 7
Documentation
8
Unit 8
Advanced Computer Modeling
9
Unit 9
Design Team
10
Unit 10
Design Challenges







Computer Science Units

Benefits of Creating a STEAM Program

Facilitated the Development of a Computer Science Program of Study

Facilitated the Development of a Biomedical Science Program of Study

The STEAM Academy is the first “School within a School” program at Ridge High School

Future Program Improvements

More Speakers - Recently: NJIT Computer Science Outreach Program

Student Focus Groups - Group discussions to determine how to improve the program and add value to the Academy

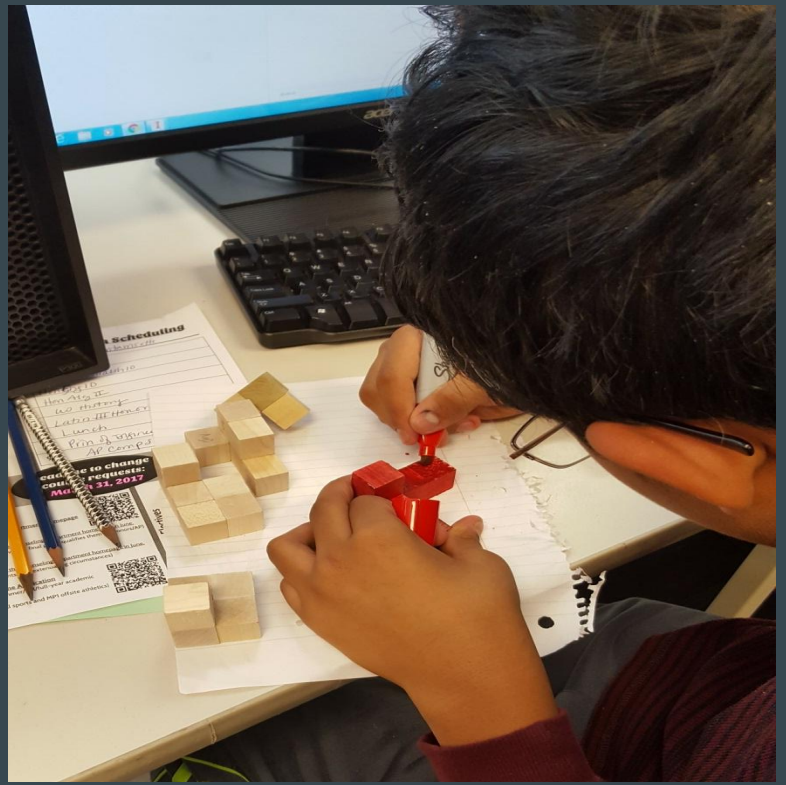
Seminar Design - Investigate possible iterations of the AP Seminar design to best fit the Ridge High School STEAM program in upcoming years

Introduction to Engineering Design

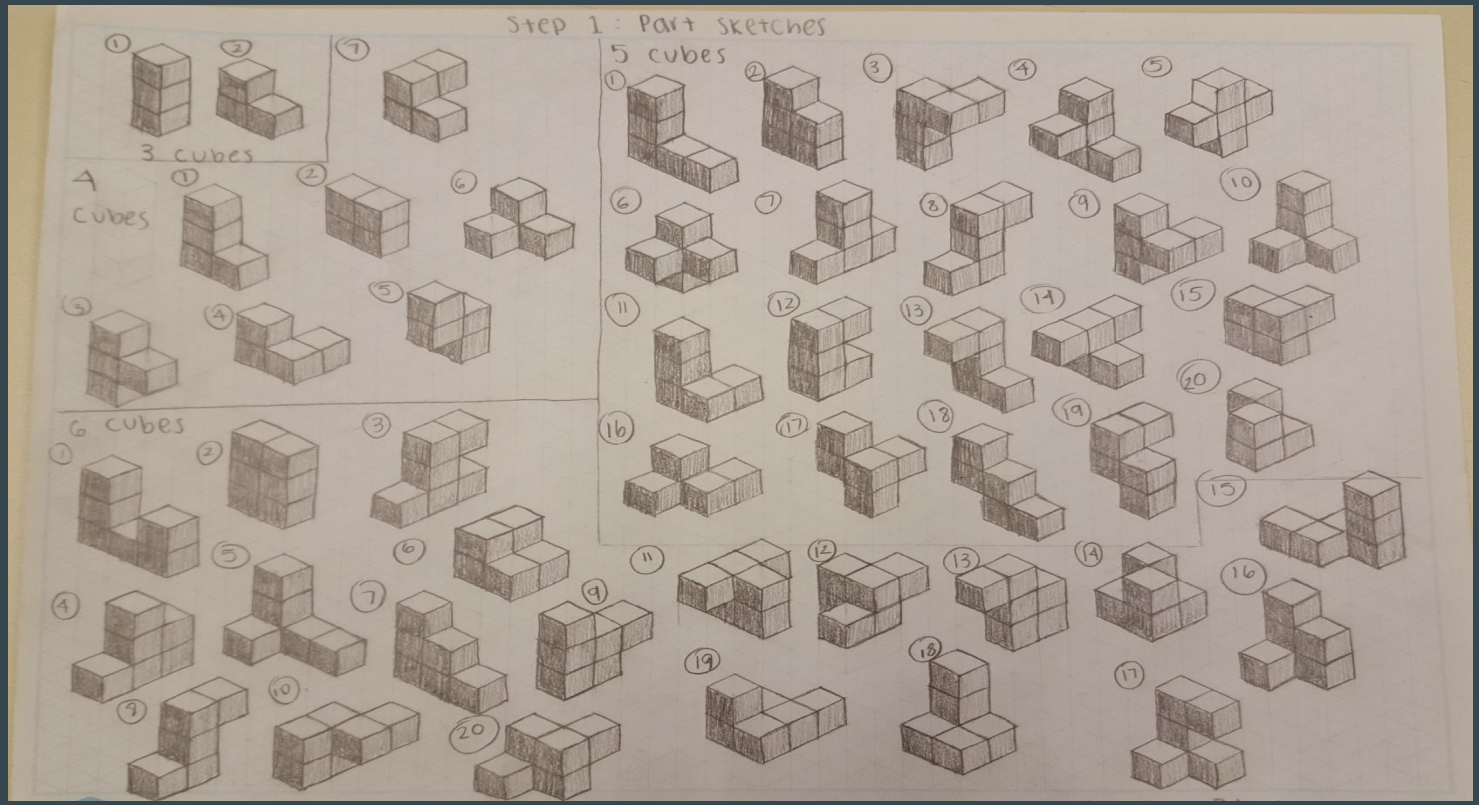
Project Lead the Way

Mr. Mark Dotta

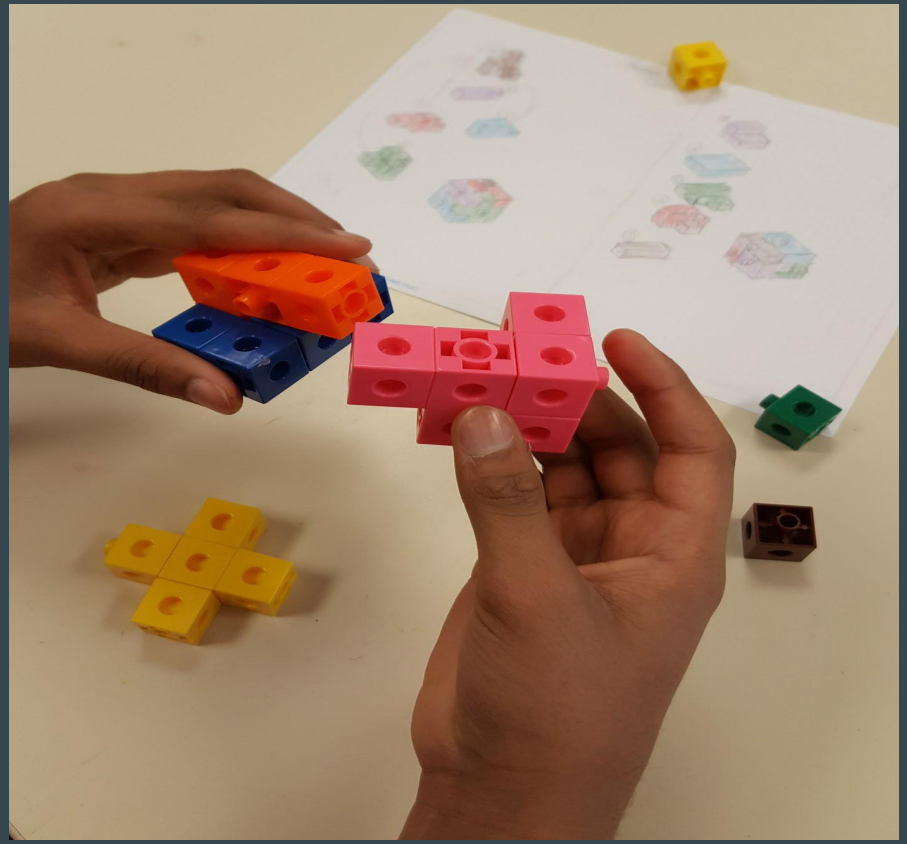
Puzzle Cube Project



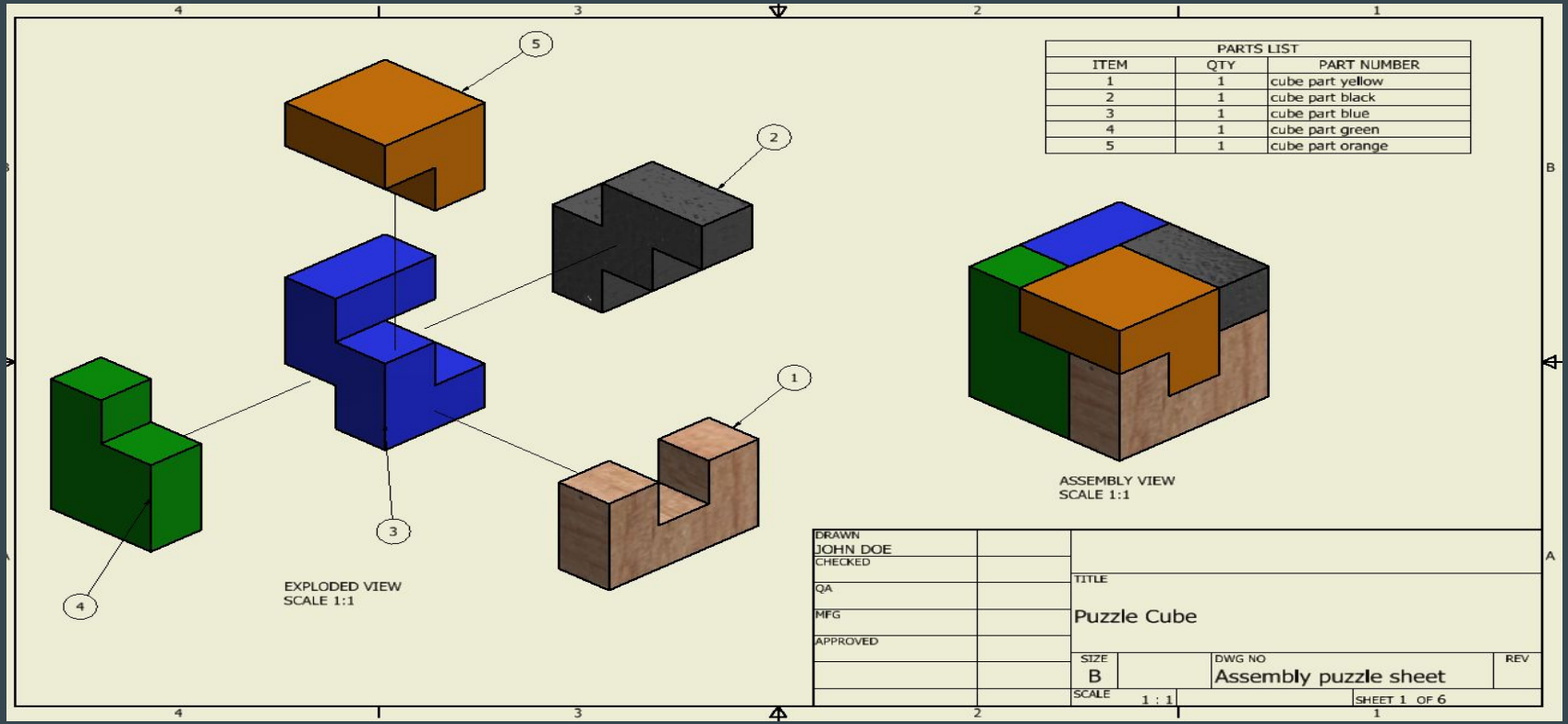
Part Sketches



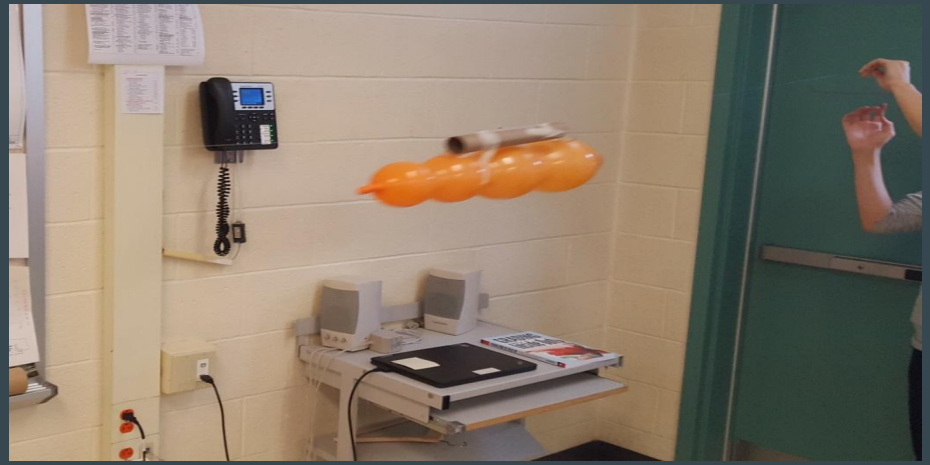
Practice with Plastic Linking Cubes



AutoDesk Inventor

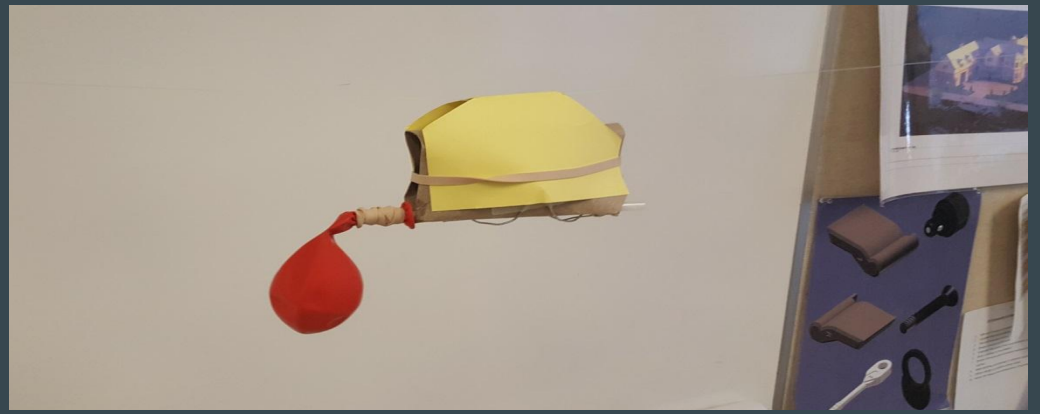


Transport Device

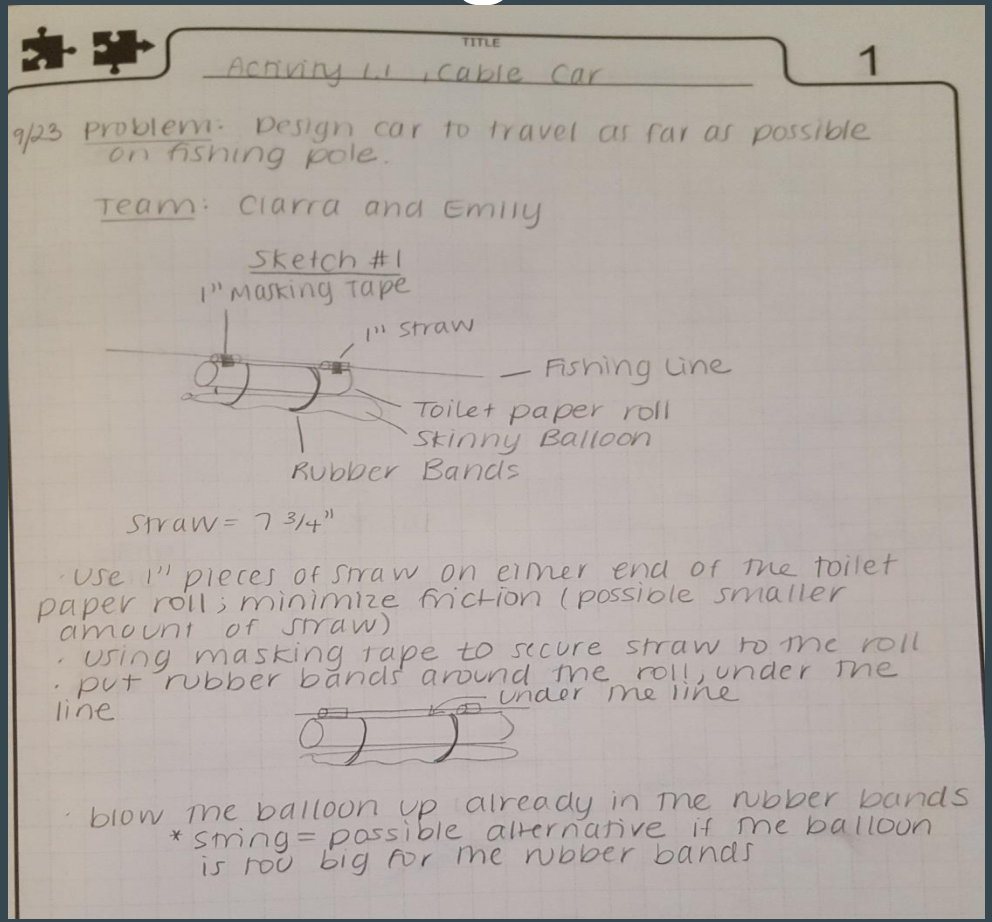


Objective: Create a device to carry a Lego figure as far as possible

Only use materials provided



Brainstorming and Sketching



TITLE

Activity 1.1 , Cable Car

1

9/23 Problem: Design car to travel as far as possible on fishing pole.

Team: Ciarra and Emily

Sketch #1

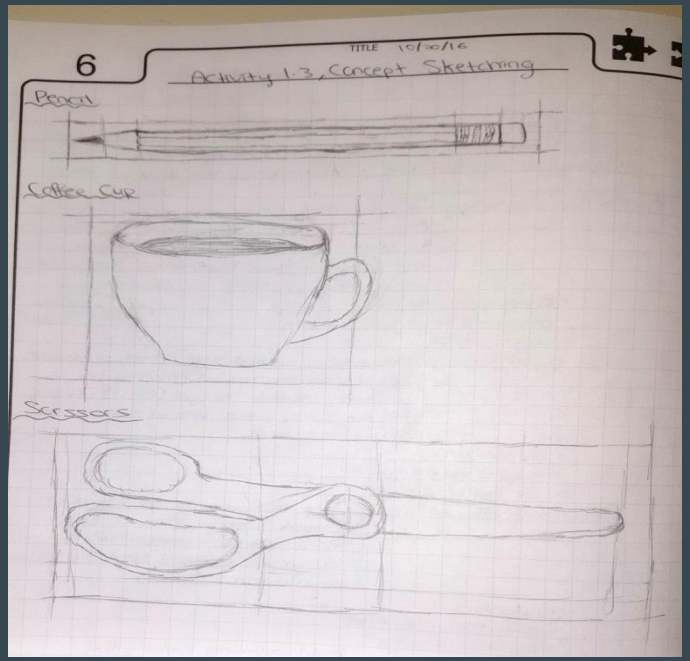
Straw = 7 3/4"

- Use 1" pieces of straw on either end of the toilet paper roll; minimize friction (possible smaller amount of straw)
- using masking tape to secure straw to the roll
- put rubber bands around the roll, under the line

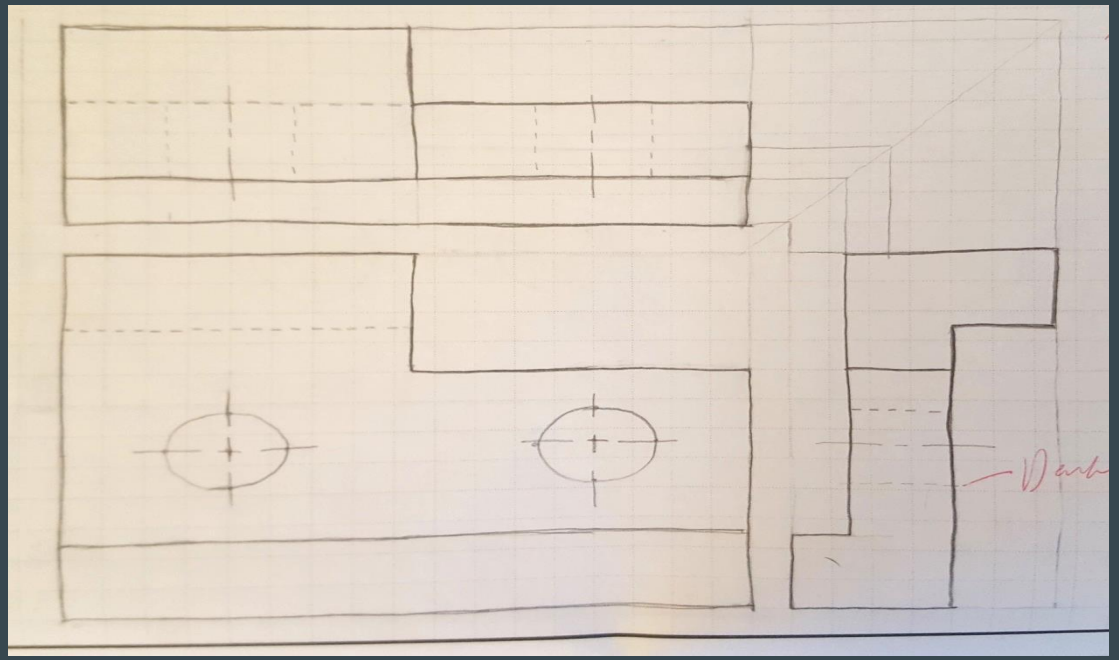
- blow the balloon up already in the rubber bands
  * string = possible alternative if the balloon is too big for the rubber bands

Drawing and Sketching

Concept Sketching

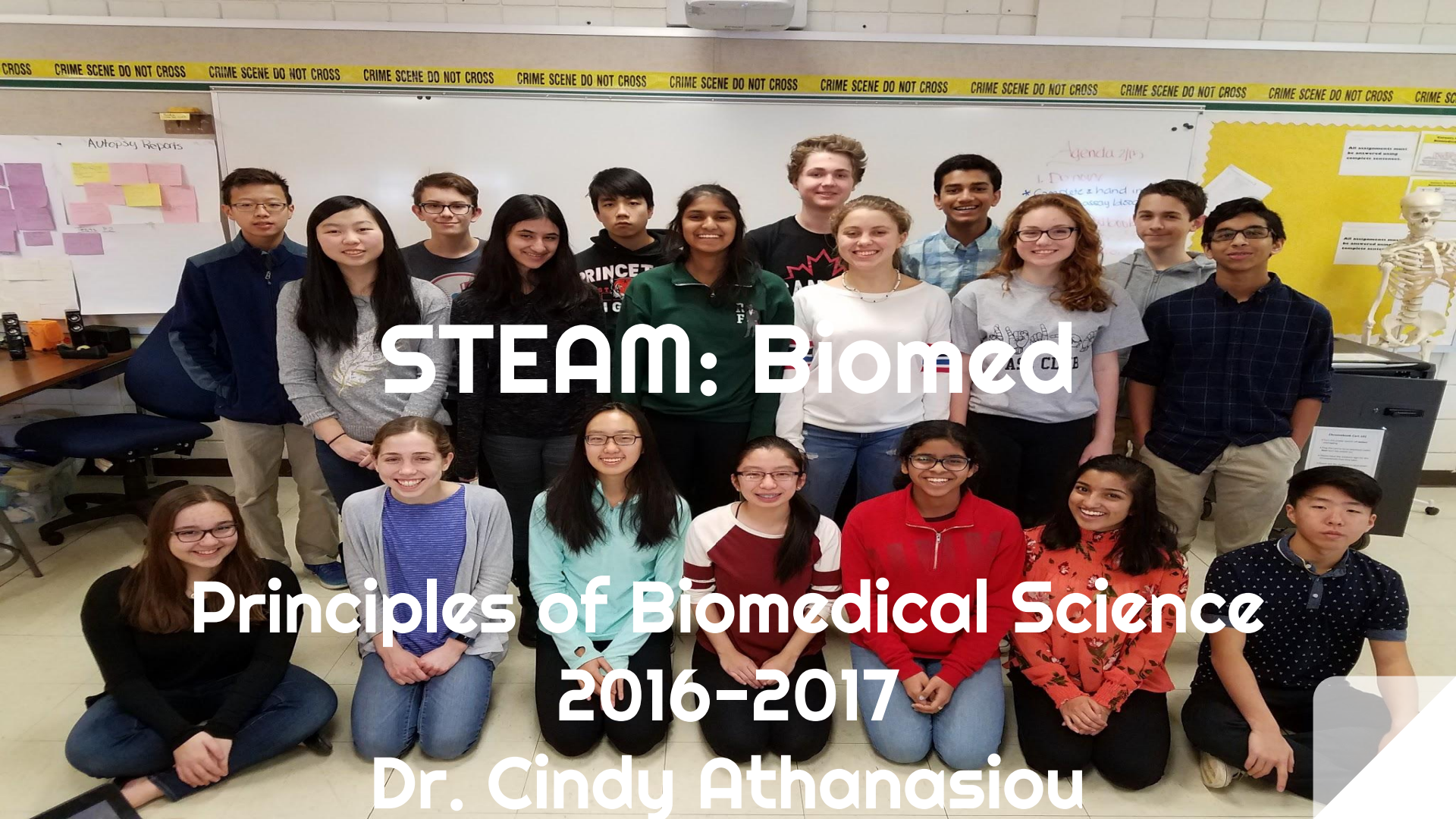


Orthographic Sketching



Thank you for watching!

Akash and Dhristi



STEAM: Biomed

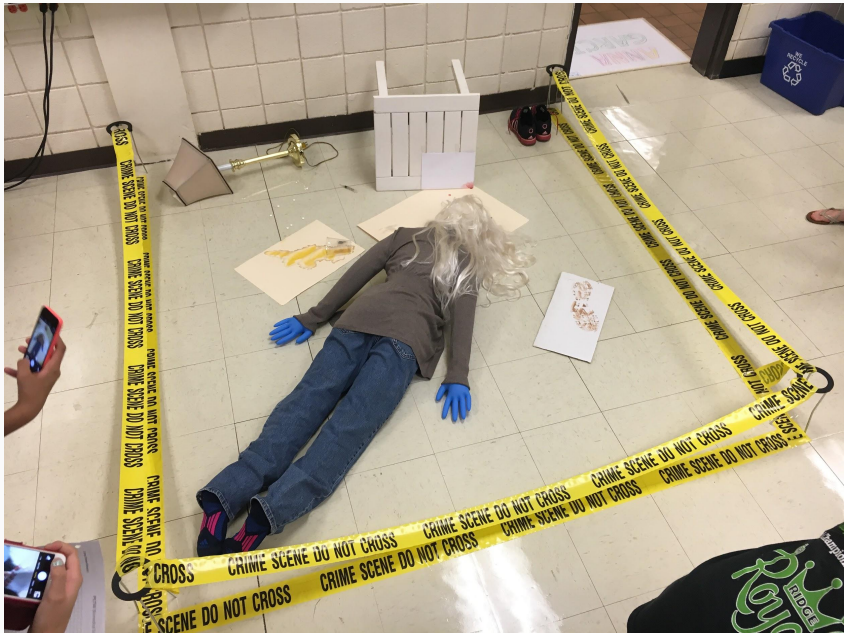
Principles of Biomedical Science
2016-2017
Dr. Cindy Athanasiou

What are the Biomedical Sciences?

- Combines the fields of Sciences and Medicine
- The STEAM Academy is a step towards a brighter future of the sciences
- Teaches students to go beyond their limits

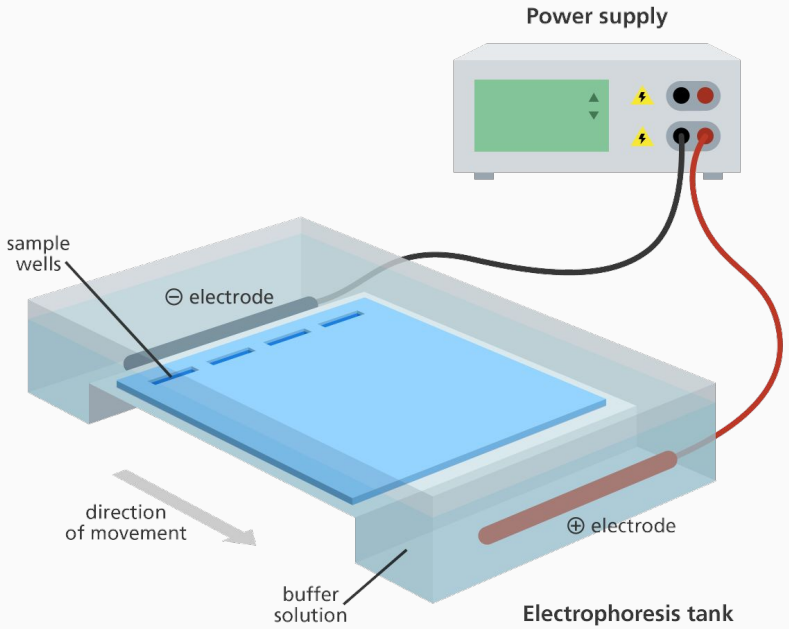
What have we done so far?

- The Case of Anna Garcia
- Forensic Science Analysis
- All Aspects of Diabetes
  - Science behind Diabetes
  - Science of Food
  - Complications
  - Life With Diabetes
- Sickle Cell Disease
- Heart Disease

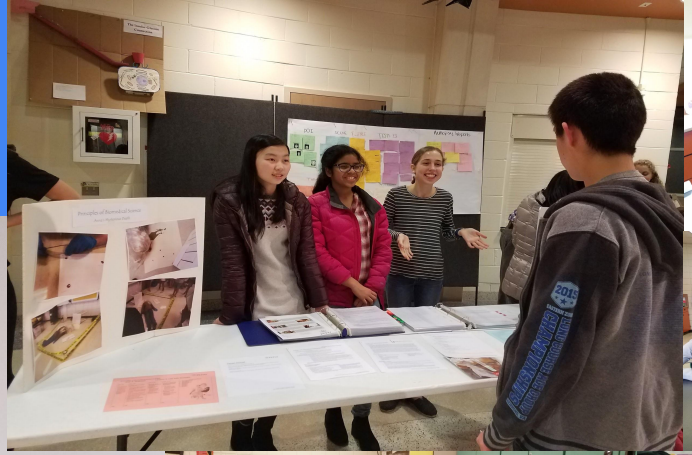


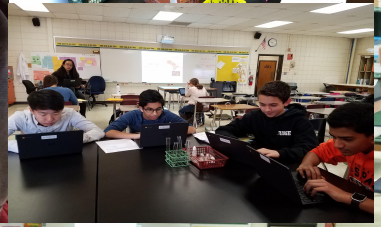
How has this been beneficial?

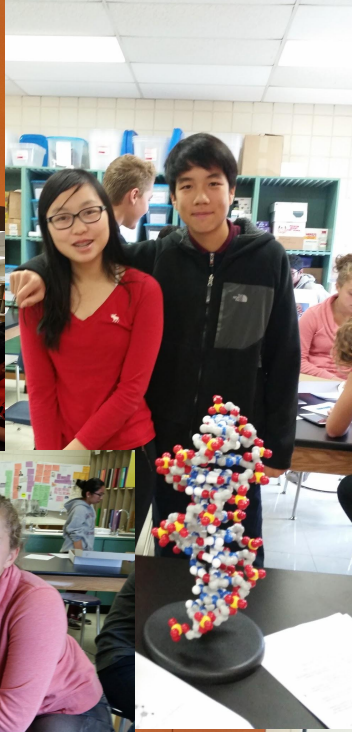
- Experience in the Medical Field
- Career Journals
- Lab Reports
- Hands-on Experiments & Labs
- Communication
- The BioMed family

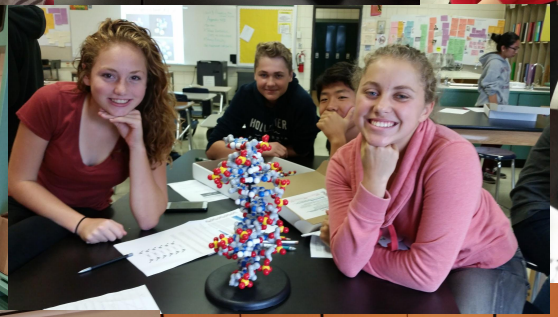


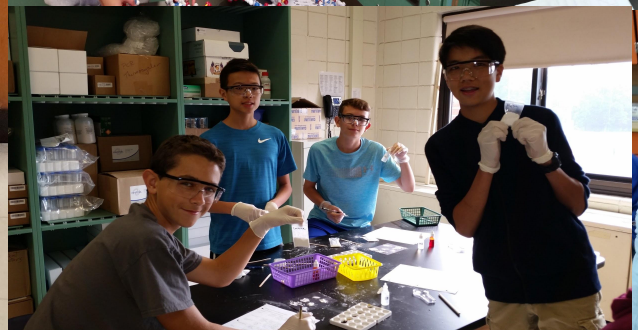
Pictures!!





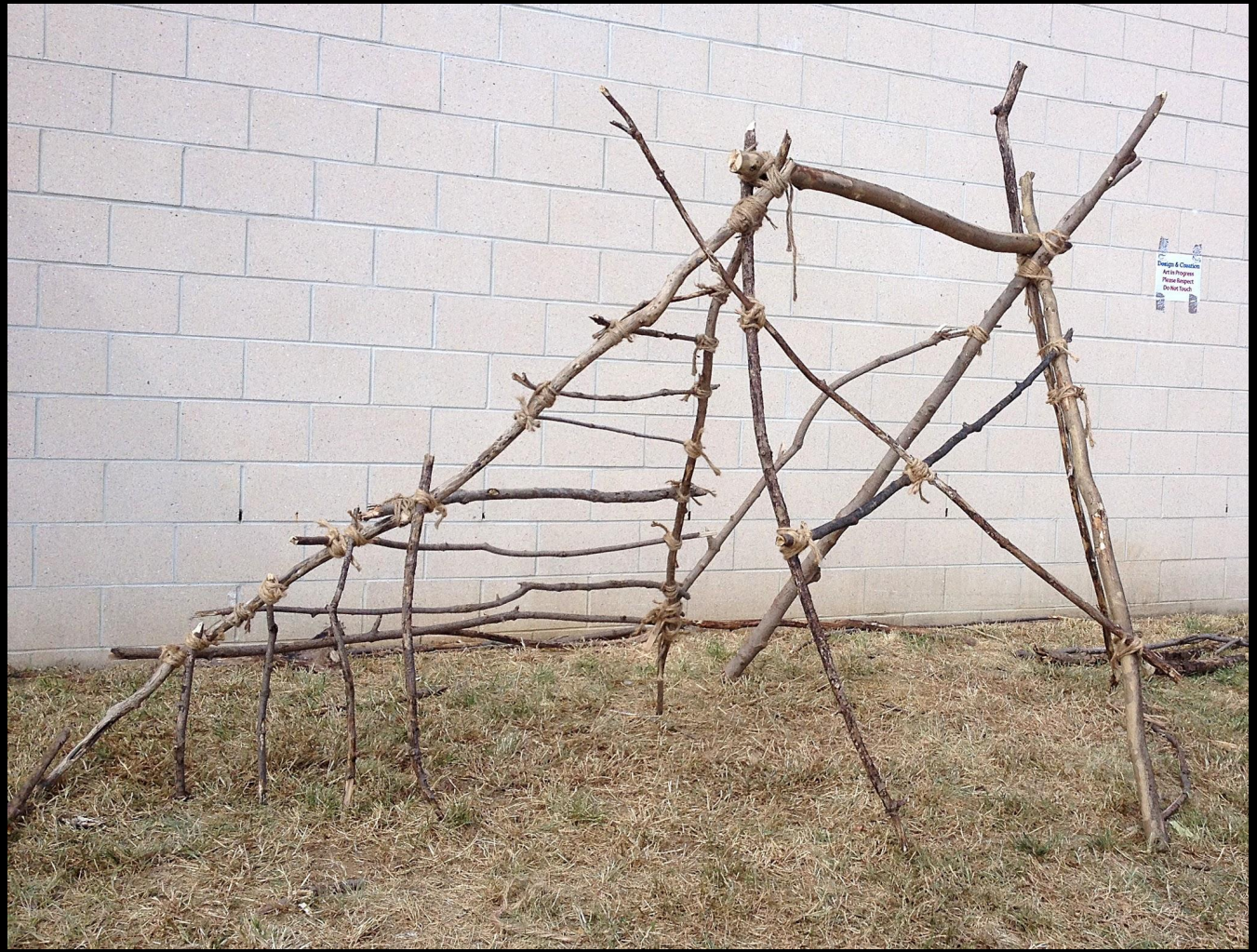


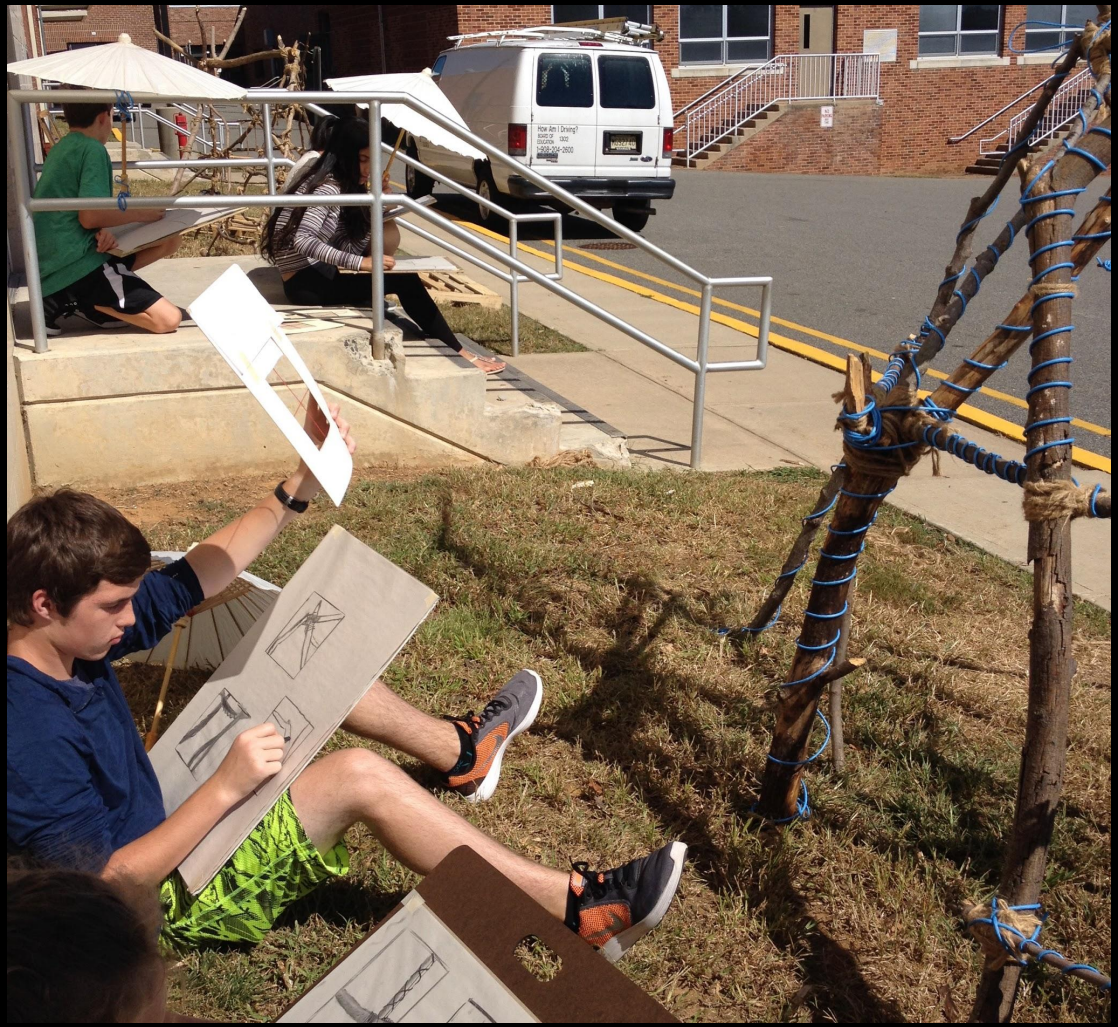


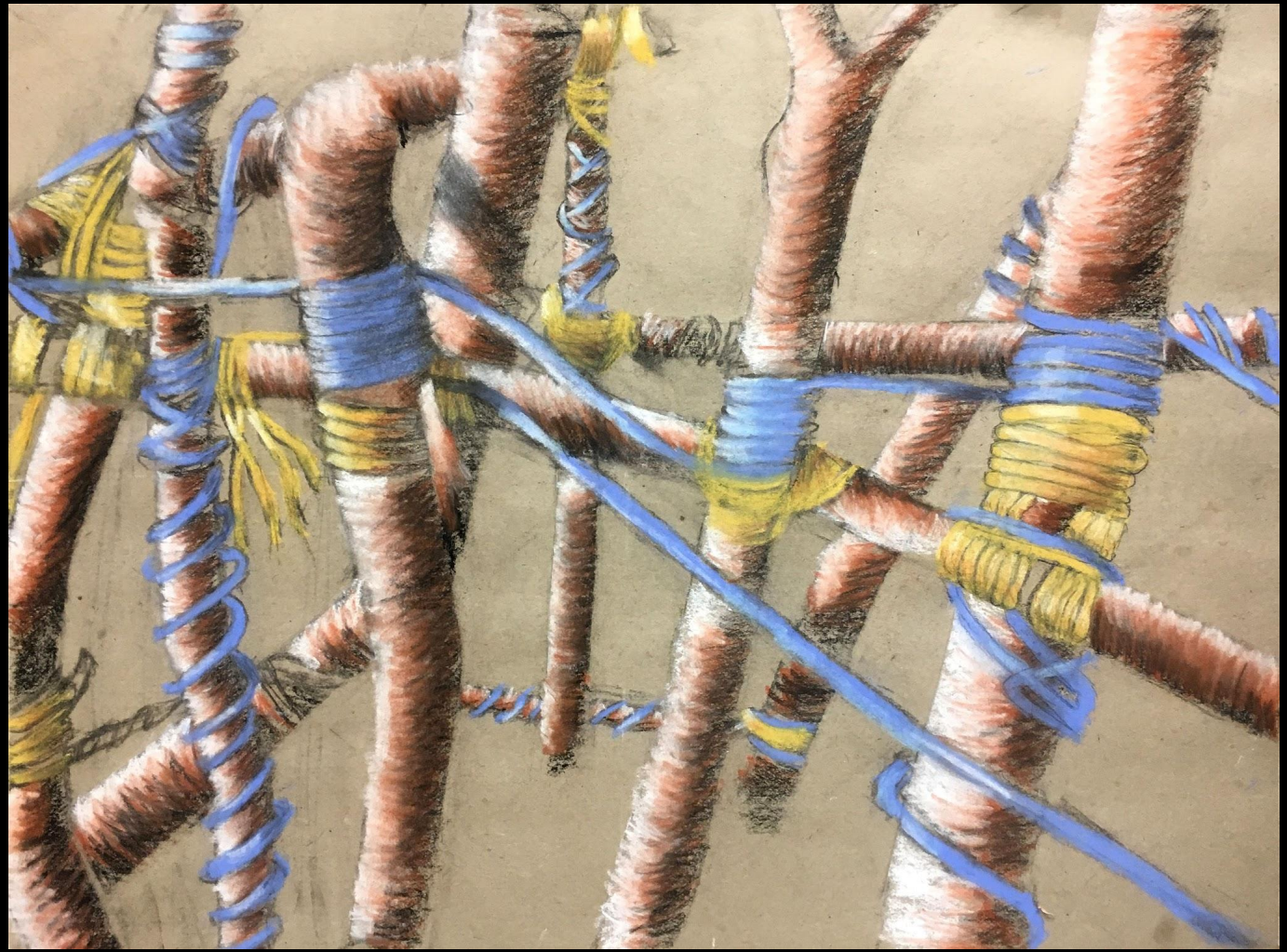


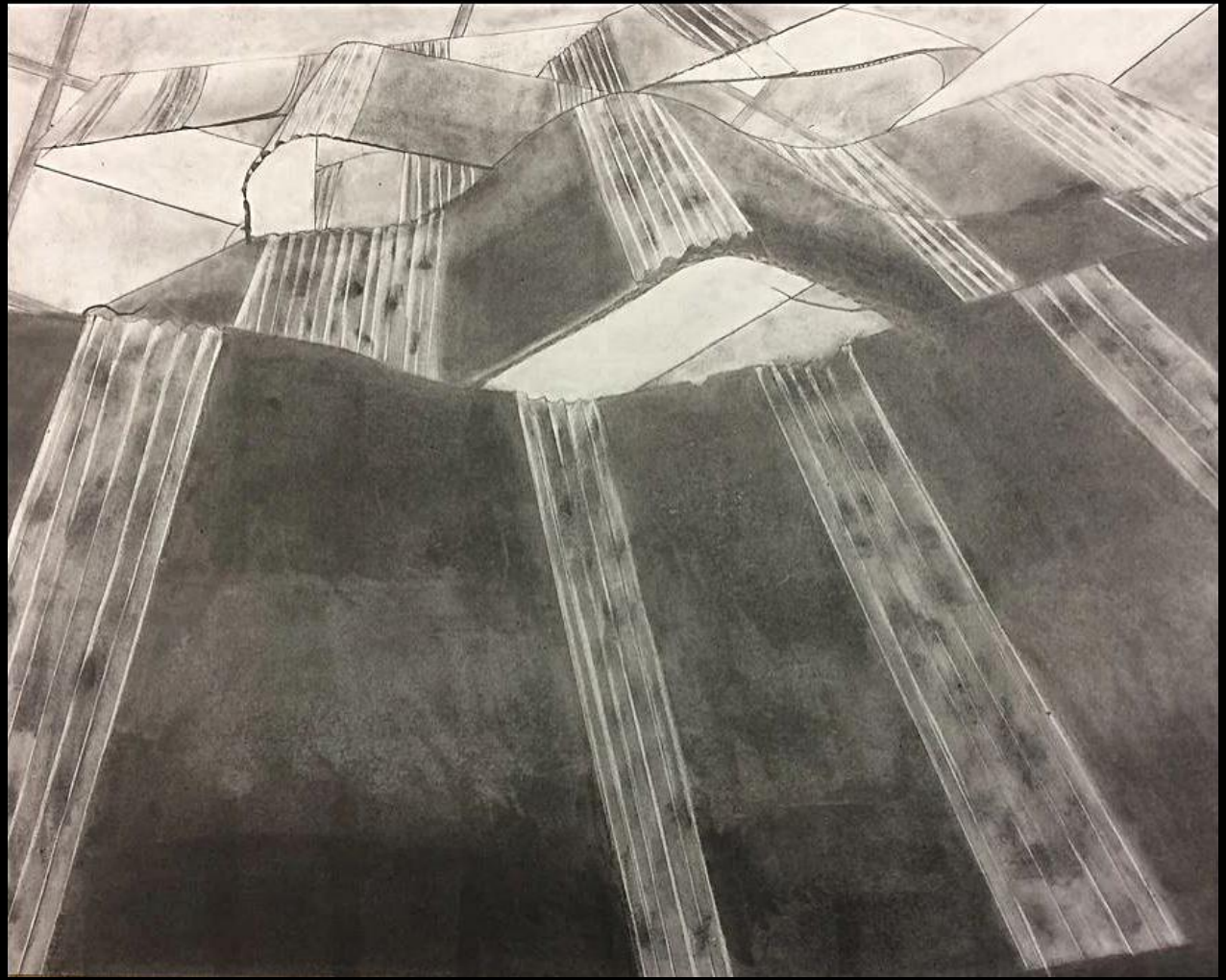
Design and Creation

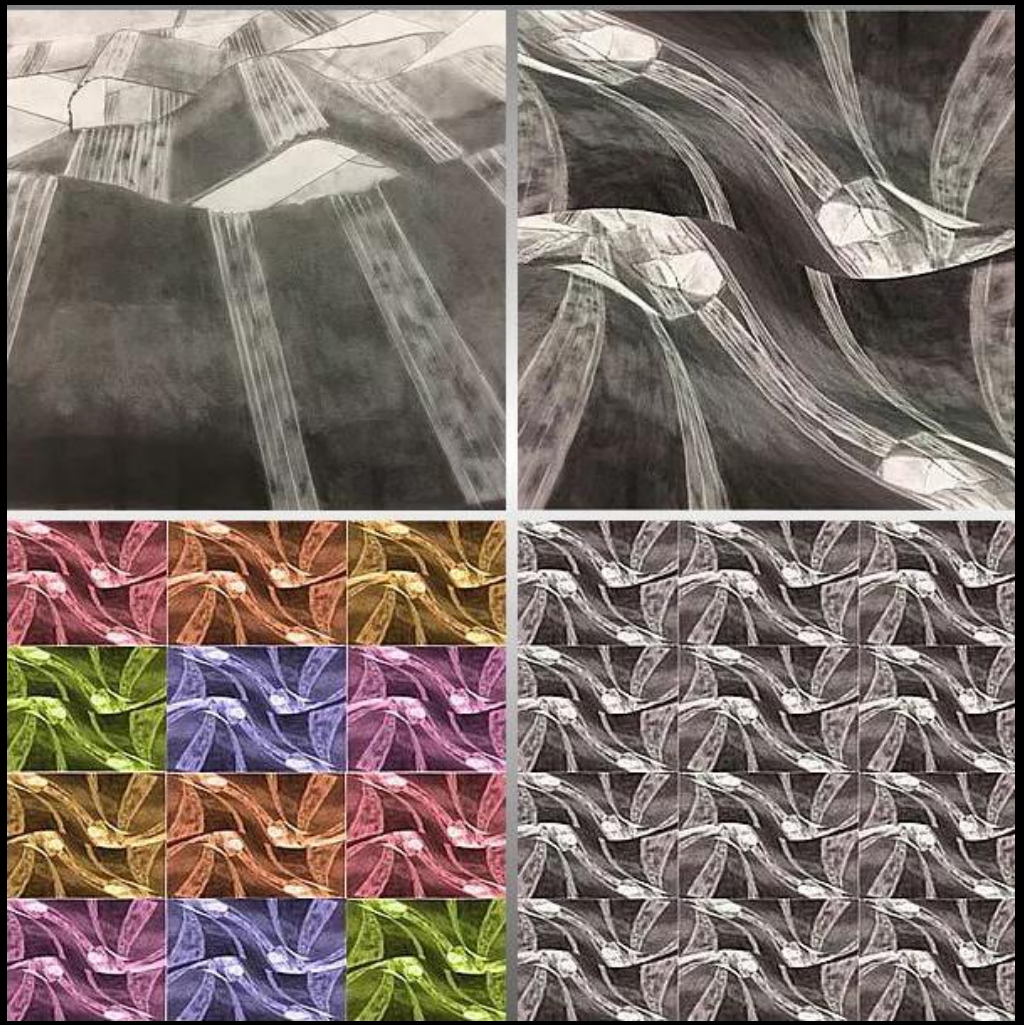
Ms. Wendell Jeffrey

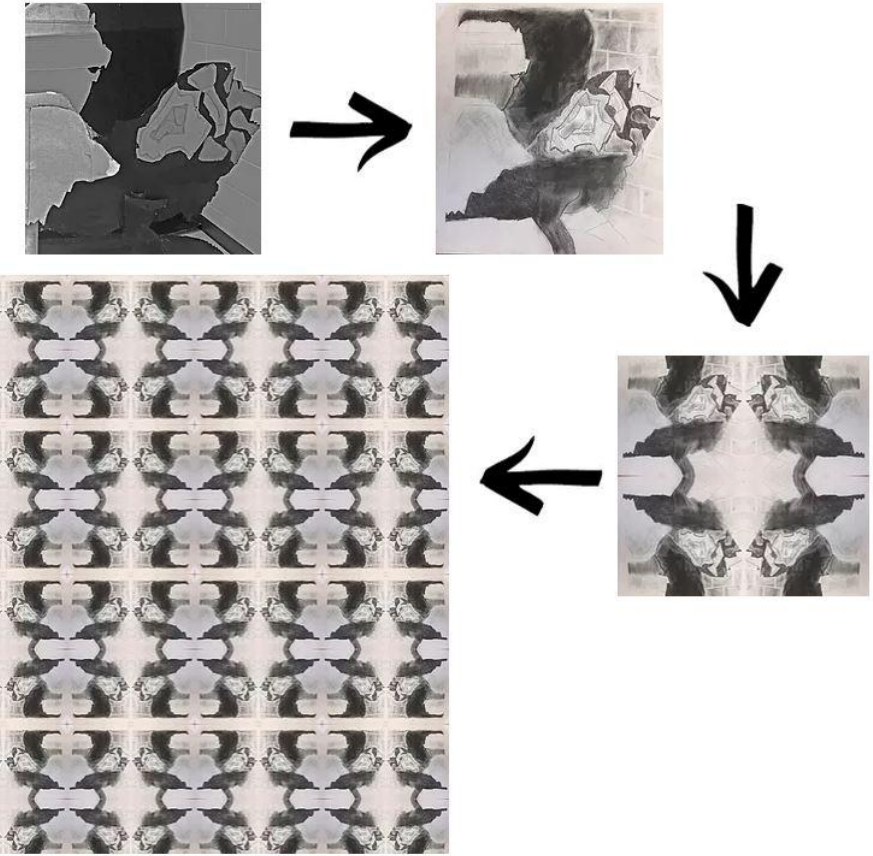

Design & Creation
Art in Progress
Please Respect
Do Not Touch











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