UTeach Maker Showcase

BY PHILLIPS ADEBAYO

Phillips Adebayo

PHILOSOPHY

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EDUCATION

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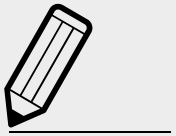

PROJECT

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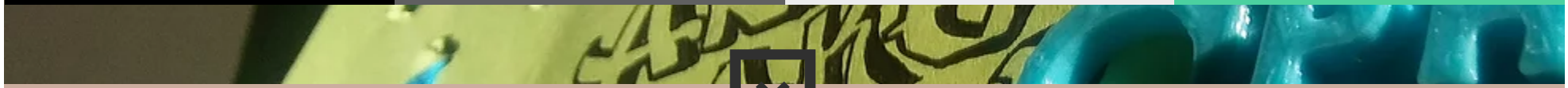

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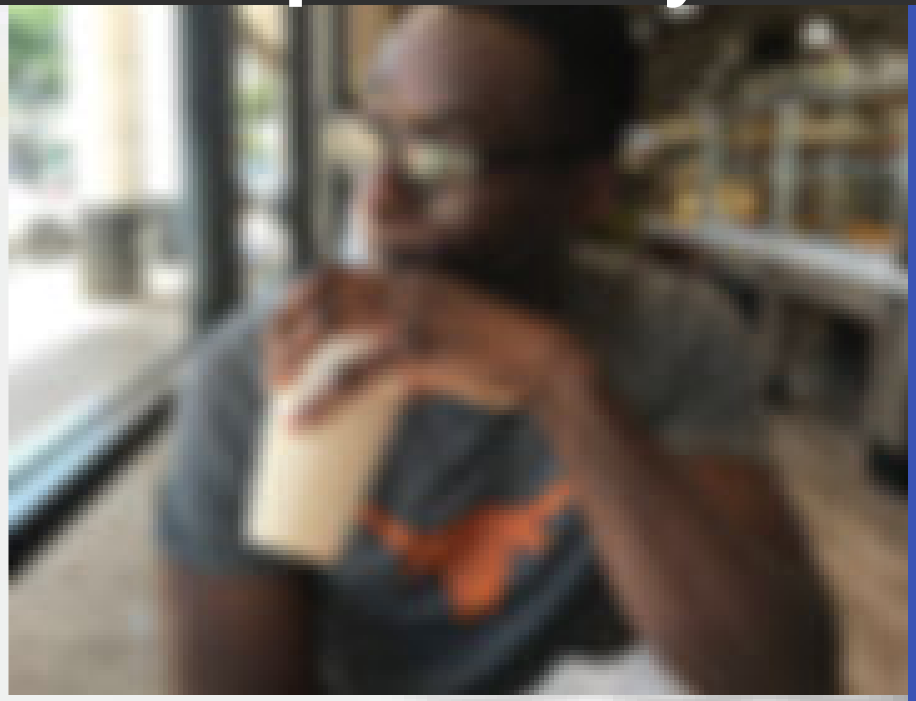

"Don't worry about what other people think about you. Hold your head high and plunge forward."
-Izuki Midoriya

Just a couple of interesting things about me. I LOVE anime, and love to draw (I have been drawing since age 4, so about 21 years...feel free to do the math on how old I am). Currently, I teach 10th grade chemistry at Crockett High School.

In addition, I also LOVE chemistry and teaching students about having a better understanding of the world around us. The lessons that have incorporated are a reflection of my both my love of art and science.

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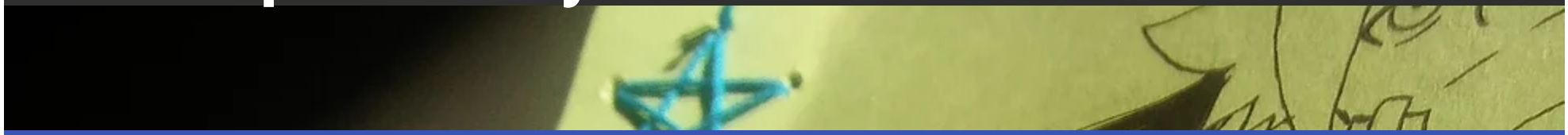

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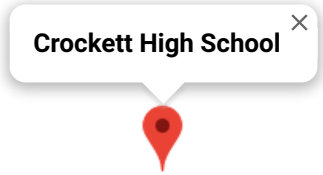

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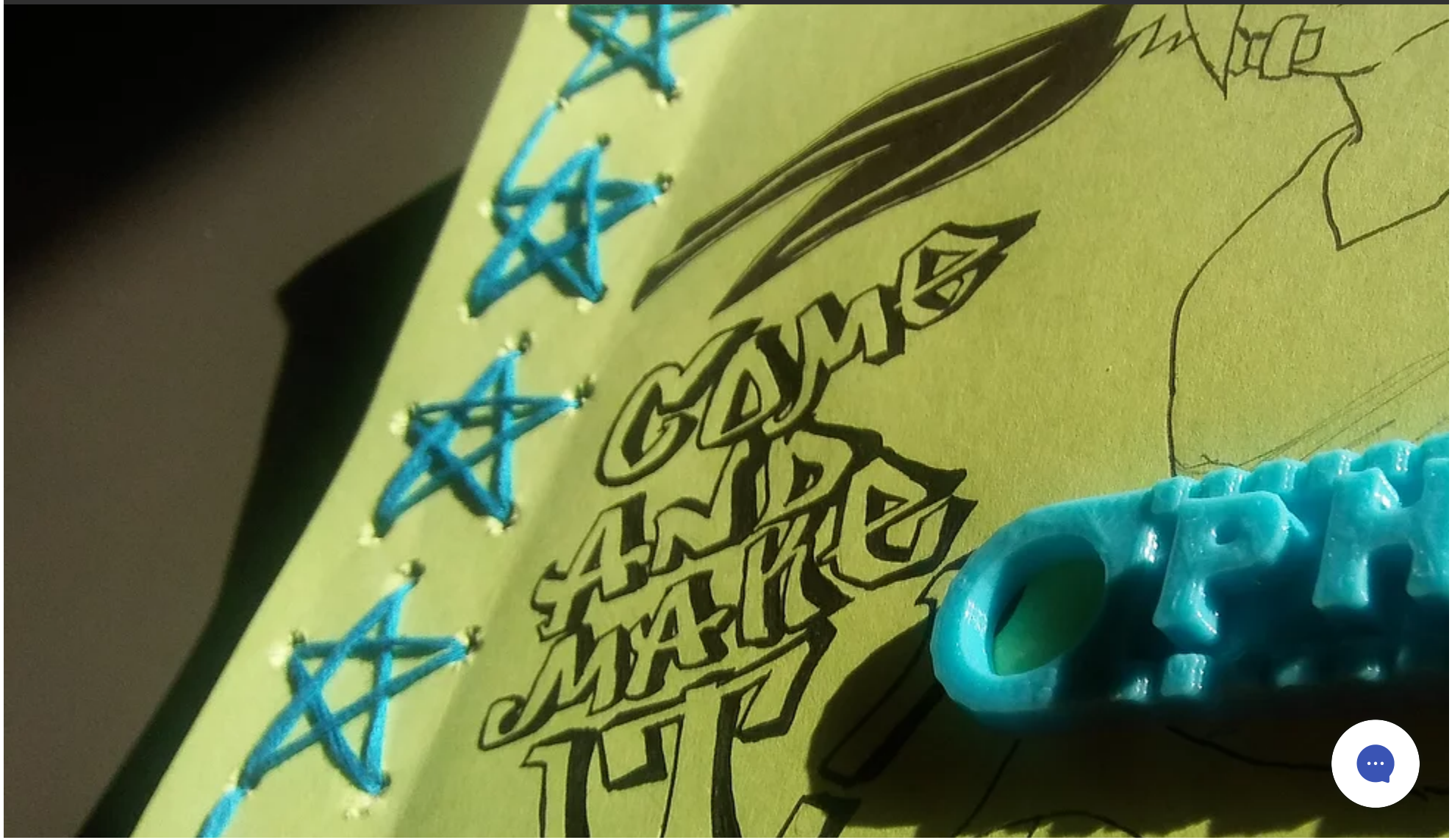
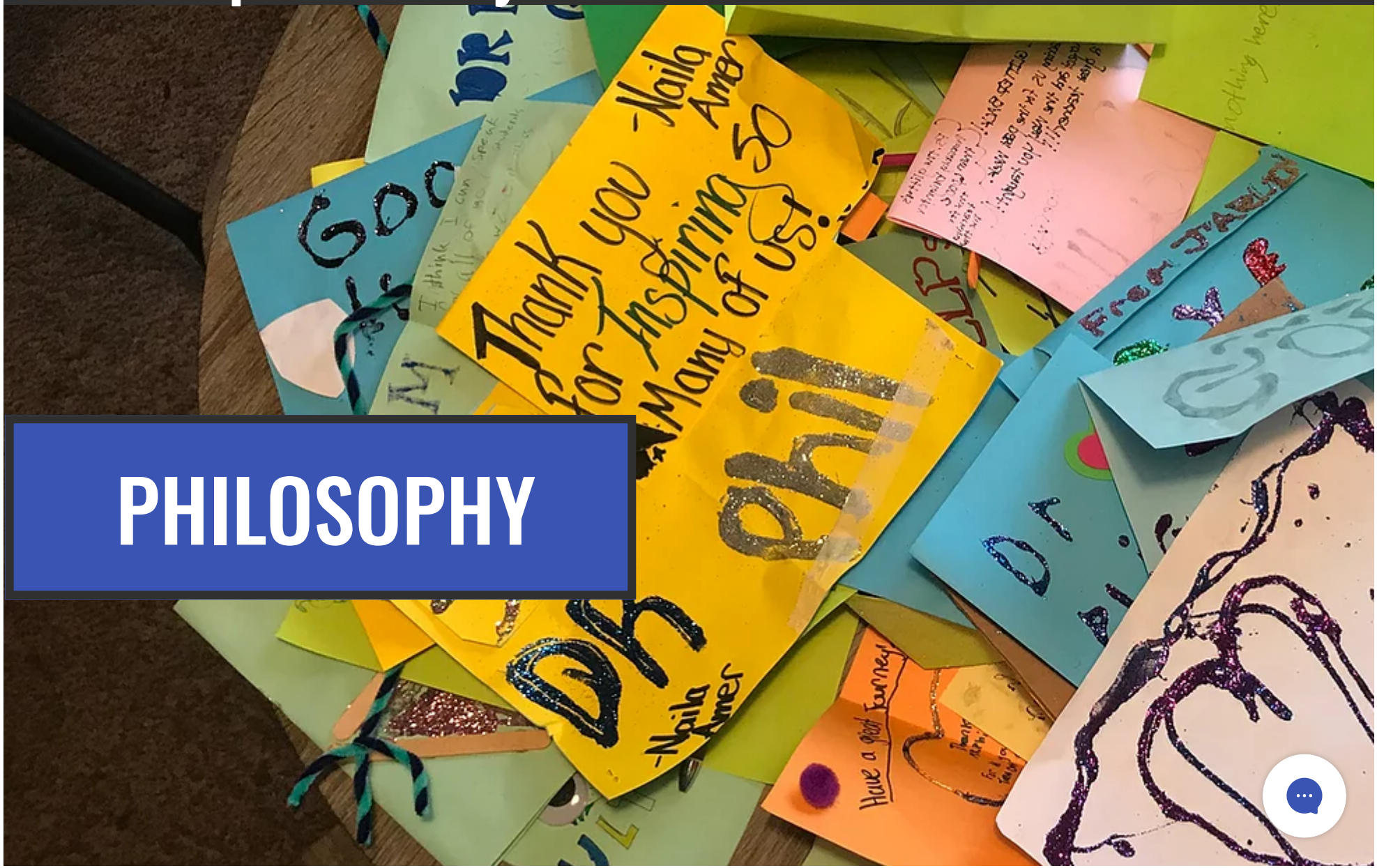




PHILOSOPHY

THE IMPORTANCE OF EQUITY AND DIVERSITY IN STEM EDUCATION

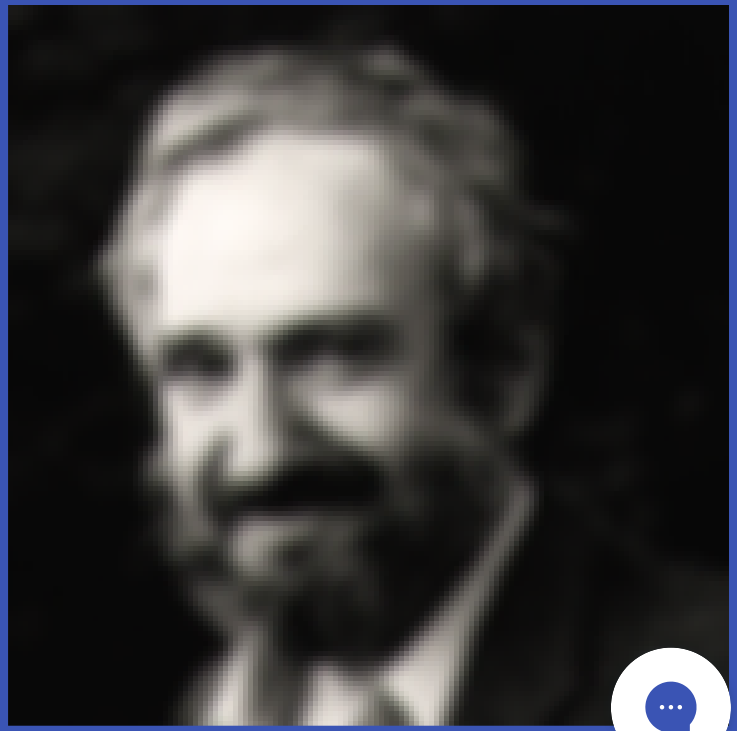
According the U.S Bearau of Labor statistics, in 2019 STEM Jobs had an average medium income of $90,000 as compared to non-STEM jobs at just below $40,000. STEM fields not only hold larger incomes, but also have higher employment rates, hold higher status in the U.S economy and education, and are the first to be funded by the federal and state government (Bartan & Tan, 2018).

However, these same STEM fields are predominantly filled with white, middle-class male workers (Bartan & Tan, 2018).

To add to this, despite the fact the American population is 13.4% African American, and 18.5% Hispanic, people of color are underrepresented in STEM fields (U.S Census, 2019). African Americans only make up 9% of STEM workers, while Hispanics make a low 6% of the STEM workforce (Funk & Parker, 2018). As a teacher who currently teaches at a school were the population is 75% hispanic, this is extremely concerning to me.

Such underrepresentation is problematic for many reasons. First, unethical environmental hazards usually occur in low-income areas, which involve mostly people of color. In order to debate and combat such issues, adults and children within the community need to some knowledge or background in STEM education

THE MAKER MOVEMENT



Making is the process of tinkering, engineering,

Third, because STEM is mostly dominated by white, middle-class males, the culture of STEM is primarily centered around white culture. This means people of color have to assimilate to join such fields. To the youth, a person of color can feel like an outsider due to the lack of seeing people like themselves (Bartan & Tan, 2018).

There are a number of factors that contribute to the underrepresentation of minorities in STEM. Stereotype threat, for example, is when stereotypes inhibit a person to perform well academically due to societal pressures (Aronson, Fried, & Good, 2001). From the moment students enter their school doors, these stereotypes no only cause students of color to underperform, they also enforce the notion that STEM education is not for them .

Another important aspect is access to STEM equipment. In order to keep up with the constantly changing technological advances, funding such as new computers, new software, and coding gadgets are needed. In order to partake in next level science, proper and effective science equipment has to be purchased as well, ranging from glassware, electronic devices, and other gadgets. Access to unique engineering tools also costs money, money in which communities of color struggle to gain access to. These items that may be common place in many urban and sub-urban schools are seen as luxury in low-income and Title 1 schools.

The truth of the matter is, students of color start of at a disadvantage before even stepping into the classroom.

Factor in socio-economic disparities in minority communities from a long history of racial-injustice in America and it's not to difficult to see why STEM fields severely lack in diversity. Although great strides have been made over the past decade with an increase in women and minorities in STEM (Funk & Parker 2018), more need to be done to ensure our future generation has a fighting chance.

So where does maker have to do with any of this?

The maker movement, as well as maker education, aims to make medium such as

the maker movement and maker education began with Seymour Papert, an educator who believed in the constructionist model of teaching (Martinez & Stager, 2013).

Papert believed the best way to learn was through active engagement and experiences, which involved creating , tinkering, and making (Martinez & Stager, 2013).

Throughout his career he continually pushed schools and developed programs to ensure computers were more than just technological replacements for instruction, but instead medium to explore and create (Martinez & Stager, 2013).

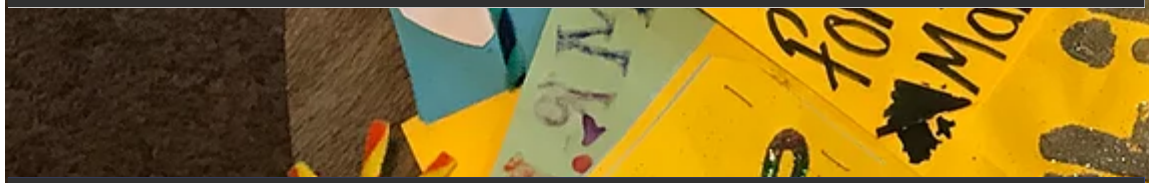
Together, Cynthia Soloman and Seymour Papert developed the programming software LOGO, for students to use as a medium to create and make. It would later become the basis of the block coding language Scratch, and other popular coding languages designed for kids (Martinez & Stager, 2013).

From reading about the life of Papert, I understand as a teacher, it is my responsibility to facilitate my students to create and make their own cool artifacts. One of the biggest problems of STEM educ there has been a large focus on direct ins and a lack of focus on self expression.

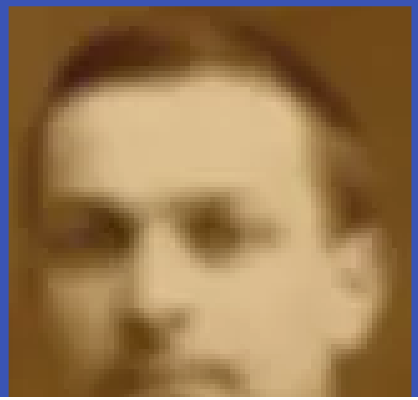
of teaching pushes students culture and personalities to the forefront, therefore preventing alienation in STEM fields.

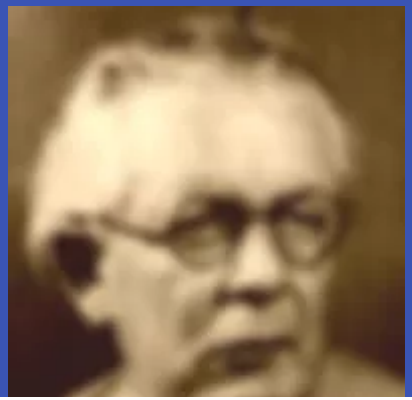
As a current maker and chemistry teacher, my philosophy is provide my students the tools to become makers. This means by first starting off with maker workshops, accessible tools, and accessible mediums students can use to craft their own personal artifacts through proper facilitation.

Then by introducing content, I can have students create and correlate their making to chemistry and biology. Although the process is a tedious one, and time consuming, this creates an equitable environment which every student feels welcomed.

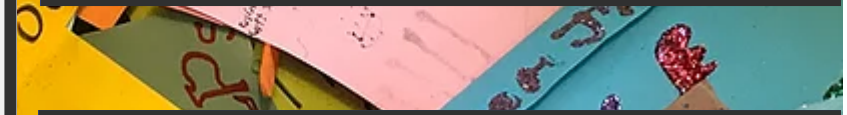


VYGOTSKY & PIAGET





Therefore, instead of teaching students to do what I want, my lessons will revolve around what students are curious and interested in. Only then can students be actively engaged in what they want to learn, creating a more inclusive environment.



STUDENTS BEFORE CIRRICULUM

Without the students there can be no classroom. One of my primary goals as a teacher is to know each student and their interests, and how I can incorporate this into my own curriculum.

Student driven classrooms have shown to produce higher test scores, and provide an environement whereby students have a deeper understanding of what they learned.

However, in order to get the class to be t driven, students must first feel comfortable

were ahead of their time, but understood that learning was an active process.

The constructivist theory, developed by Paiget states that humans actively construct their understanding of the world by using their senses. Therefore, knowledge is learned through experience, instead of direct transmission of information which was a commonly held view of learning at the time .

Piagets constructivist model breaks down learning into 4 unique stages briefly summarized below:

- Sensorimotor Stage (birth to 18-24 months)
  - child interacts with sensations to the bodyge
  - stage ends with symbolic thought and object permanence
- Preoperational Stage (18-24 moths to age 7)
  - Egocentric, difficulty viewing others perspective
  - Imagination is developing, present play
  - child learns ability of conservation of volume/mass
    - Ex. pouring water in a taller glass doesn't make more water
- Concrete Operational Stage (age 7 to age 11)
  - Less egocentric
  - Logical thinking; can work problems in their head
- Formal OperationalStage (age 11 to Adulthoood)
  - Understanding of abstract concepts & symbols
  - can form hypothesis from previous knowledge

Vygotsky developed the sociocultural theory which emphasizes the importance of culture and language in child development. In his theory, he emphasized learning techniques that may work on one student may not be as effective for another due to cultural differences. Therefore, a students background has a large influence on how they learn and think. In addition, congnition is

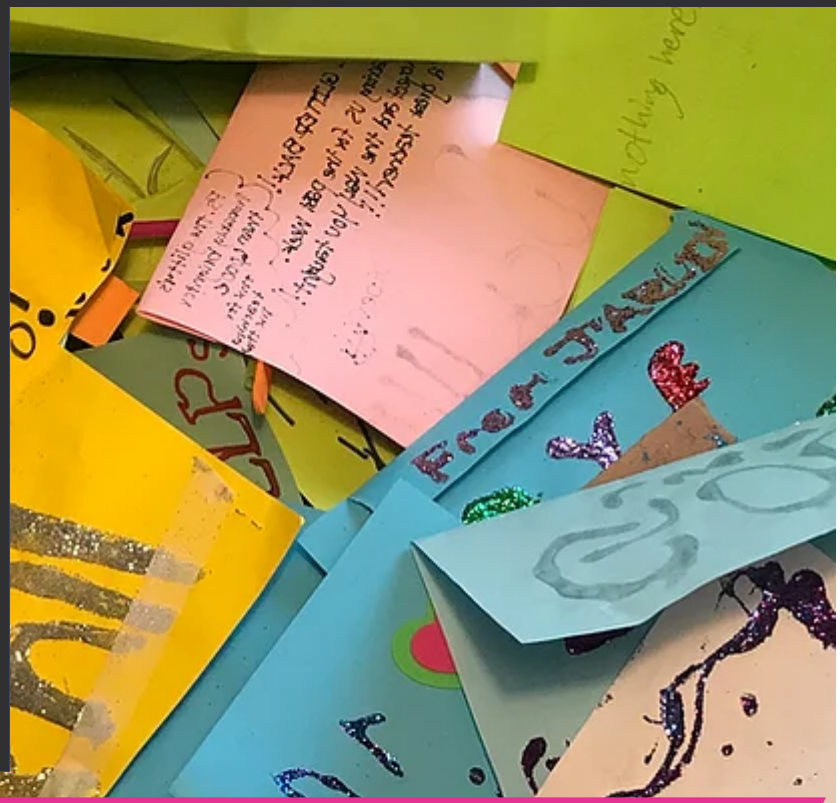
about their interests, and only then will they genuinely care about what you have to say.

"the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or incollaboration with more capable peers." (Vygotsky, 1978, pg. 86) (Kazulin et. al, 2003)

Therefore, teachers act as facilitators by helping a child learn a new skill or concept they would have not have been able to perform on their own.

When it comes to teaching, I focus on producing an active learning environment whereby students as often as possible are involve in hand-on activities. In addition, I emphasize class discussion through inquiry, and encourage group tables to encourage group discussion as well.

Making for me is essential for this process as it allows me to combine the best of both theories. Students design or make an item or object that represents them and their culture, and use their knowledge to construct knew and creative ideas. The result is an inclusive, culturally relevant classroom.



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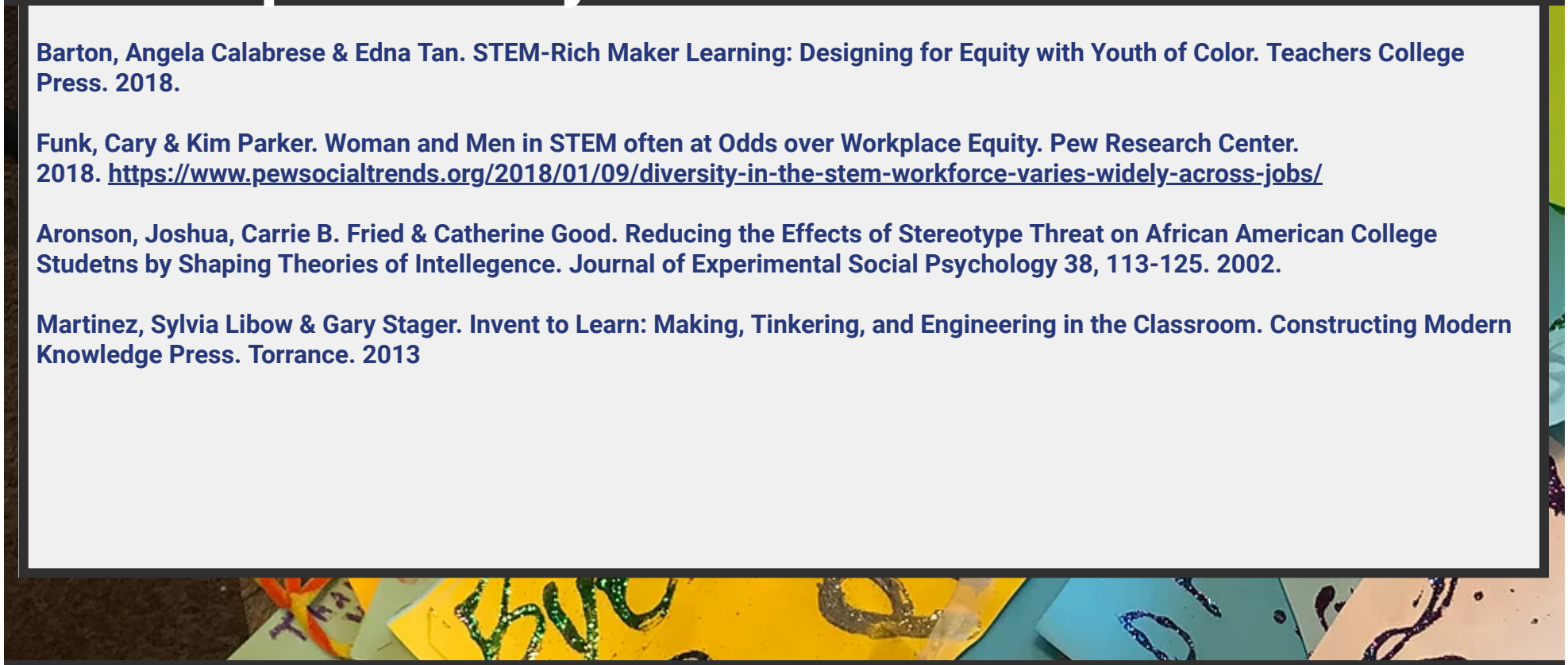

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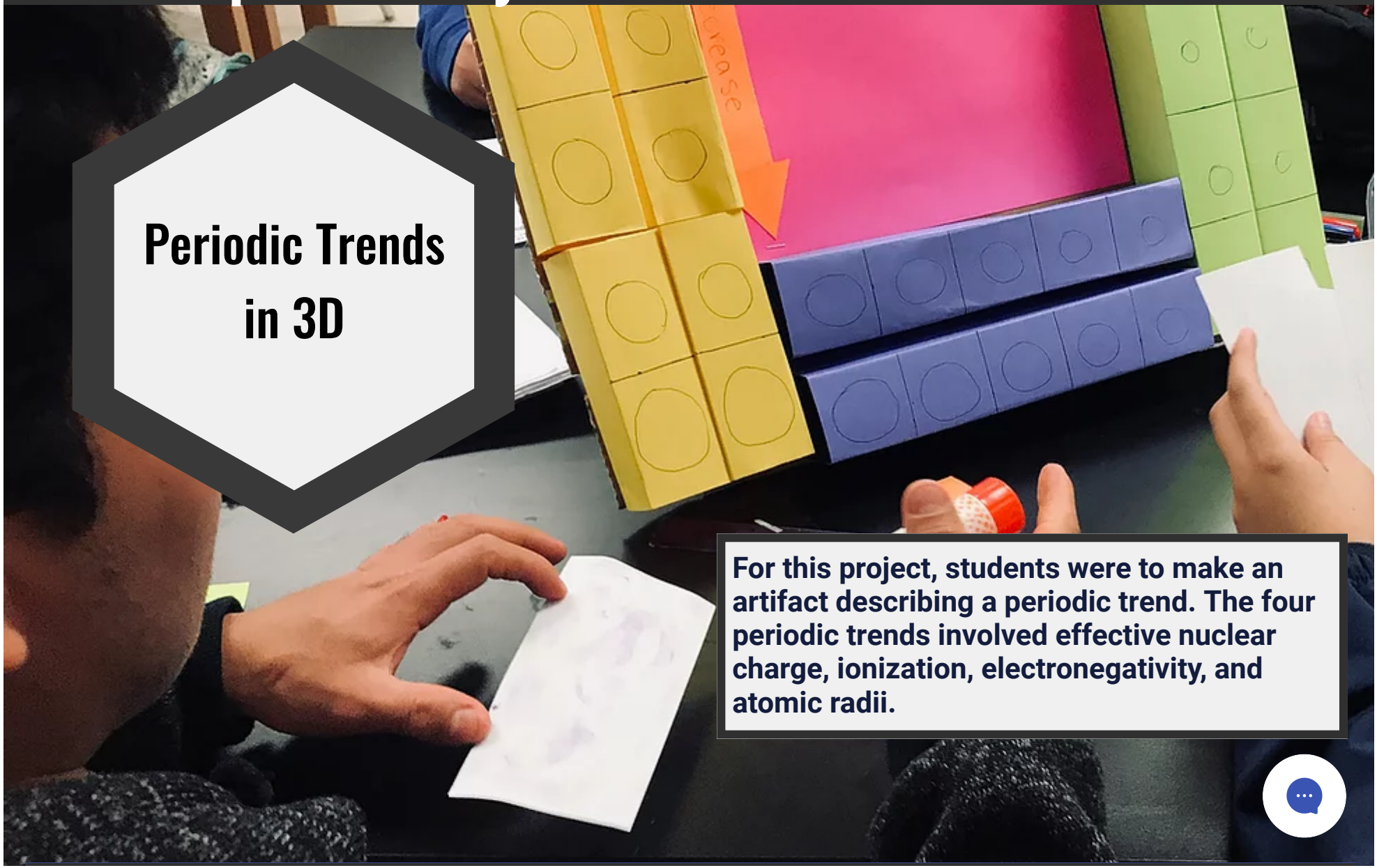
Periodic Trends in 3D



For this project, students were to make an artifact describing a periodic trend. The four periodic trends involved effective nuclear charge, ionization, electronegativity, and atomic radii.

PDF

Rubric

PDF

Intro Ticket

PDF

Periodic Trends in 3D

PDF

Exit Ticket

Lesson Plan for Periodic Trends in 3D

PDF

Lesson Plan Part 1

PDF

Lesson Plan Part 2

PDF

Supplies List

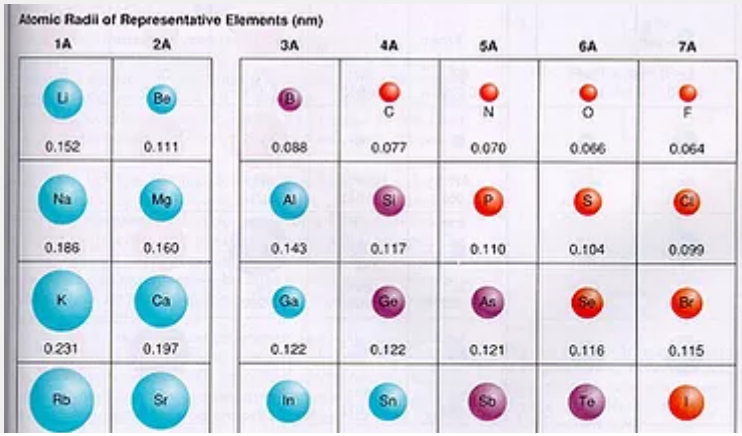
This project was the first time a maker lesson was attempted for these group of students at Crockett High School and was done for three different classes. The design of the lesson was developed together with my cooperating teacher, while specific items such as handouts, intro and exit tickets, and guides were made by me. The biggest focus was to ensure the students had as much creative freedom as possible, and were provided a wide variety of materials to work with.

Content

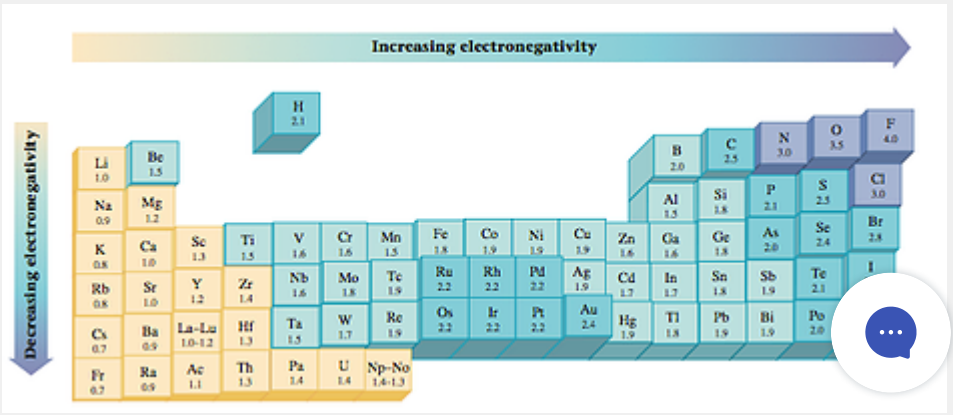
What was the content of the lesson, was it rigorous, and does it contain skills a young chemist will need for the future?

Periodic trends are essential as they allow scientist to quickly predict an elements properties. For this lesson, the students were to base their project on one of the four trends assigned to their group. These trends involved effective nuclear charge & shielding, atomic radii, ionization, and electronegativity. More details on the trend are explained below.

Atomic Radius



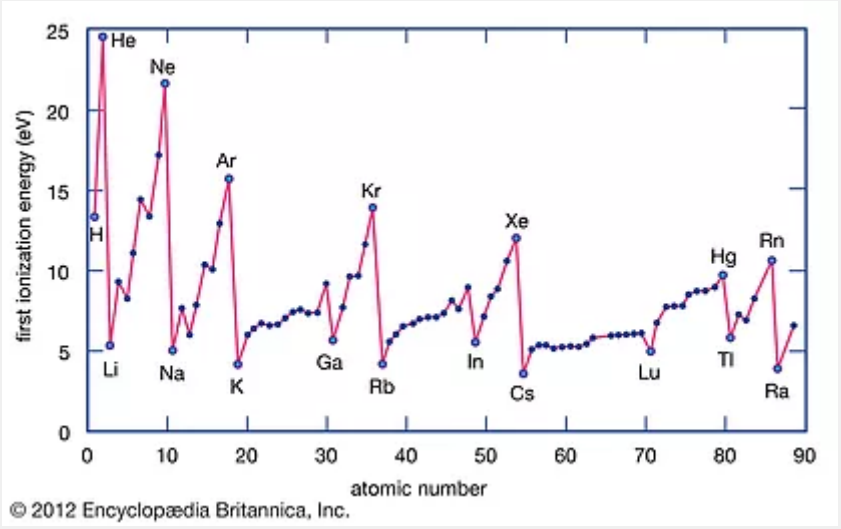
Electronegativity



As you go from left to right for a period, the atomic radius decreases as the number of protons in the nucleus increases, pulling the valence electrons closer.

As you go from top to bottom in a group, the atomic radius increases. This occurs because an additional shell is added as you go down. In addition, the inner electrons push out the valence electrons, making the atom larger, referred to as shielding.

Ionization Energy

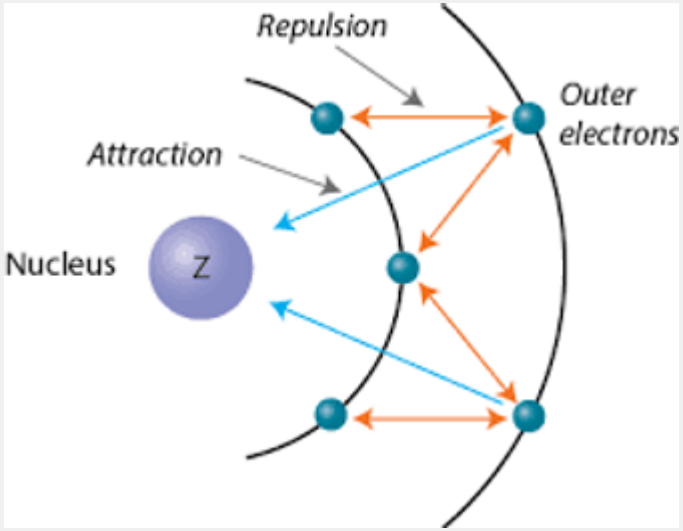


The ionization energy the amount of energy it takes to ionize an element, or to remove an electron from an element.

As you go from left to right for a period, the ionization

As you go from top to bottom in a group, the electronegativity decreases.

Zeff & Shielding

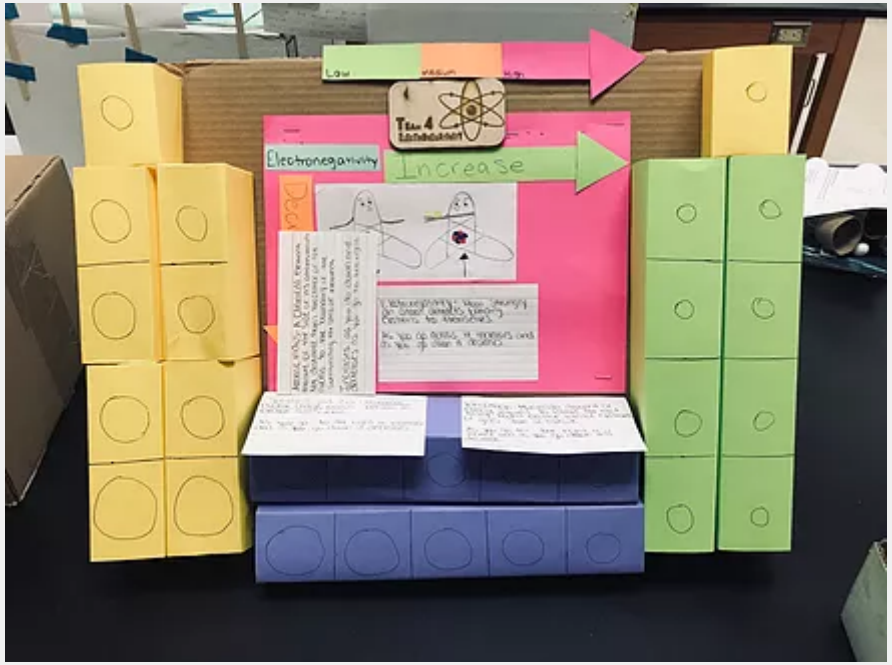


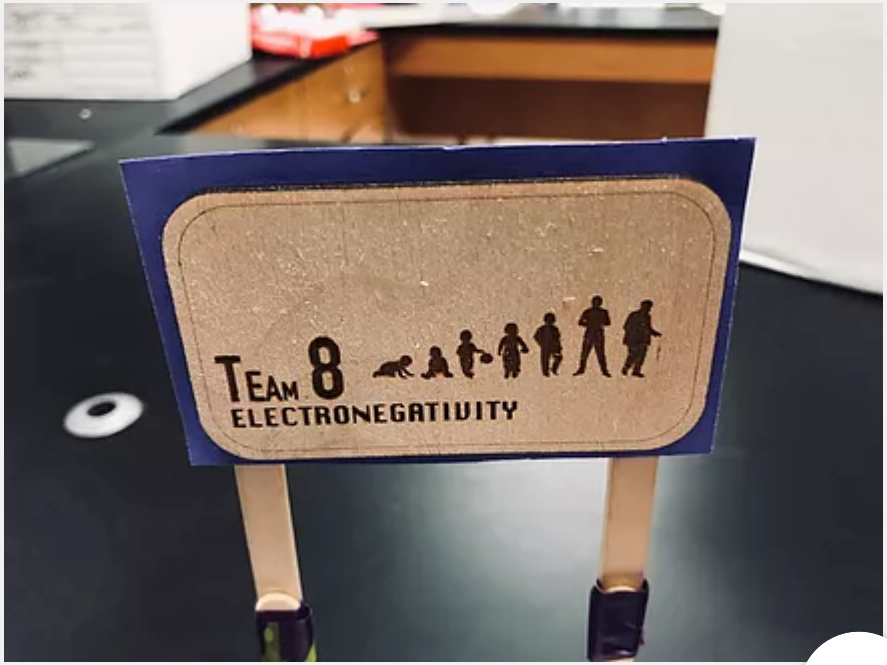
The effective nuclear charge describes the overall pull of valence electrons towards the nucleus. Shielding descri how inner electrons push against the valence electrons coming any closer to the nucleus, as like-charges repel other.

As you go from top to bottom in a group, the ionization decreases, since electrons are go further and further away from the nucleus, making them easier to remove from an atom. (think about a person holding a ball with arms stretched out, takes less energy to take the ball away)

As you go from top to bottom in a group, Zeff decreases while shielding increases. This is because the valence electrons are going further away from the nucleus, and there are more inner electrons shielding the inner valence electrons.

Agency





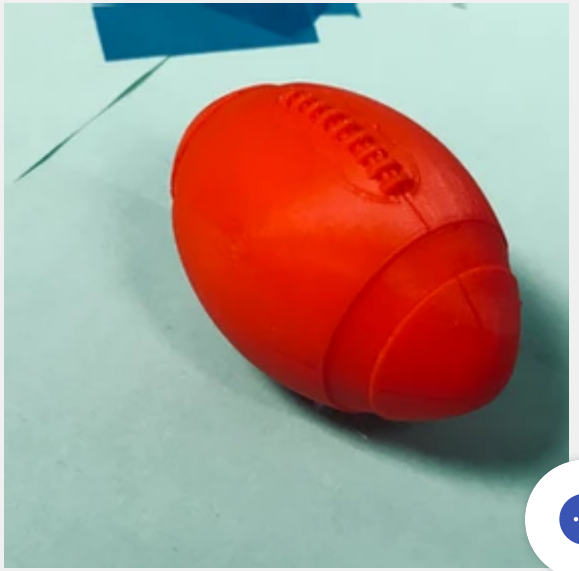
How was the project personally meaningful?

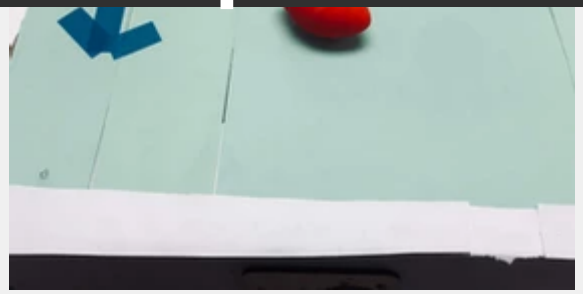
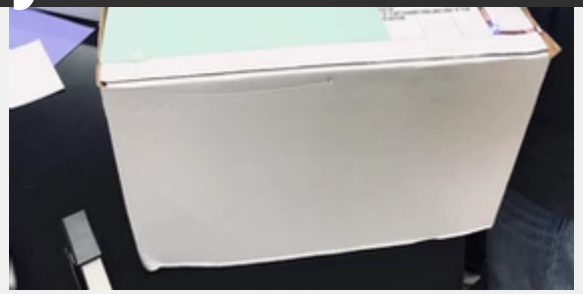
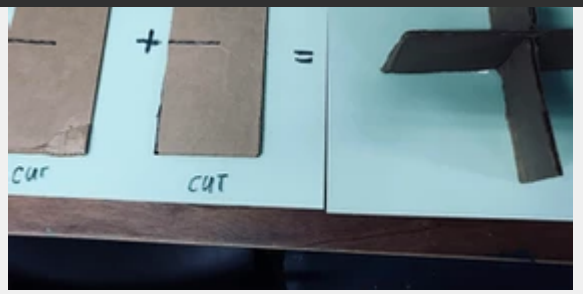
The most important quality when it comes to making is giving students the opportunity to create an artifact that is personal to them. From the beginning to the end of the maker project the question I primarily asked students when they were confused

To prevent students from feeling overwhelmed, I provided examples of various cardboard cutting techniques, tips on using LED lights, and examples of 3d prints and laser cuts to kickstart their imagination on their own project.

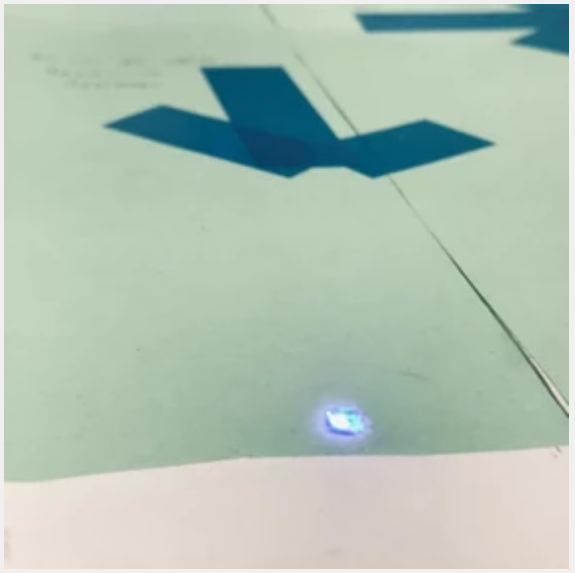
Once the students began their rough draft, I wrote down their requests and provided the materials the following day. For more advanced items, such as 3d prints & laser cutting, I visited the Co.lab, a community maker space north of Austin, to adhere to their requests and brought their items the following class period.

Below are a few images of some of the projects the students made. One student decided to make their whole project centered around the theme of chess, requesting a chess board to be cut out. The group then utilized cardboard cutting technique known as the slot cut to give the board elevation. Another example involved a group which used LED lights as their project theme was centered around football. One student was curious on how the LED and copper wire tape worked, and once I returned to give a tutorial, the student had figured it out. From there, the groups imagination ran wild. This is just one of many examples of students using their creativity to expand. Keep in mind, *this was the first time the students experienced these tools and techniques.*







Were students able to share their lesson with a larger community?

For presentation aspect of the project, the students presented their work to their peers through a gallery walk. The builder and the manager would stay behind and present the maker project, while the researcher went to each table to hear what the other groups had to say. As the facilitator, I also rotated to each group to ask questions about how they made their project, or to facilitate discussion to clarify what their trend was. The students also had the opportunity to see the various techniques and materials their peers used to make their project.

The student were assigned individual roles for the maker project, but had to work as a group in order to be able to complete the project for the time given.

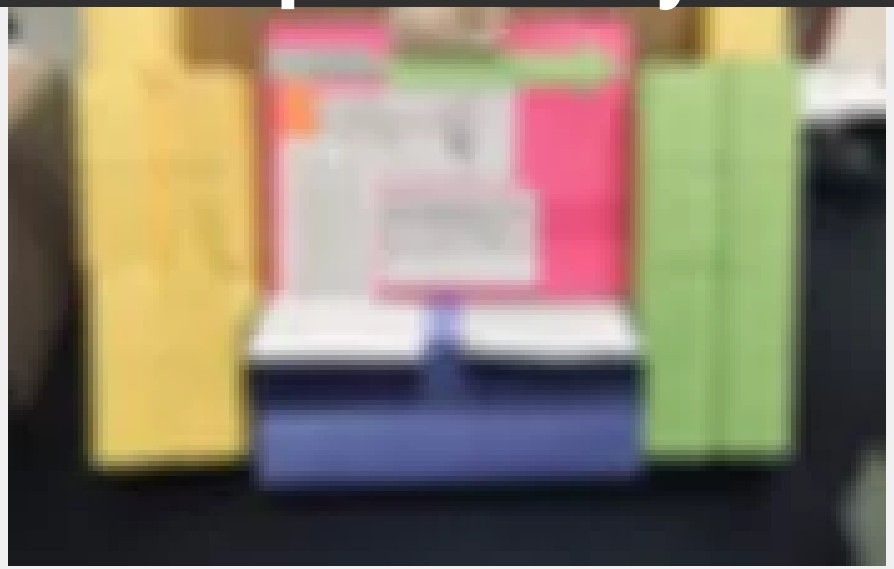
What methods were used to encourage active learning and to have students think critically about the content?

Teams had to think critically about what their trend was, and how they could convey it in a unique way. This required higher level thinking, as the students had to make sure the content was accurate in order to make the project. In this way, learning the material was not the end goal, but served as a guide to complete the artifact.

How were students able to generate their own questions, use authentic tools and resources, and develop their own products?

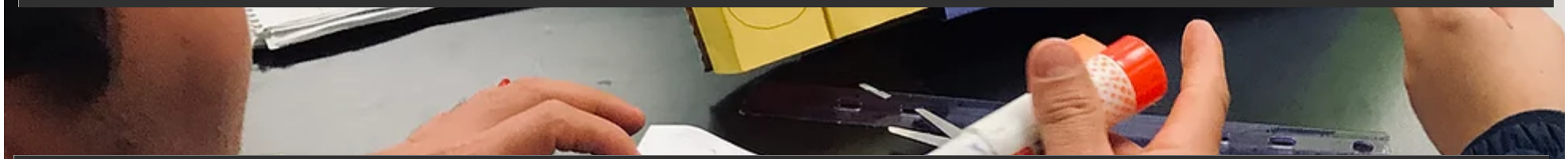
Students where able to generate their own questions using ptable.com, an interactive periodic table. The website included the values for each elements electronegativity, ionization energy, and atomic radii.

From there, students had to question if their trend increased or decreased or a period or group, and how as how they could convery this in 3d. My goal as the facilitator was to guide the students to these answers by providing resources, materials, and clarification on specific trends.



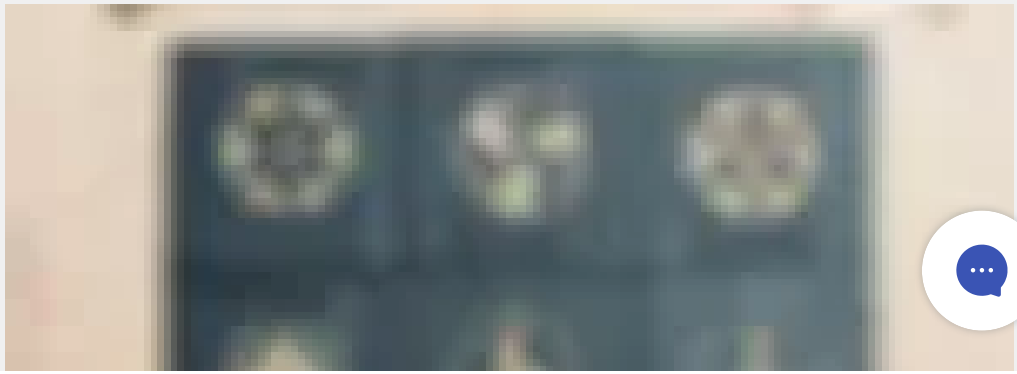
Establishing choice within a project is important as students can fill a role they feel they will be more suited to be successful. For each team, the students had to decide who wanted to be a builder, manager, or researcher. For groups of four, a creative design role was also included.

The builder primarily did the majority of the handy work, which involved obtaining supplies, gluing items down, and applying other materials to the project. The researcher had oversight on researching the trend assigned to the group, and the manager was in charge of the design choices of the project and making sure the guide was stamped after each portion was completed. They also had to draw a rough draft.



Revising and Presenting Work

How was the product tangible, and what opportunities where given to provide feedback reflection, and design choices?

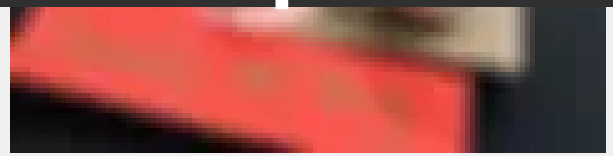
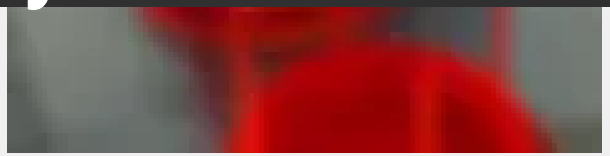
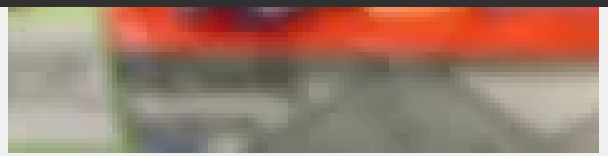


Feedback was provided throughout the course of the project through formative assessment. Before the students could work on their project they had to have their rough draft stamped off. Once their idea was approved, I communicated with them on suggestions, and what materials they would need to make it happen.

How did the students present their work to an audience?

The students presented their work by a gallery walk. For each group, 2 students stayed behind to present, while the remaining rotated to each team. The students were also given sticky notes, where they had to write their name on the non-sticky side, but provide feedback on the sticky side so it would not be visible. The students were also taught how to give constructive criticism on projects still in progress.

Implementation

When was this lesson plan attempted, was it completed, and what additional changes or revisions will be made for future projects?

The lesson plan Periodic Trends in 3d was done during my time of apprentice teaching in middle of November. All three classes had the opportunity to complete the project, each given about roughly 3 class periods (each were 90 minutes) to work on their project. The students also were given additional tutoring hours outside of class, and tutoring during school hours, referred to as FIT that they could sign up for.

After viewing the student feedback one of the most common critiques was more access to materials, more time, and for groups to be organized better. For the groups, they were chosen completely by random through drawing of popsicle sticks done before class. If I could do it differently, I would have still randomized it, but went back and see how I could have had groups that were still heterogenous, but shared common interest or activities. The groups were still rather heterogenous, but adjustments could be made.

As for time, I feel this is a common complaint most students would have, although not as many students utilized FIT or tutoring hours during school. I feel three days was a good time frame, as the majority of students where able to complete their projects. If too much time is given, the students begin to lose interest. Initially the project was only going to be for two days, but I decided to extend it as a result of feedback from the students when visiting team to team.

Regarding materials, since this was my first maker lesson at Crockett, the maker space could have used better organization. Also, initially on the first day, not all the materials were available (even the gluegun came with glue that wasn't the right diameter to fit). These mistakes proved helpful as I now have a better idea for which materials to bring, and how to organize them in the future. In my future classroom, I plan to have my own created maker space, and will have bins with labeled materials for easier access. I am also currently working on having a 3d printer within my own classroom for students who choose to do their own prints.

Lesson plan 9

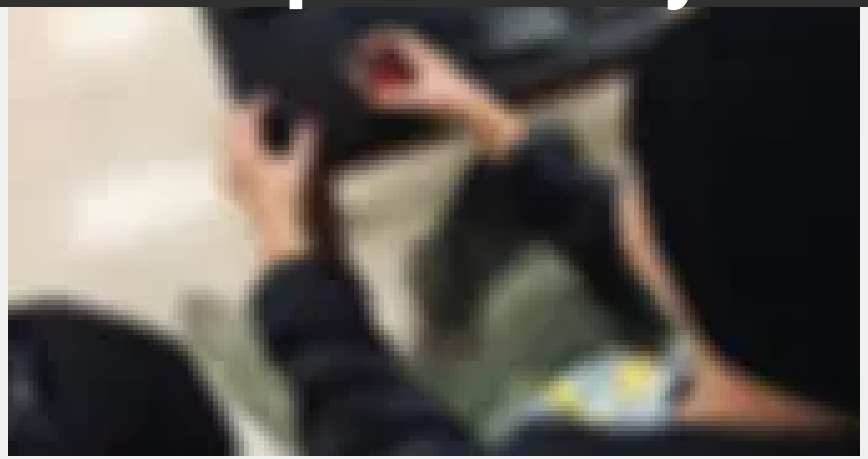
Lesson plan 10

Reflection

Periodic Trends in 3d was the first maker lesson I had implemented for a high school audience. Although the preparation was tedious, the biggest surprise was how thankful most of the students were when I was able to fulfill their requests.

Once the students had their unique items printed out, the students quickly began to let their imagination run wild. It was absolutely amazing to see the level of creativity the students were able to showcase and I can't wait to see what new and creative things my future students will make.

For future improvements, I plan to have more remade examples of cardboard cutting techniques, LED techniques, as well as examples of coding through microbit. More details down below



their periodic trends project. Unfortunately, due to time constraints, I was unable to introduce the microbic to my students during the project.

However, I was able to have the students practice with programing the microbit with the chrome books after the lesson, and have them perform different tutorials such as creating a digital name tag, creating various light patterns, and creating their own facial expressions.

For the next implementation of this project, I plan to have students use their microbit to creatively demonstate their trend as well.

Self Ratings on Periodic Trends in 3d

Orginality - 4 (Students make their own 3d trend, making, relating to personal interests)

Content- 5 (Felt comfortable with content knowledge, and how to scaffold students to starting)

Agency - 4 (The project hits the key aspects of a maker project, only wish I could have included microbit)

Sustained Collaborative Inquiry - 4 (Roles assigned, students had to work collaboritively to complete project(

Self Management of Learning - 3 (Still needs improvement)

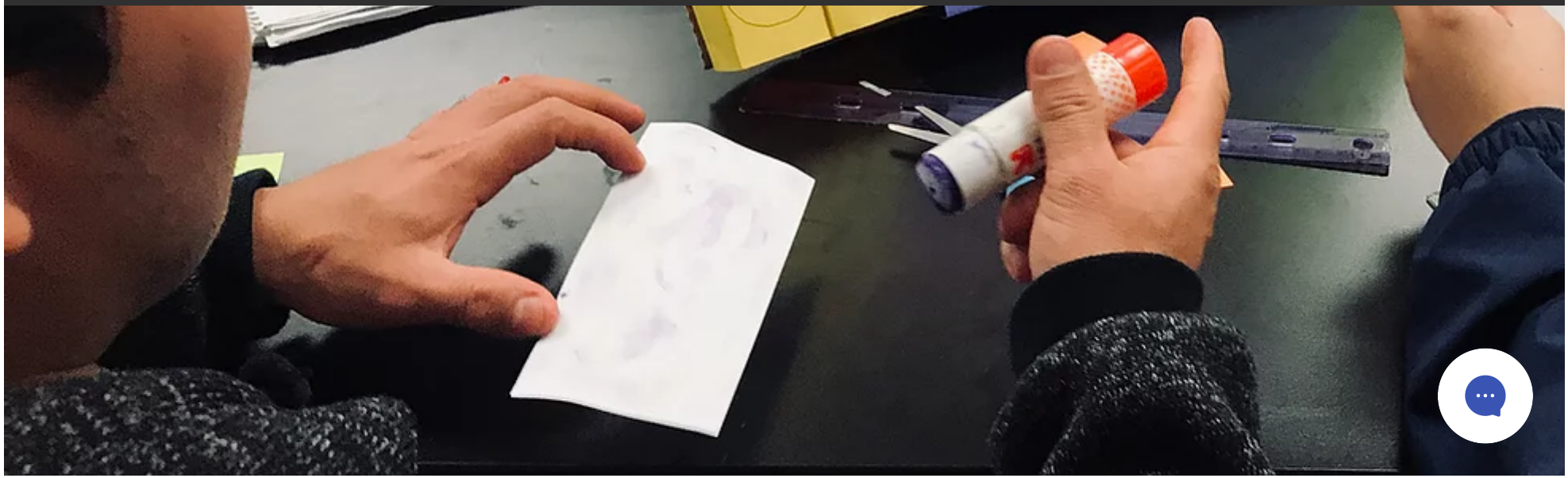
Revising and Presenting Work - 4 (Gave multiple opportunities for revision/gallery walk/ facilitation visiting teams)

Implementation - 4 (Project was well planned out for first attempt at high school)

Documentation - 3 (Lesson plan could use more detail)

Reflection - 4 (Discusses faults, and improvements in the future)

CITATIONS



Due by: _____

Making Periodic Trends in 3D (Power Standard 6)

Understanding periodic trends is important as it helps us quickly predict a chemical's properties on the periodic table. For this project, you will be making a 3D representation that **visually describes and explains** the different periodic trends – Atomic radius, Zeff & Shielding, Electronegativity, and Ionization. You will still need to have knowledge on all the trends listed, but you will make one representation.

	MAS	MET	APP	DVL	LIM
Creativity	Maker project has 3D representation, and creatively demonstrates the periodic trend in a unique way accurately	Maker project has 3D representation and demonstrates the periodic trend in a unique way accurately	Diagram has a 3D representation, and describes the periodic trend in some fashion	Diagram has limited 3D representation, and describes the trend but not accurately	Diagram has no 3D representation, and describes the trend, but not accurately
Content Knowledge	Description of ALL 4 trends is accurate and written in own words, and creatively explains how project showcases the trend chosen	Description of ALL 4 trends is accurate and explains how maker project relates to a specific trend	Description of SOME trends is accurate and explains how maker project relates to a specific trend	Description of SOME trends, and includes description on how it relates to maker project	Description of SOME trends, no description on how it relates to maker project
Writing	4 index cards on each trend with complete information (definition, trend for a group, period, and overall trend)	4 index cards on each trend with complete information with few pieces missing	4 index cards with SOME information/3 cards with complete information	3 Index cards with SOME information/2 with complete information	Minimal writing on index cards
Present to an audience	Student presented to an audience				***Did not present to an audience = NOE

Builder: _____ (Atomic Radius)

Manager/Creative design: _____ (Z_{eff}/Shielding & Electronegativity)

Researcher: _____ (Ionization)

EXIT TICKET

First and Last Name:

Period (Please Circle): 2nd 4th 7th

1. What is electronegativity?
A) how strongly an atom pulls electrons to itself when it is bonded to other atoms
B) how much energy is needed to take an electron away from an atom
C) how large an atom is
D) the total negative charge of the electrons in an atom

2. Which element has the lowest ionization energy?
A) Beryllium (Be)
B) Strontium (Sr)
C) Calcium (Ca)
D) Magnesium (Mg)

3. As you move from top to bottom in a group, what happens to the shielding effect (inner levels of electrons block the pulling force of the positive protons on the outer electrons)?
B) The shielding effect increases
C) The shielding effect decreases
D) The shielding effect stays the same

4. Which of these elements has the largest atomic radius?
A) Lithium (Li)
B) Beryllium (Be)
C) Boron (B)
D) Carbon (C)

5. What happens to Zeff, the overall attraction of valence electrons to the nucleus, as you go to the right of a period (row) and why?
A) Zeff increases; protons decrease pulling the valence electrons closer
B) Zeff increases; protons increase pulling the valence electrons closer
C) Zeff decreases, protons decrease pulling the valence electrons closer
D) Zeff decreases, protons increase pulling the valence electrons closer

EXIT TICKET

First and Last Name:

Period (Please Circle): 2nd 4th 7th

1. What is electronegativity?
A) how strongly an atom pulls electrons to itself when it is bonded to other atoms
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C) Zeff decreases, protons decrease pulling the valence electrons closer
D) Zeff decreases, protons increase pulling the valence electrons closer

Intro Ticket
First & Last Name:
Period:

What is electronegativity?

a) How much energy is needed to take an electron away from an atom
b) The distance from the nucleus to the outer shell of an atom
c) How strongly an atom pulls electrons to itself when bonding

Which element has the lowest ionization in group 2?

a) Beryllium (Be)
b) Calcium (Ca)
c) Magnesium (Mg)

As you move from <u>left to right</u> of the periodic table, what happens to the shielding effect?

a) It increases
b) It decreases
c) It stays the same

Which has the largest atomic radius?

a) Sodium (Na)
b) Magnesium (Mg)
c) Aluminum (Al)

Intro Ticket
First & Last Name:
Period:

What is electronegativity?

a) How much energy is needed to take an electron away from an atom
b) The distance from the nucleus to the outer shell of an atom
c) How strongly an atom pulls electrons to itself when bonding

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a) It increases
b) It decreases
c) It stays the same

Which has the largest atomic radius?

a) Sodium (Na)
b) Magnesium (Mg)
c) Aluminum (Al)

NAMES IN GROUP: _____

Periodic Trends in 3D Guide

This is a step by step guide towards helping you with your maker project!!

Roles

On your rubric there are three roles. Once you have decided, write them here to receive a stamp.

Research

Now you will do research for each trend. For each trend, have a **definition**, the write down what occurs as you go **down a column** and to the **right of a period**.

Atomic Radius (Builder)

Ionization Energy (Researcher)

Shielding and Z_{eff} (Manager/Creative Design)

Electronegativity (Manager/Creative Design)

NAMES IN GROUP: _____

Rough Draft

Draw a rough draft of your product with labels on how you'll represent one of the trends. When done receive a stamp including materials

Choice Menu Option (Only for Mr. Phill's class)

I am partnered with the Co.lab a makerspace in Austin that has maker materials. If you would like to have one of these elements included in your project check them off (can only choose one):

- 3D print (can print an atom, cool label, etc.)
- Lasercutter (can woodcut a label, atoms, etc.)
- Silhouette Sticker (Can include sticker design to project)

Start Making!!!

Write down decision making each person has made to contribute during making portion

AGENDAS FOR THE WEEK: *November 4th – November8th*

	MONDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	TUESDAY (B) 7TH 1:25PM-2:55PM	WEDNESDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	THURSDAY (B) 7TH 1:25PM-2:55PM	FRIDAY (B) 7TH 1:25PM-2:55PM
	Objective(s): SWBAT *interpret period trends by observing physical and chemical quantities on the periodic table *explain the reasons on why such trends occur by drawing or writing	**Objective(s): SWBAT**	**Objective(s): SWBAT** *interpret period trends by making a creative item that describes such qualities *explain the reasons on why such trends occur by writing	**Objective(s): SWBAT**	**Objective(s): SWBAT**
P	**Engage** Bellringer Identifying Trend (Warmup should be about a simplistic way of identifying a trend)	**Engage** (See Monday A day)	**Engage** Bellringer	**Engage** (See Wednesday A day)	**Engage** Bell ringer
L **A**	**Explore** Stations for the periodic table -Atomic Radius -Ionization Energy -Electronegativity -Zeff (=Z-S) -Shielding **Explain** -Students write down the trend on whether it increases from going left to right on the periodic table or top to bottom **Elaborate** Give example problems and have students decide which has atoms have the larger radius, Zeff, shielding, ionization or electronegativity	**Explore** **Explain** **Elaborate**	**Explore** **S**tudents will begin on Maker Project for periodic trends -Quick review on families -Rubric -Assigning of groups -Maker materials **Explain** **Elaborate**	**Explore** **Explain** **Elaborate**	**Explore** Students will continue to wrap up their maker project and complete the written portion regarding ionization, atomic radius, Zeff, and electronegativity -Three students to a group -Give two students two index cards, and one student one -Fill out information for maker project -Explain the trend they have made **Explain** **Elaborate**

N	**Evaluate and Summary** Exit Ticket (Should test knowledge on how well they can identify trend on the periodic table)	**Evaluate and Summary**	**Evaluate and Summary** Exit Ticket Identifying trends on periodic table	**Evaluate and Summary**	**Evaluate and Summary** Exit Ticket Identifying trends on the periodic table
Resources					

AGENDAS FOR THE WEEK: *November 11th – November 15th*

	MONDAY (A) VETERAN'S DAY	TUESDAY (B) 7TH 1:25PM-2:55PM	WEDNESDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM (CI INTERATIONS WILL NOT DO)	THURSDAY (B) 7TH 1:25PM-2:55PM	FRIDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM (CI INTERATIONS WILL NOT DO)
		Objective(s): SWBAT *interpret period trends by making a creative artifact that demonstrates the trend going across a period and along a group *explain how ionization, atomic radii, electronegativity, and Z_{eff} occur through writing	**Objective(s): SWBAT** **IMPORTANT: 4th period will have CI teaching, will not do LP till next week** *interpret period trends by making a creative item that describes such qualities *explain the reasons on why such trends occur by writing	**Objective(s): SWBAT** *interpret period trends by making a creative artifact that demonstrates the trend going across a period and along a group *explain how ionization, atomic radii, electronegativity, and Z_{eff} occur through writing	**Objective(s): SWBAT** **IMPORTANT: 4th period will have CI teaching, will not do LP till next week** **(See B day for Tuesday)**
P		**Engage (1:25-1:35)** Video on Glowforge (laser cutting) (5 minutes)	**Engage** Preassessment(?) **NOTE: For A day, 2nd period will have an extended period.**	**Engage (1:25-1:35)** -Bellringer (Ionization bellringer)	**Engage** **(See B day for Tuesday)**
L **A**		**Explore (1:35-2:20)** Students will finish maker project by adding the final touches with additional provided materials -Set timer (40 minutes) -Before 40 minutes have notecards ready **Explain (2:15-2:35)** Students will be given a notecard, and in their own words write about the trend they were assigned in their own words **Elaborate (2:35-2:45)** **Gallery Walk** **-One person stay with their maker project, the other goes to check out other projects** **Alternative option***** **-Sticky notes**	**Explore** Students will begin on Maker Project for periodic trends -Quickly go over rubric -Have builder gather a few materials -Idea with examples -Workshop for microbits & circuits (Thursday-workshop to improve project and tutoring 4:30-6pm) **Explain** Students will go through their Periodic Trends handout to have steps outlined for project **Elaborate**	**Explore** **Choice menu (studying)** **-Blended learning** **Explain** **SUGGESTION: Have materials ready ahead of time for types of stations to make it look more creative** **Elaborate** **Kahoot**	**Explore** **(See B day for Tuesday)**

N		**Evaluate and Summary (2:40-2:55pm)** **-Exit Ticket link (part of grade to check for understanding)** **-accommodate (if more time, can write a pass)**	**Evaluate and Summary** -Last call for materials	**Evaluate and Summary (2:35-2:55)** **Power standard 7**	**Evaluate and Summary** **(See B day for Tuesday)**
Resources		Materials -Note cards -Hot glue guns Link to Exit Ticket:			

Supplies List for Periodic Trends in 3d Project

(# 899616) SunWorks® Smart-Stack™ Heavyweight Construction Paper, 9" x 12", Assorted, Pack Of 300
(# 504928) Crayola® Color Pencils, Assorted Colors, Set Of 12 Color Pencils **(10 needed)**
(# 764180) Crayola® Broad Line Markers, Assorted Classic Colors, Box Of 10 **(10 needed)**
(# 458621) Neenah® Bright White Premium Card Stock, Letter Size, 65 Lb, White, Pack Of 250 Sheets **(2 needed)**
(# 458411) Astrobrights® Color Card Stock, 8 1/2" x 11", FSC® Certified, 65 Lb, Happy Assortment, Pack Of 250 Sheets **(2 needed)**
(# 9506251) Duracell 3-Volt Lithium 2032 Coin Batteries, Pack Of 4 **(15 needed)**
(# 173336) Scotch® Desk Tape Dispenser, 100% Recycled, Black
(# 978237) ArtSkills® Poster Lights, White **(2 needed)**
(# 8634874) Scotch® Expressions Washi Tape, Assorted Colors, Pack Of 8 Rolls **(3 needed)**
(# 538543) Creativity Street Glue Gun Glue Sticks, 4" x 5/16", Clear, Pack Of 12 **(2 needed)**
(# 764206) FPC 40W Dual-temp Glue Gun - 380°F (193.3°C) - Red **(2 needed)**
(# 206503) Office Depot® Brand Eraser Caps, Red, Pack Of 12 Eraser Caps **(4 needed)**
CANARY Corrugated Cardboard Cutter"Dan Chan" [Fluorine Coating], Yellow (DC-190F-1)
CANARY Cardboard Scissors, Blue (PS-6500H)
4 Pack Copper Foil Tape,Conductive Adhesive for EMI Shielding,Slug Repellent,Paper Circuits,Electrical Repairs,Grounding(1/4inch)

Chibitronics White LED Circuit Stickers - Megapack, 30 white LED circuit stickers

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MAKER PROJECT

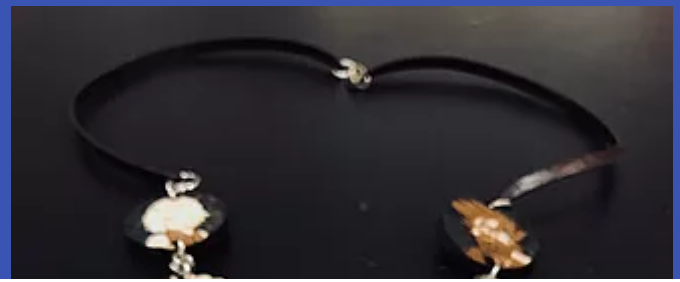
When I joined the Teach Maker program I had no idea what to expect. Looking back, I'm glad I did, as it provided an opportunity to combine my love of teaching with my love of art and science.

showcase of the various skills and maker techniques used throughout their experience as a maker. The project can be based off of a persons field of expertise, or it can be themed off a persons interest!

Maker projects can come in all shapes and sizes, but they all share one thing in common. They demonstrate how each of us have a unique ability to build and create something we deeply love.

The best part of all is that it is all about failure. That's right, you heard me correct! Although ideally in a perfect world we would all hope for our final project to run smoothly, have no issues, or even be complete, the truth is there are a ton of pit stops and short comings that will come along the way to making it.

However, the core of being a maker is embracing failure in order to learn and improve. It really is what making is all about. Now onward to the maker project!



CUSTOM

GLOWFORGE JEWELRY

The Beginning of the Maker Journey

When I was younger, my mom had a jewelry set that held all her earrings and necklaces. Being the obnoxious 4 year old that I was, I always played around with it constantly. Although my mom never made jewelry, I always thought it would be pretty cool to create my own, and when I was in elementary school I attempted to make my own anime themed jewelry out of paper. Weirdly enough, I lost interest as I began to explore different avenues of artwork.

However, along came college, and with that, my introduction into UTeach and the Uteach Maker program. I realized there were many avenues of expression for me as a teacher, and I could express myself through my art. The first workshop I went to was called Mathematical Book Binding which showcased how math could be encorporated with making. It was from this first workshop that my jewelry idea came into fold.

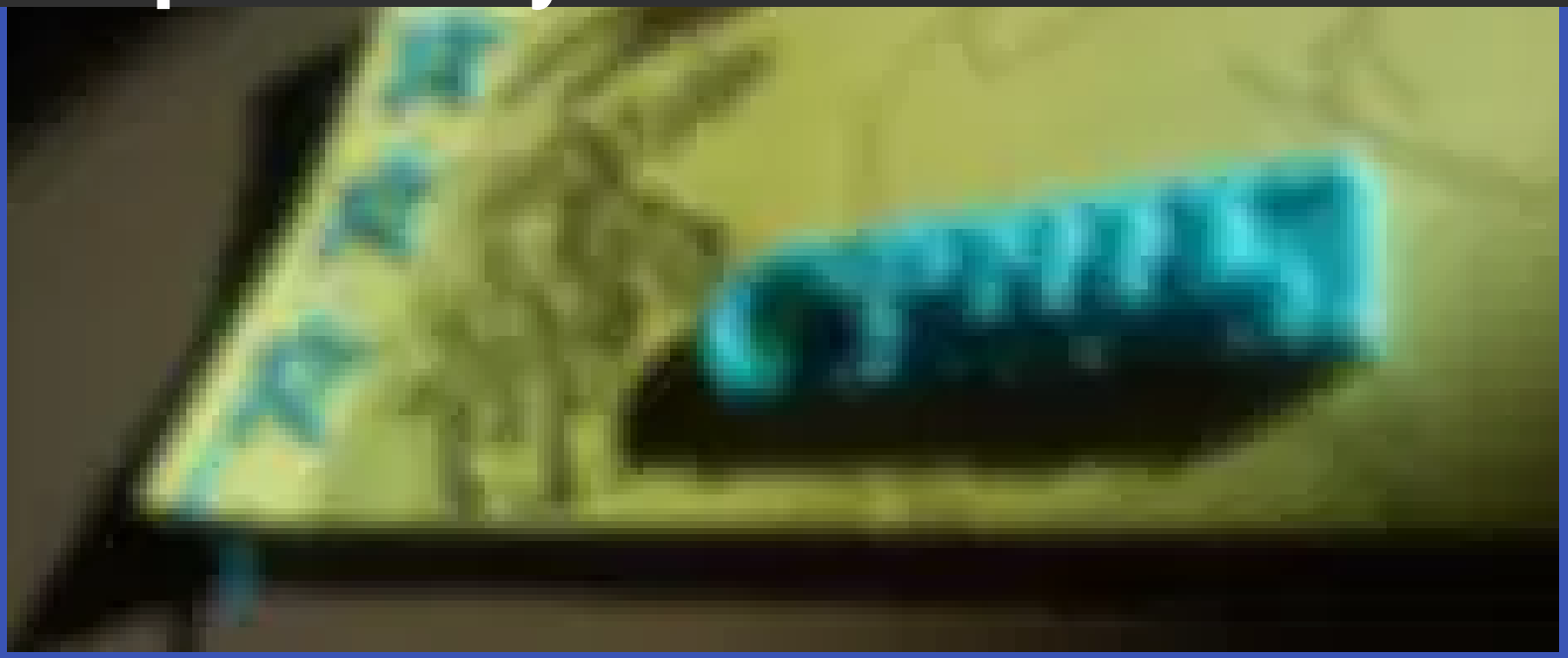
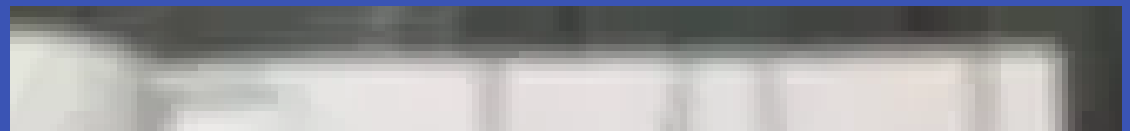


Figure 1: Custom binding book made at my first workshop. It was this book that I did the majority of of my maker project rough draft ideas.

Let The Rough Drafts Begin

During the spring of 2019, I interned at the Foundry, a makerspace at the UT Fine Arts library. It was during my time there that I developed a lesson plan that would have students develop their own jewelry based on specific compounds. I used the booklet I had made from my first UTeach Maker workshop to sketch rough draft ideas. I even decided to purchase my own jewelry set.



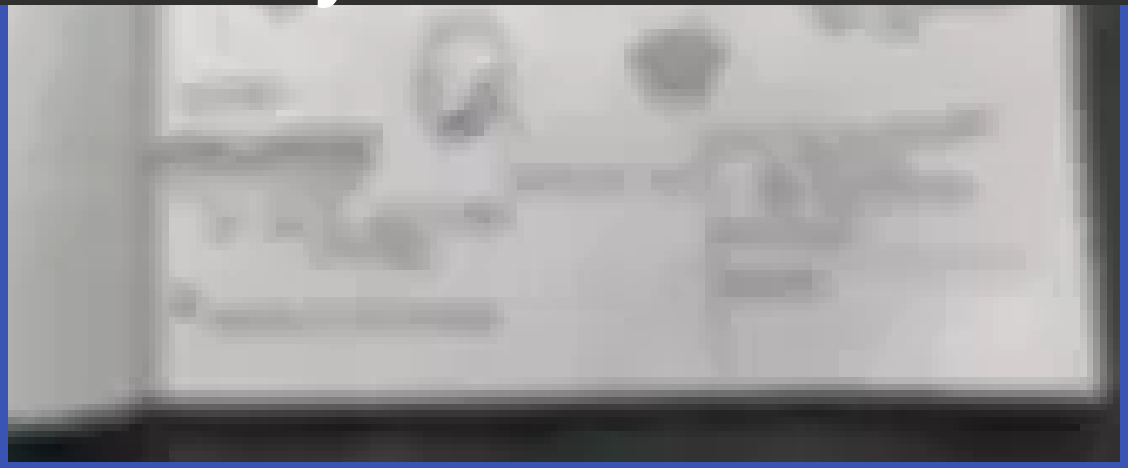
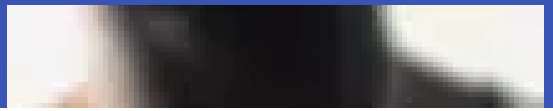


Figure 2: Sketches of rough draft necklaces for maker project and lesson plan

Figure 3: Created CO2 and H2O molecules made by me in Tinkercad

I faced numerous challenges along the way. For example, I had to learn how to create 3D objects with



sets and had to self teach myself different design techniques.

However, despite my lack of knowledge of tinkercad and jewelry making, the whole process facinated me. I was able to create my own custom CO2 necklace roughly 2 months after writing out the idea in my maker sketchbook.

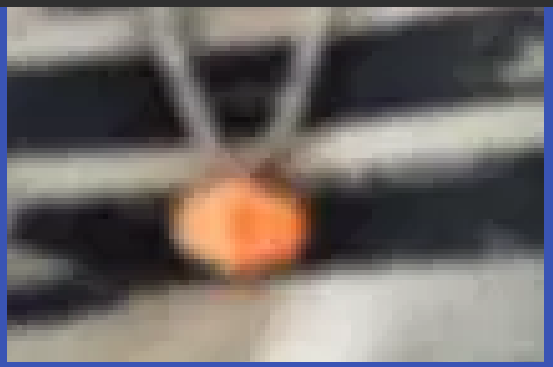


Figure 4: 3d printed CO2 necklace

Glowforge: Co.lab Community Makers

For the summer, I decided I wanted to take it a step further. I volunteered at the Co.lab, a safe inclusive maker space in North Austin, where I had the chance to use Glowforge, a laser cutter.

My mentor Patrick Benfield showed me the basics on how to use it. Most importantly, he showed me a technique that I would later use to customize laser cuts.

To explain, usually when doing a lasercutt, there would be burnt laser marks left on the final design, since the laser has to cut through at high temperatures. To avoid this, Patrick told me I could use tape to make the cuts appear clean with no burn marks!

could customize the coloring of the box and have the scorched marks removed

Final Touches for Maker Project

After playing around the Glowforge and jewelry sets, I knew what I wanted to create for my final maker project. I experimented with my own drawings, laser cutting designs on wood, and then made custom pendents to use for my jewelry set. I was able to fully experiment with this, and as a parting gift, made a class set for my advisory class for NYOS charater school.

Afterward, I decided to finally be a bit selfish and make my own custom necklaces and key chains. A made a couple of custom pendants, the majority hand drawn, and wore them to school.

For the final maker project, I decided to make my elementary dream come true by creating my own custom made NARUTO necklace. Naruto was my favorite anime as a kid and I literally grew up with the character. I felt it would be wholesome to base my final project off of it.

I thought of a few ideas, and drew several rough sketches. After tedious hours of laercutting, jump ring bending, and finding the right leather material I

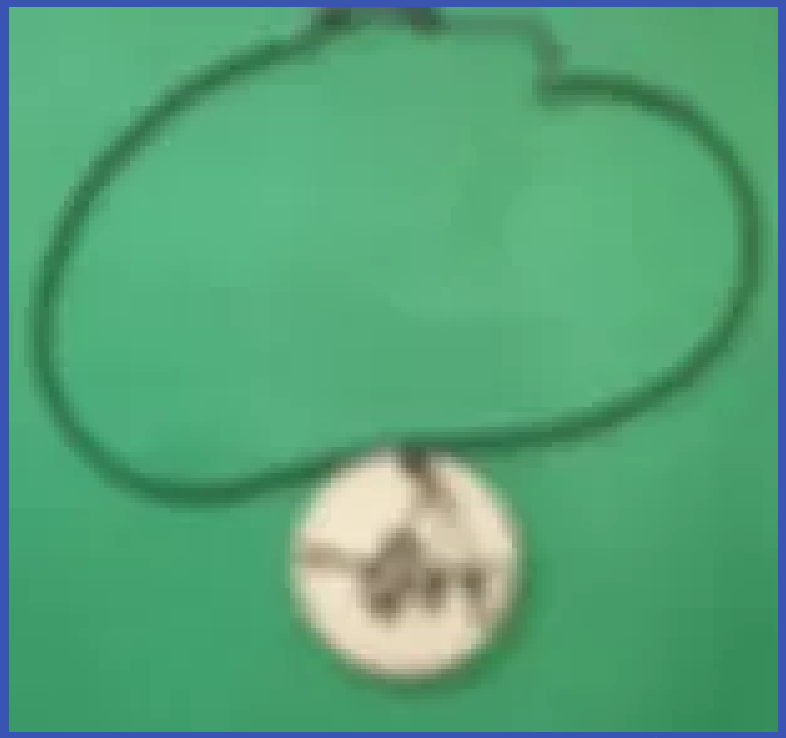


Figure 6: Disney themed necklace I made for my advisor class for the final day of my intership at NYOS Charter School

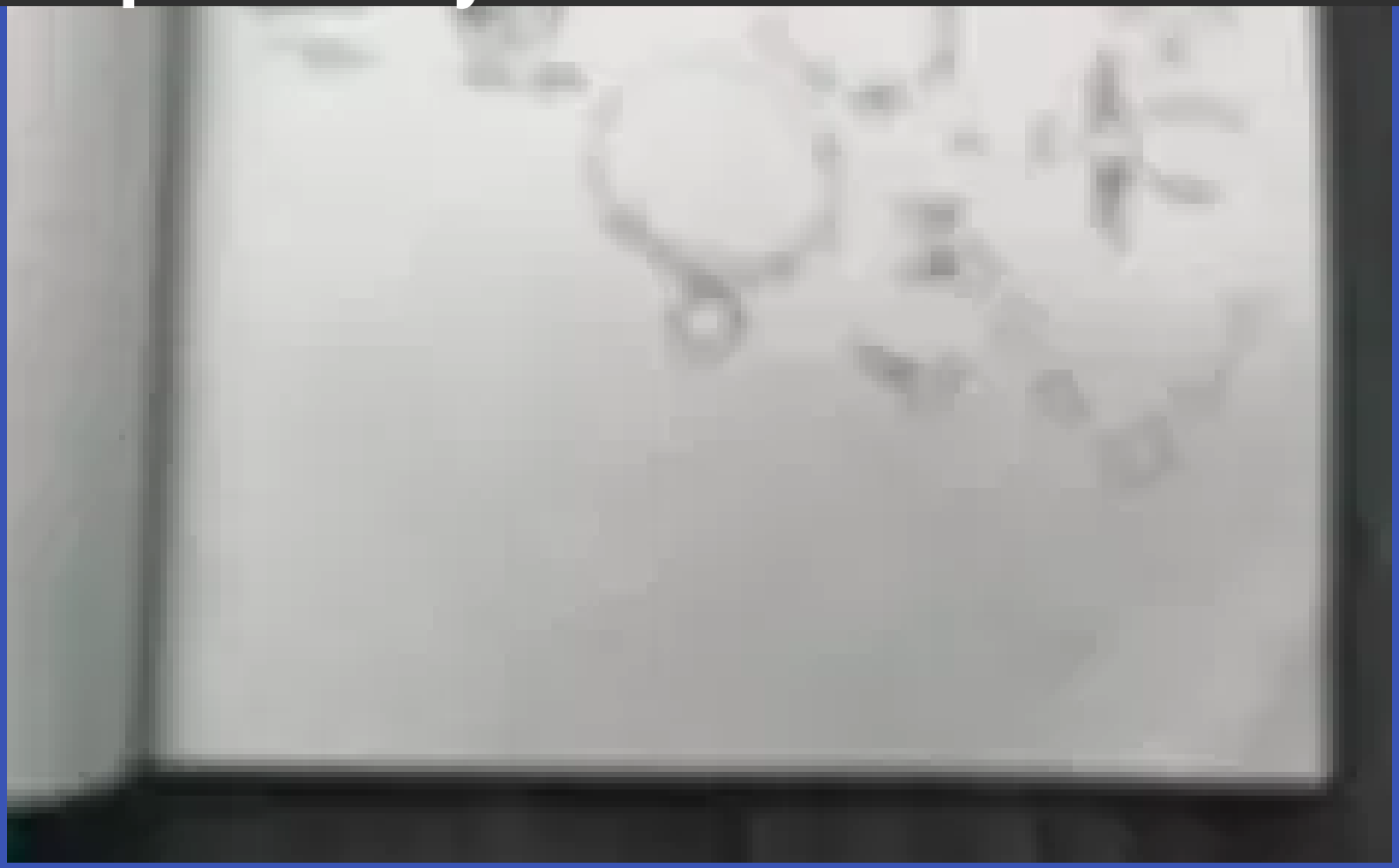
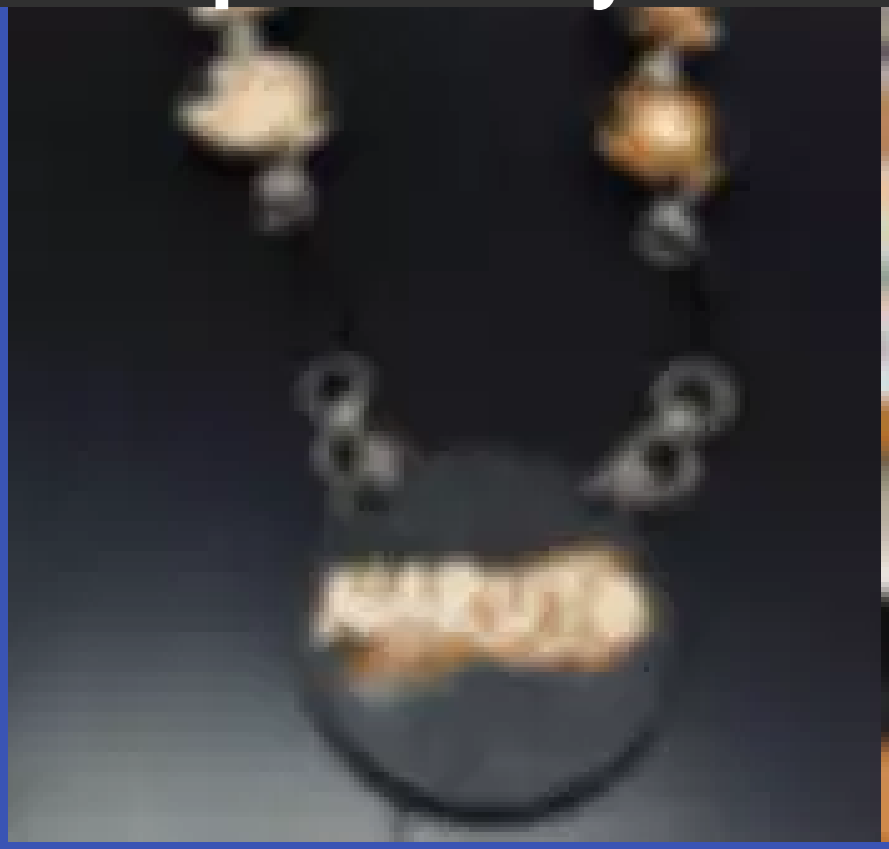
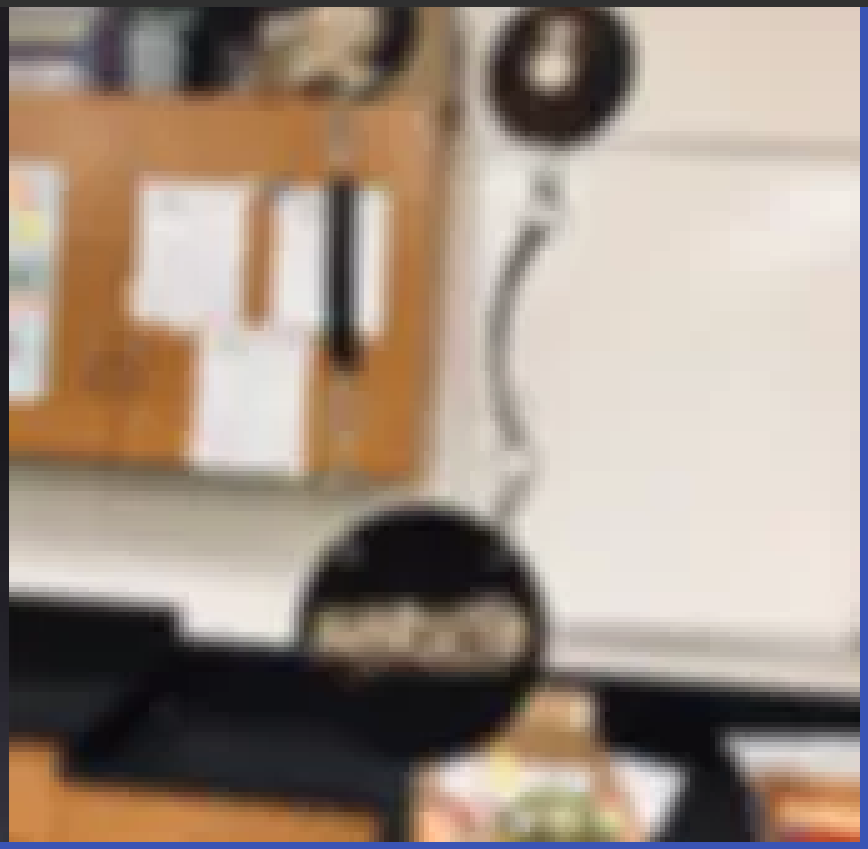
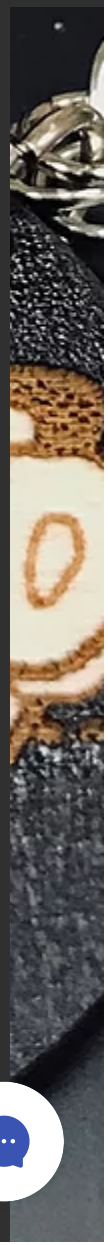


Figure 7: Rough draft sketch of necklace for maker showcase

MAKER PROJECT: Naruto Custom Necklace

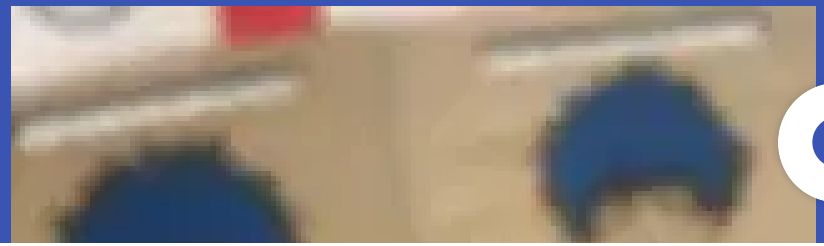






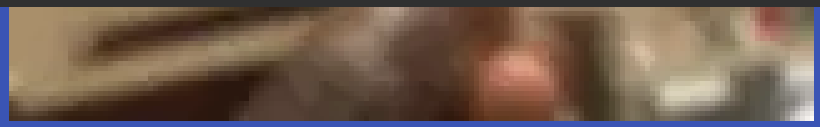
The final product! The brown leather I felt complemented the wood design quite well. The total length of the string was around 16 cm, however the jump rings gave extra wiggle room.

REFLECTION & FUTURE WORK

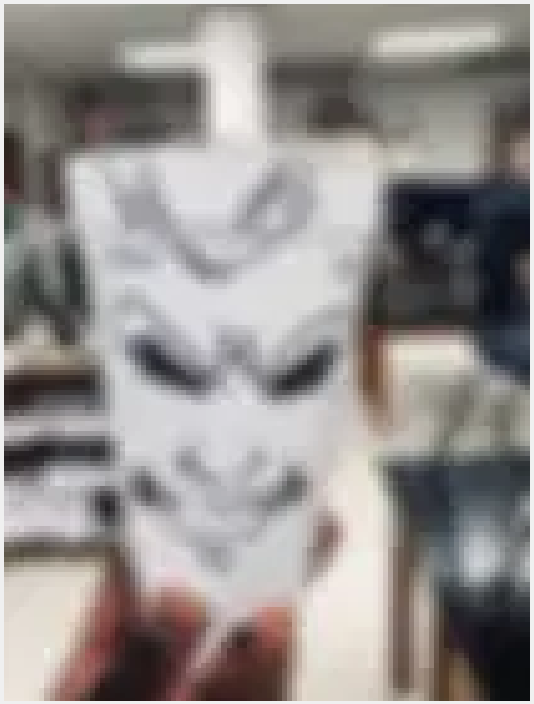


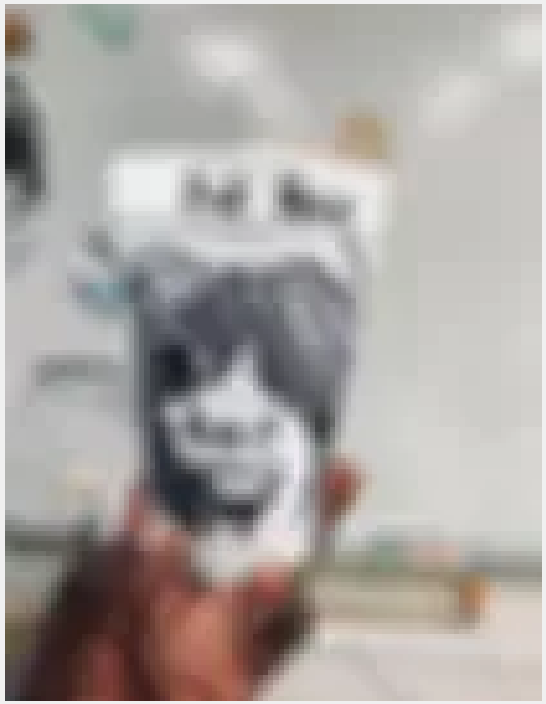
One thing that I wish I had done was draw out each individual image for my maker necklace. I love to draw, but I wanted to get a good feel for making my own necklace

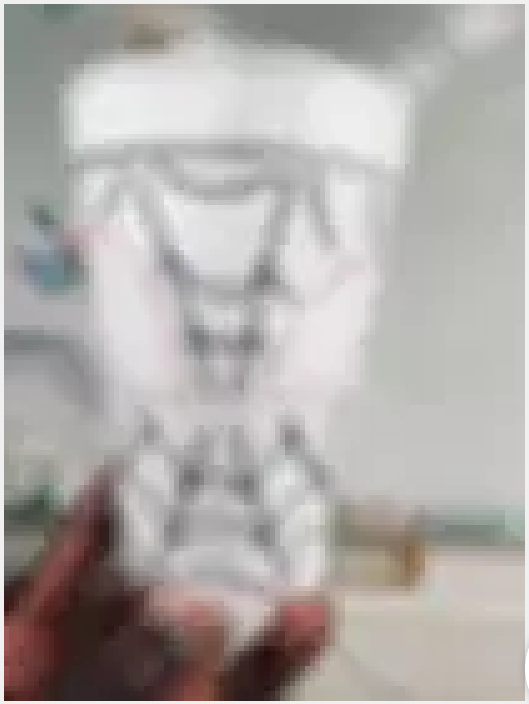
suggestions, and the journey has been an amazing one. Can't wait what the future has in store.



ADDITIONAL MAKER PROJECTS

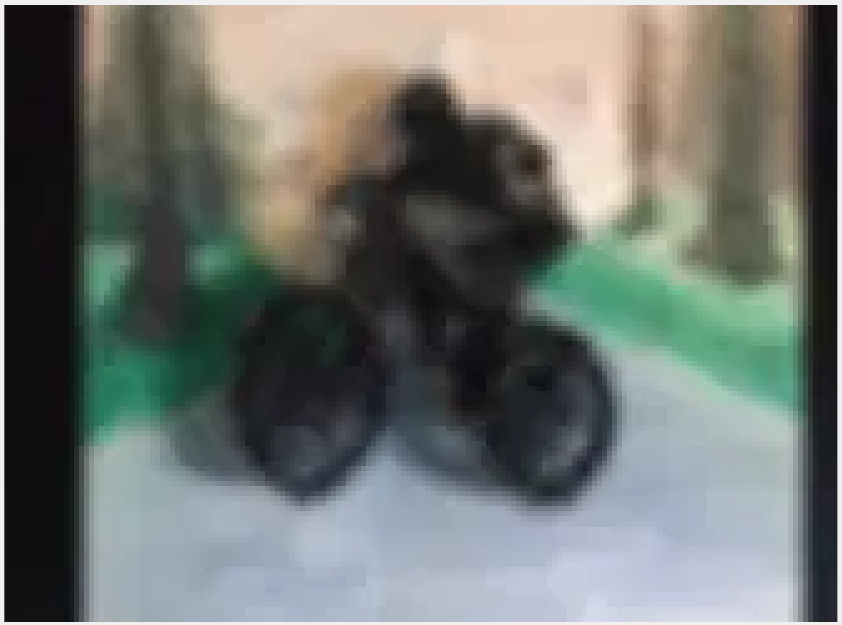


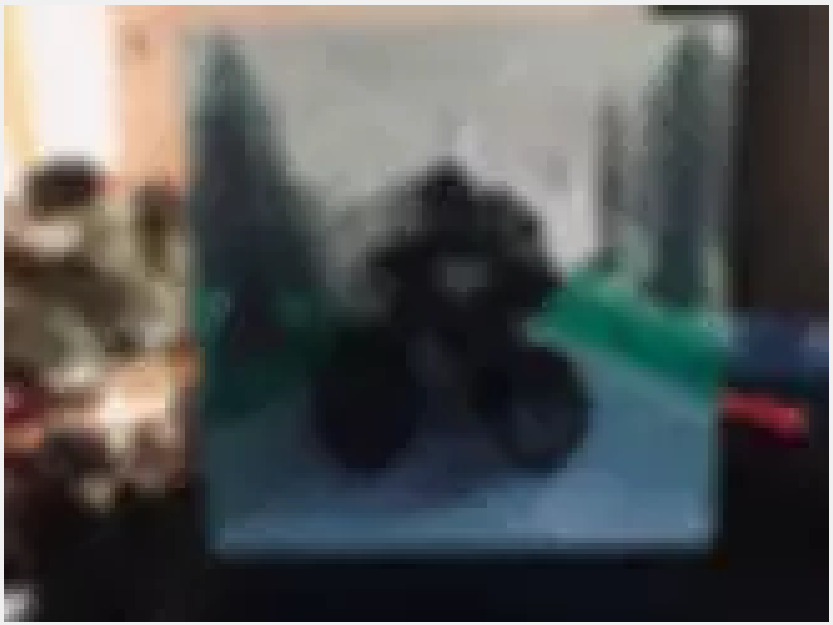


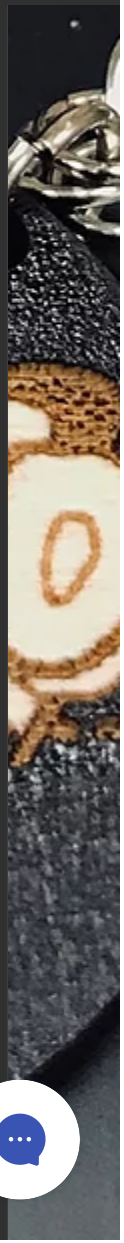


I decided to design the cups I held the popsicles with for each period.

Although I never heard it from my students directly, my cooperating teacher told me many of the students loved the design.



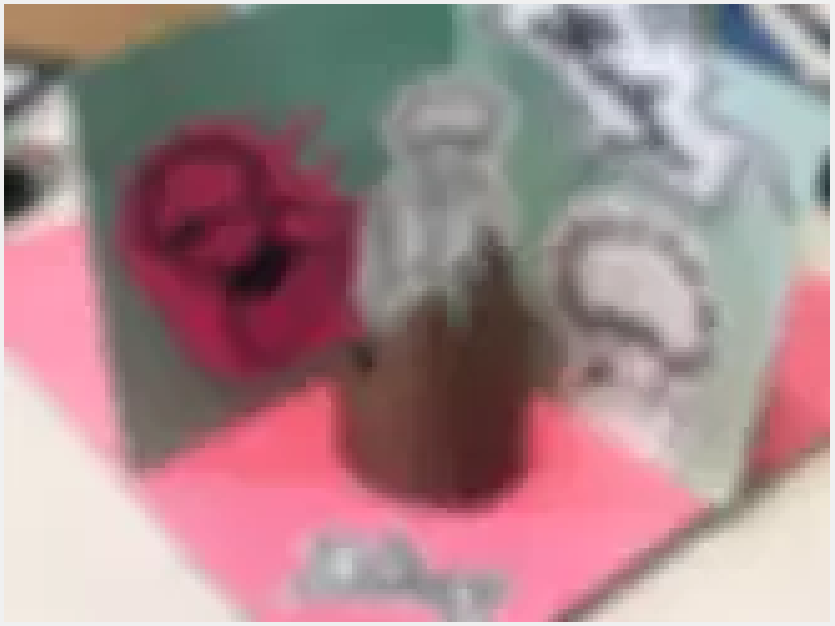




Secret Santa Nail and String Art

For the end of the semester, the teachers at Crockett High School held a secret santa to celebrate the end of the

him. It turned out pretty well and would like to do something like this for myself in the future.



Cardboard Cutouts

I had no idea how cardboard could be used in so many different ways! In December I went to Cardboard Cutouts workshop for Uteach maker and it showcased the various ways in which cardboard could be used to create joints or support structures.

In addition, I also created my own cardboard cutouts showcase for my students to use during student teaching. They picked up

CITATIONS

Maker Community_

As the old saying goes, "it takes a village to raise a child." As a maker, it was my involvement with different maker communities, events, and workshops that I obtained the knowledge to better myself. Below are my experiences with my involvment in maker.

Co.Lab Community Makers

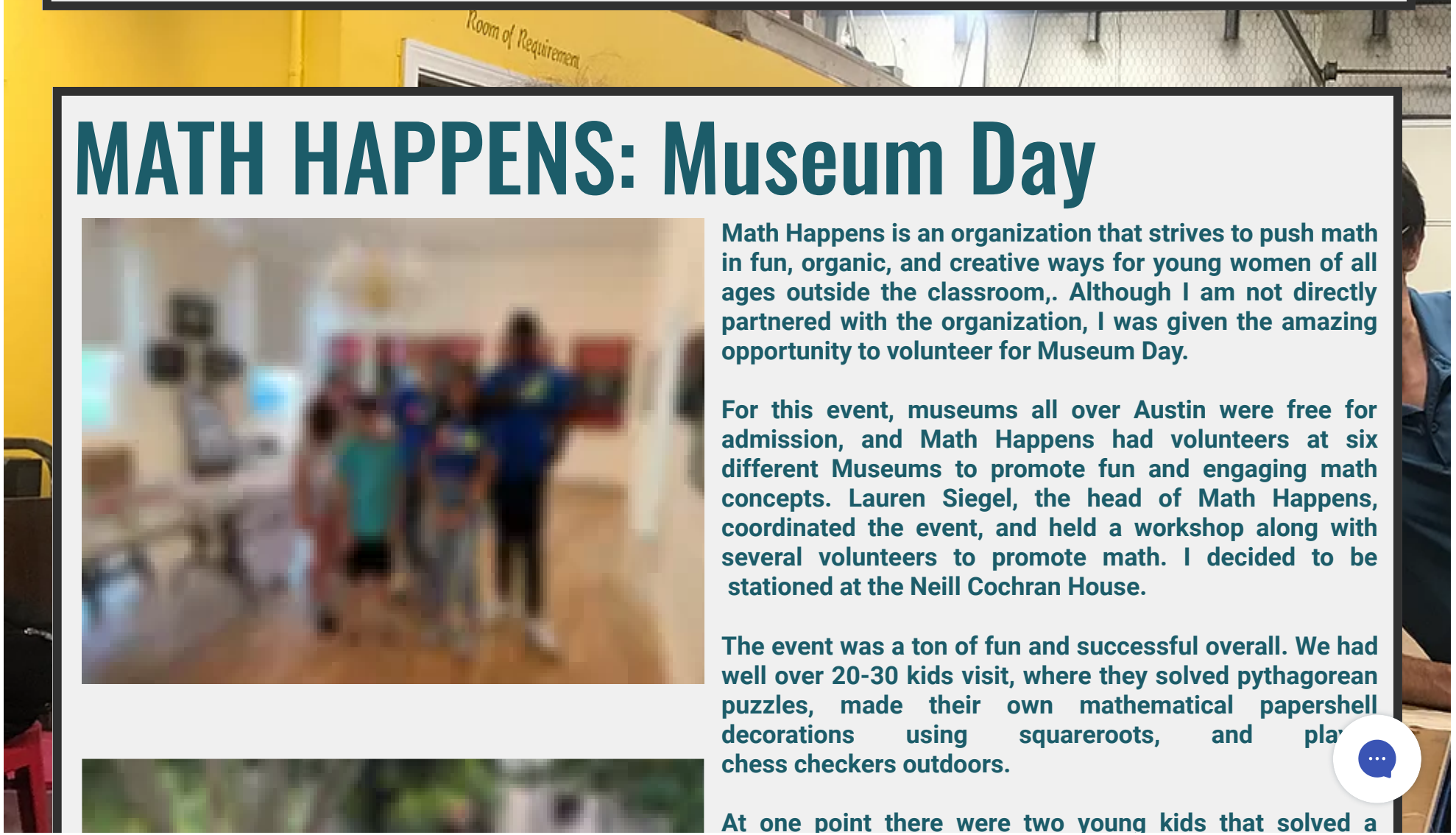
Co.lab Community makers is a safe and inclusive maker space located north of Austin on Burnett road. The space is free for anyone to use, and in addition is completely ran by volunteers to keep the doors open!

I spent the summer of 2019 volunteering at the space, learning the different tools they had such as the Ultimaker 3 (3d printer) and Glowforge (laser cutter). My mentor Patrick Benfield also showed me the basics, and I owe a lot of my making expertise to him (He's the handsome gentleman on the far right with a black shirt haha).

In addition to volunteering, every Friday, the Co.lab would host a get-together or happy hour to raise money for the space. The event always involved either making, themed for holidays, or special workshops ranging from sewing to glass etching. Every time I visited, I always knew the event was goin[illegible] teach me a new skill, and each time I've left happier w[illegible] entered.

I also volunteered for a workshop for middle school students

students then asked questions regarding how the tool worked, and how it could be improved.



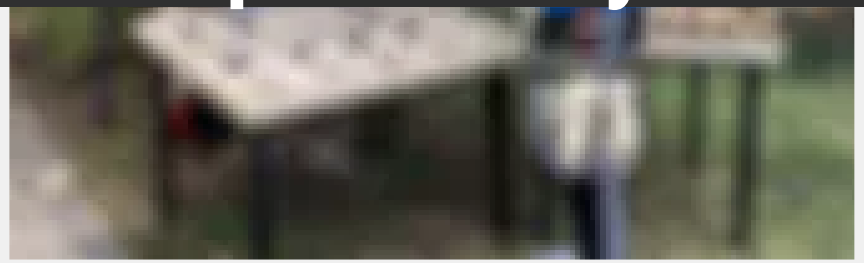
MATH HAPPENS: Museum Day

Math Happens is an organization that strives to push math in fun, organic, and creative ways for young women of all ages outside the classroom,. Although I am not directly partnered with the organization, I was given the amazing opportunity to volunteer for Museum Day.

For this event, museums all over Austin were free for admission, and Math Happens had volunteers at six different Museums to promote fun and engaging math concepts. Lauren Siegel, the head of Math Happens, coordinated the event, and held a workshop along with several volunteers to promote math. I decided to be stationed at the Neill Cochran House.

The event was a ton of fun and successful overall. We had well over 20-30 kids visit, where they solved pythagorean puzzles, made their own mathematical papershell decorations using squareroots, and play chess checkers outdoors.

At one point there were two young kids that solved a



THE FOUNDRY

During spring of 2019 I also had the opportunity to internship at the Foundry, a maker space at the University of Texas at Austin. This is where I received my first-hand experience with maker tools, and had the opportunity to use my first 3d printer, laser cutter and general mill.

During my time there, I also did several training session to show new students how to use the 3d printer, 3d printed my own molecules made from tinkercad, and developed a rough draft of a lesson plan that I will use at some point in the near future.

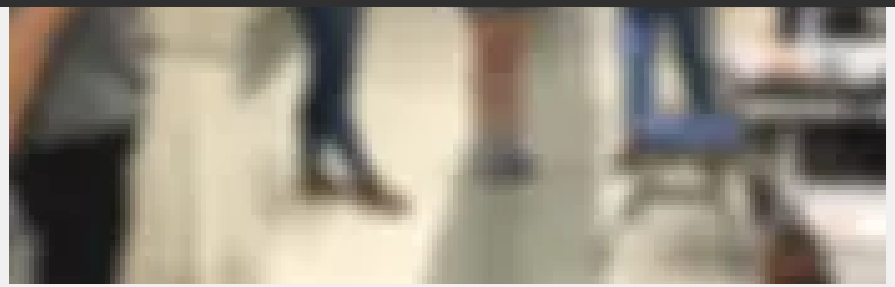
The best part when it came to interning at the foundry was

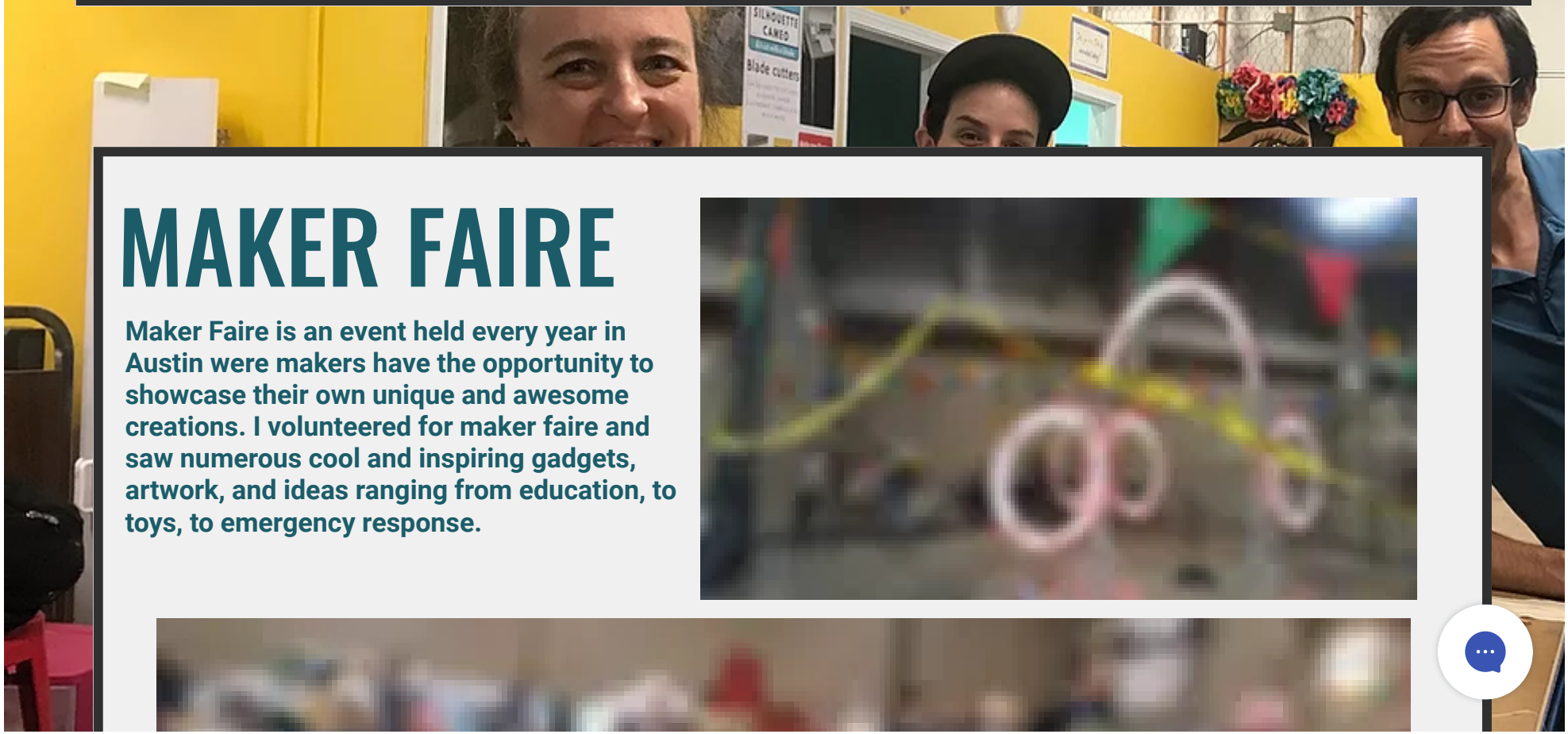
UTEACH MAKER:

Cohort Meetings

How can I forget about the loving and amazingly awesome Uteach community that encouraged me each step of the way! I remember when first hearing about Uteach Maker I wasn't sure if it was for me. However, the first time I went to a cohort meeting, I realized immediately that I had made the right decision.

From each meeting I learned a new skill that I could eventually use in my own classroom. At times, some of the skills seemed out of my reach, but my peers where always there to support and guide me along the way.





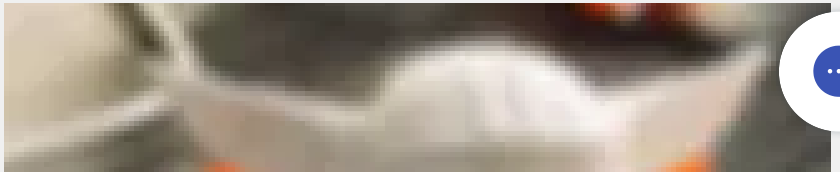
MAKER FAIRE

Maker Faire is an event held every year in Austin were makers have the opportunity to showcase their own unique and awesome creations. I volunteered for maker faire and saw numerous cool and inspiring gadgets, artwork, and ideas ranging from education, to toys, to emergency response.

REFLECTION:

THE IMPORTANCE OF MAKING

Throughout my time being involved in the maker community I have learned a variety of things. From 3d printing, to cardboard cutting, to sewing, and using a variety of software, the skills that can be learned have practically no bounds. Many of these skills I felt I couldn't have learned on my own, but with the right



However, one of the most important things I realized was the importance of having accessibility and equal access. Makerspaces are important because they give people from all cultural backgrounds, adults and children alike, the ability to express themselves and to interact with the world around them, just as Seymour Papert, the father of the Maker movement envisioned modern education.

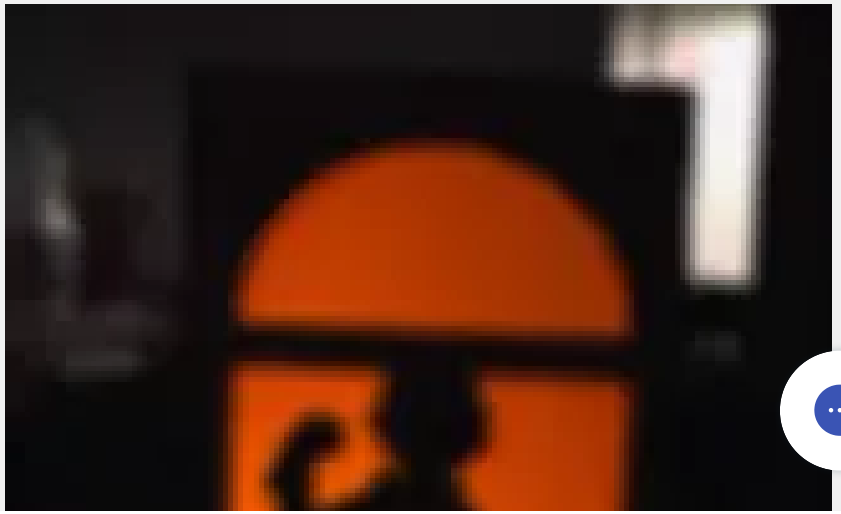
Usually, such spaces in the past were limited due to costs, and had limited women or minority representation. Fortunately, the tides are changing as makerspaces are not only becoming more inclusive, but more accessible, whether in cities or even in classrooms.

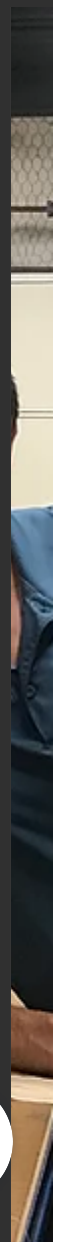
For example, at the Co.lab not only is the volunteer staff diversified, but we also introduce ourselves with our pronouns and have pronouns on our name tags. In addition, anyone above the age of 18 (or children with adult supervision) can use any of the maker tools, ranging from 3d printing, sowing, or laser cutting after going through a safety tutorial session. From there, they are able to access all the materials they need, free of charge.

We also have surveys online where we have received feedback from the community on how to be more inclusive and welcoming, as well as anonymous lines to report issues of discrimination or foulplay.

The Foundry at the University of Texas also has a similar culture as well. Out of the three different maker spaces on campus, it is the only one that is open for any major to use.

My experience with making has been a revolutionary one



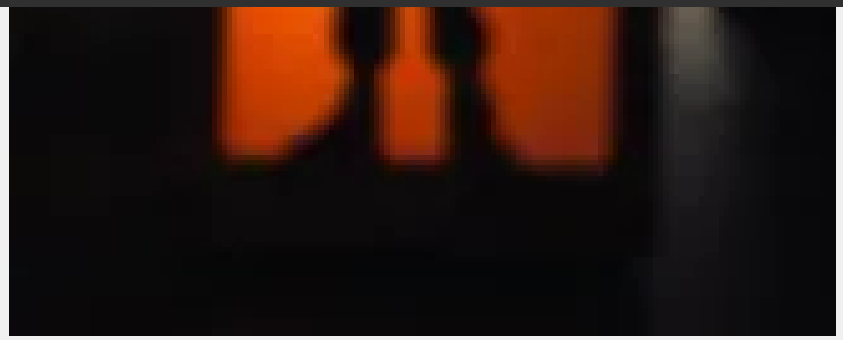


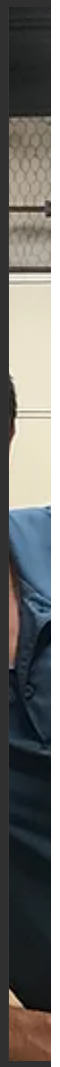
Furthermore, I also see how important it is to inspire the youth to be aware of such issues, such as talking social issues with expression through making. The Co.lab workshop which was held for the middle school students from Huston & Tillostson not only gave these children their first hand experience using woodshop tools, cutting techniques, and spray painting techniques, but also challenged them to make an artifact to combat issues of injustice on through the current political climate.

One student discussed his artifact describing how it represented how students deserved a quality education, as his father was a school teacher. He stated "Teachers should teach to our interests and issues that interest us, instead of reading from the textbook." Moments like these made me realize how essential these spaces are for minorities and the next generation.

My current mission as of now is to create a maker space at Crockett High School. I want to inspire and push my students to create and make things they never thought possible, and give the same exilierating experience I had through the UTeach Maker program. At the end of the day, each on of us was born with the capability to make, and it is my goal to instill this same mindset with my students.

#ComeAndMakeIt





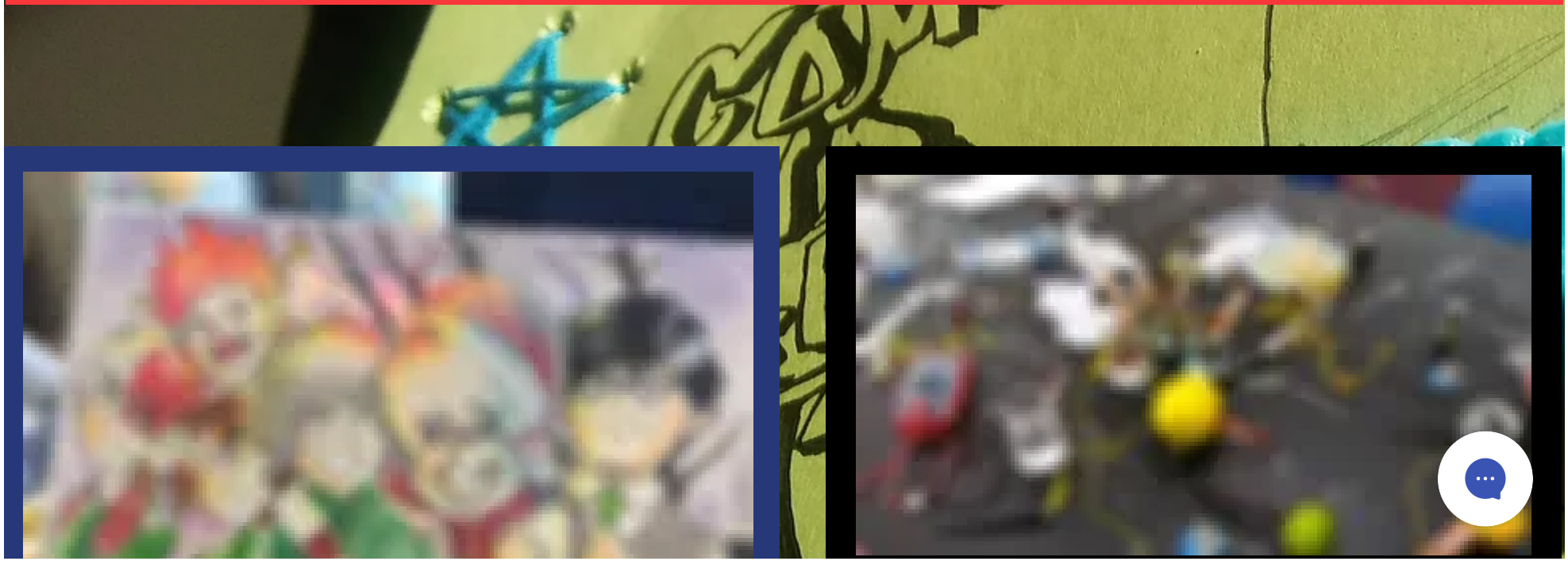
CITATIONS

Phillips Adebayo

STEP 1 & 2

Although I was unfamiliar with making at the time, my first lesson in step 1 involved buoyancy. We had students from the elementary school design their own clay boat and see how many paperclips they could put inside the boat before it sank to the bottom.

Afterwards, through inquiry, we discussed why their boat possibly sank faster than others.



PHYSICS BY INQUIRY

Physics by Inquiry is a college physics course that give students the opportunity to explore physics behind electrical circuits and optics through inquiry and hands on experience.

For the final project, we were to showcase our knowledge of what we have learned into a final maker project. Since I loved circuits, and Christmas was approaching, I decided to make my own My Hero Academia themed christmas card.

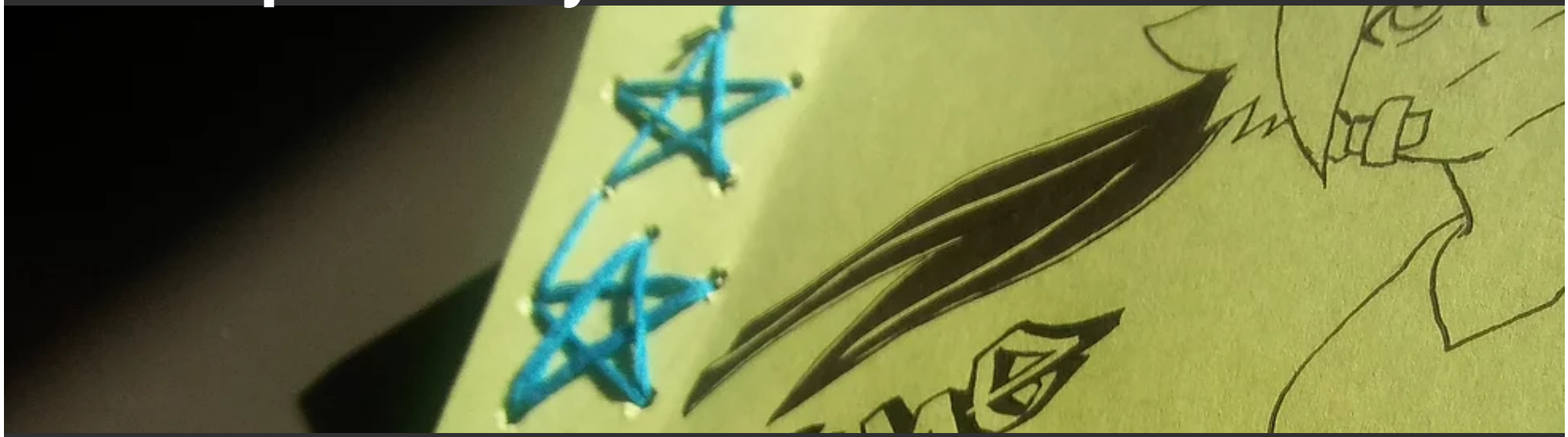
The card used parallel circuits to ensure that each LED light received a larger amount of current (unlike when in series whereby the current is split between each LED).

Big thanks to Garrett Mott for taking this picture for me!!!

Project based Instruction is a student-driven teaching method whereby students investigate either a natural phenomena or real world problem.

For the lesson developed by Christina Hull and I, students where to investigate how they could get a LED light to work using basic household materials during a blackout situation. The students were given limes, lemons, oranges, copper wire, magnesium wire, zinc wire, and alligator clips.

For the final artifact, students developed a poster of how they were able to get their homemade battery to work, the difficulties involved, and were examples of ionic, covalent, and polar covalent bonding was taking place. At the end, students provided feedback on each individual project.



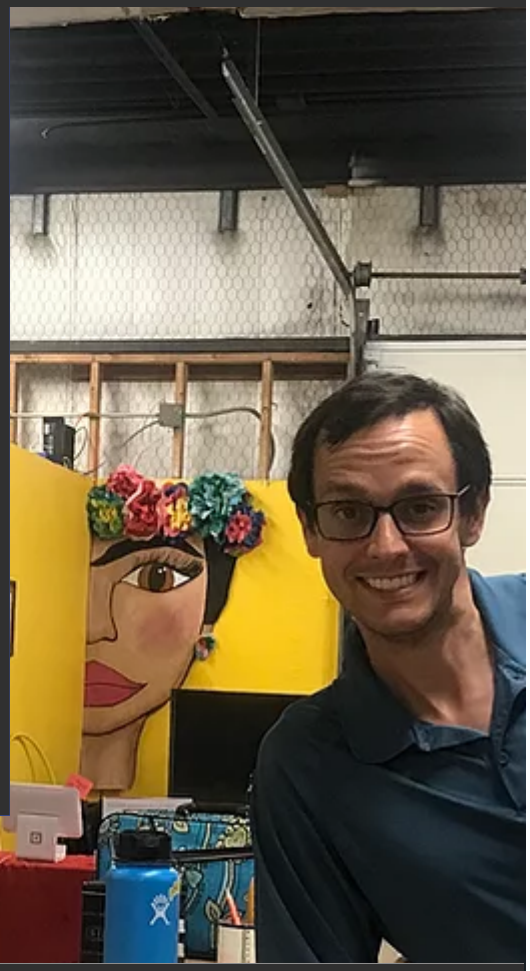
CITATIONS

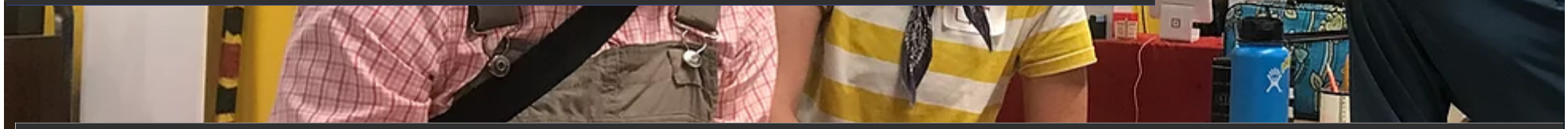
UT FOUNDRY & CO.LAB COMMUNITY MAKERS

the public and is a safe, inclusive environment. I interned at the Co.lab during the beginning of June 2109 and learned how to use a laser cutter (Glowforge) and the 3d printer (Ultimaker 3).

In addition, there where also several workshops that hosted new and innovative ideas for making. For example, there was a glass etching session whereby we echoed our own design onto a glass tumbler. I also learned how to sow hole in one of my ripped pants.

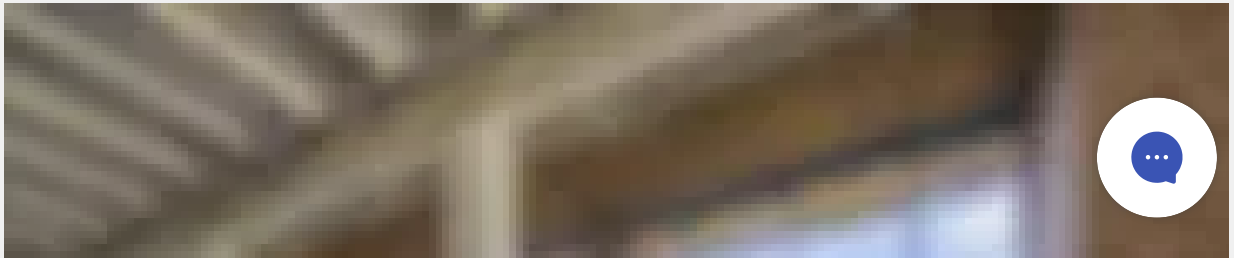
Lastly, I was able to assist with a inclusive lesson from students from Husto-Tilotson. Students made their own designed instrument from a select amount of materials. I was able to facilitate discussion amoungst other students on their design choices.





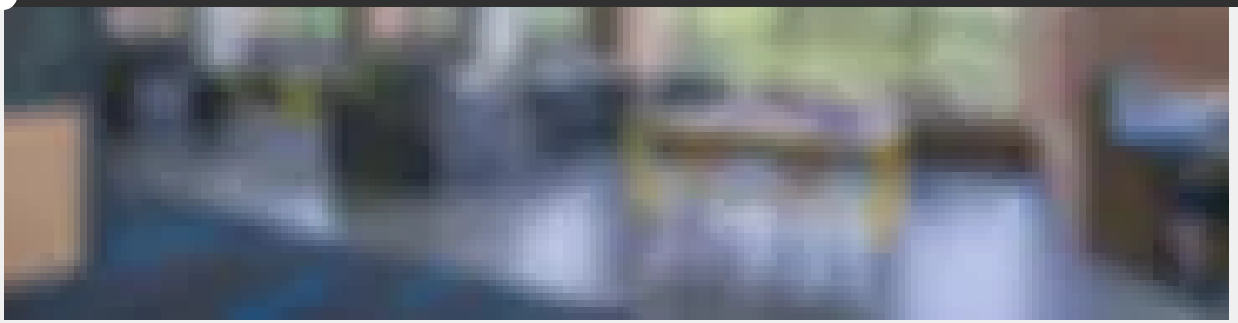
THE FOUNDRY @UT

The Foundry is a maker space located at the Fine Arts library at the University of Texas at Austin. It was at the Foundry were I made my first 3d print, and became



students choosing their own element on the periodic table and making their own jewelry based on the element.

The final artifact would describe how their jewelry related to them, how it related to the element, and how aesthetically pleasing it looks also.



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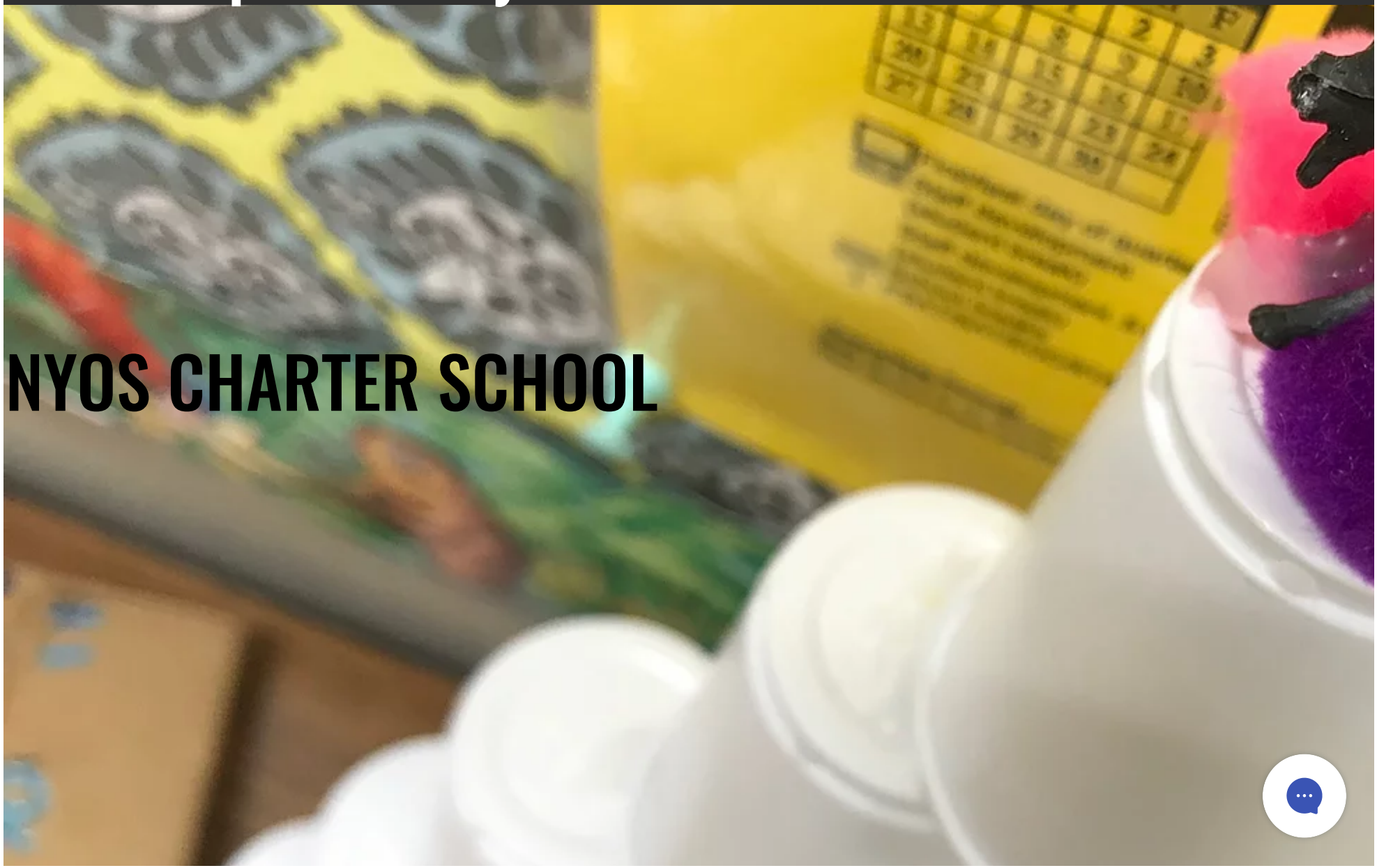
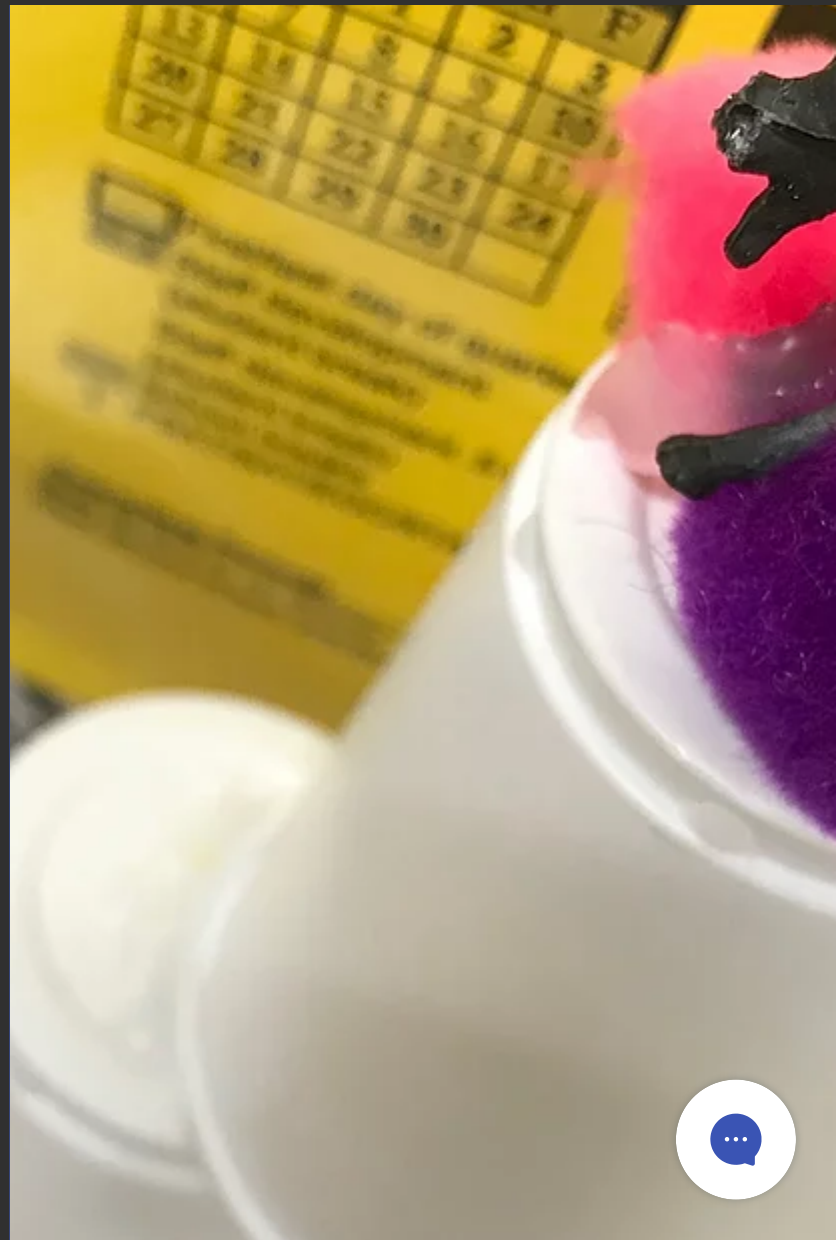


For my summer 2019 internship I had the honor to teach at NYOS Charter school, for Mrs. Lowery's 7th and 8th grade middle school class.

For this maker lesson, students were to create their own unit of measurement and make their own tool, or object showcasing their system of measurement being used. Afterward, students researched how their unit of measurement could be converted to the metric system, and learned how the history behind how the gram, meter, and second came to be and how they are measured today.



CITATIONS

MAKER LESSON:
MAKING MEASUREMENT MATTER

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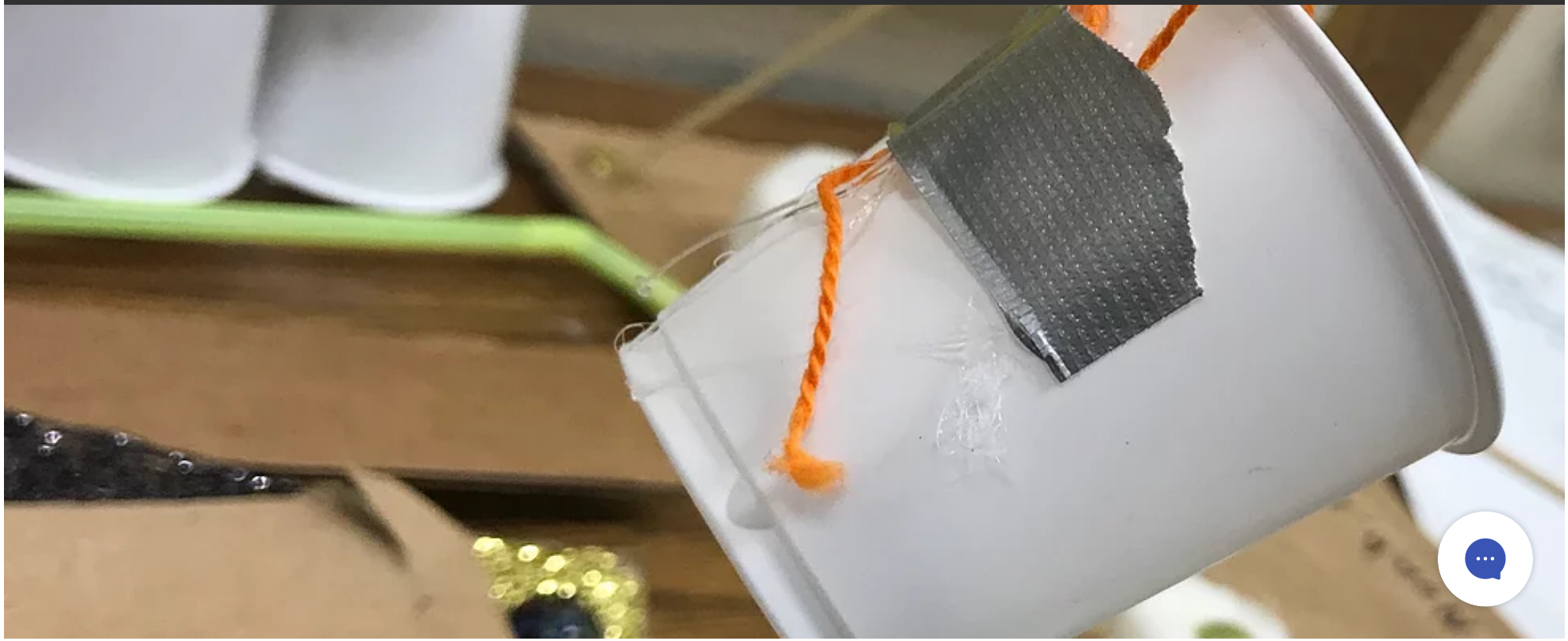
Phillips Adebayo



Phillips Adebayo

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Austin, TX 78705
512-762-0771
phillips.adebayo@utexa.edu

PROFESSIONAL SUMMARY

Current apprentice teacher nearing completion of composite science teaching certification for 7th-12th grade. I am passionate about bringing out the best in my students in new and creative ways, and am currently involved in UTeach maker, a microcredential program which gives teachers the tool set to use constructionist, project-based, and craft-based learning to school spaces.

EDUCATION

Bachelor of Science in Chemistry **2015-2019**
University of Texas at Austin, Austin, TX

COURSE WORK

- UTeach Step 1 & Step 2
- Classroom Interactions
- Knowing and Learning
- Project Based Instruction
- Research Methods

VOLUNTARY CONTRIBUTIONS

Co.lab Community Makers **05/2019-present**

- Crafted over 20 personal necklaces through use of the Glowforge lasercutter for NYOS charter students
- Troubleshooting Ultimaker 3d printer and refilling filament
- Organized and labeled crafting tools throughout the space

RESEARCH EXPERIENCE

The Michael J. Rose Research Group **06/2017-05/2019**

- Synthesized cadmium selenide quantum dots and recorded data on voltage output of photovoltaic cells
- Presented renewable energy lesson plan describing water electrolysis to 30 students at Austin High

WORK/INTERNSHIP EXPERIENCE

NYOS Charter School, Austin, TX **08/2019 – 9/2019**

- Developed maker lesson plan whereby students created and presented their own unit of measurement
- Organized and labeled maker materials within classroom maker space

UT Foundry, Austin, TX **01/2019-05/2019**

- Developed chemistry lesson plan for 3d printing related to chemistry through jewelry making
- Certified several students to use the 3d printer for future use
- Experience in laser cutting, 3d printing, and sowing at UT foundry

AWARDS AND ACHIEVEMENTS

Robert Noyce Scholarship Recipient
Cooke Scholarship Recipient
Jane Sanford Beasley Scholarship

AGENDAS FOR THE WEEK: *September 9th – September 13th*

	MONDAY (A) 11:05AM-12:40PM 3:00PM-4:30PM	TUESDAY (B) N/A	WEDNESDAY (A) 11:05AM-12:40PM 3:00PM-4:30PM	THURSDAY (B) N/A LATE START SCHEDULE	FRIDAY (A) N/A SEMINAR 1:00P,-4:30PM
	Objective(s): SWBAT ***discuss which subatomic particle gives a element different isotopes** ***Calculate the average atomic mass for different percent of isotopes** ***Explain the difference between an ion and an isotope using subatomic particles**	**Objective(s): SWBAT** ***** ***** *****	**Objective(s): SWBAT** *** Explain the difference between an ion and an isotope using subatomic particles** ***Solve additional problems of average atomic mass**	**Objective(s): SWBAT** ***** ***** *****	**Objective(s): SWBAT** ***** ***** *****
P	**Engage** Students will be introduced to Mr. Phill, given video consent form, and go over classroom rules Students will be asked about if elements can be different?	**Engage**	**Engage** Teacher will begin with a warmup and review over what the students did last class with fruitloopium	**Engage**	**Engage**
L **A**	**Explore** Students will be given the isotope fruitloopium, a high dangerously delicious element (froot loop cereal) that can only be consumed when it's properties are learned and discussed through inquiry Students will solve for fruit lupioum's average atomic mass **Explain** Students will through inquiry will discuss how fruitlupium relates to isotopes by calling on teams.	**Explore** **Explain** **Elaborate**	**Explain** Students will go over and practice over POGIL (process oriented guided inquiry learning) problems regarding isotopes. **Explore** Through inquiry, the teacher will facilitate a class discussion over what the students learned and struggled with	**Explore** **Explain** **Elaborate**	**Explore** **Explain** **Elaborate**

	Elaborate Teacher will ask if frutilupium was an element on the periodic table, which one would it be?				
N	**Evaluate and Summary** Students will be given a paper exit ticket to determine if they know what an isotope is.	**Evaluate and Summary**	**Evaluate and Summary** Students will have to write about one thing they learned and one thing they struggled with before exiting the class	**Evaluate and Summary**	**Evaluate and Summary**
Resources	Fruitloops Calculator		Calculator		

AGENDAS FOR THE WEEK: *September 16th – September 20th*

	MONDAY (A) 11:05AM-12:40PM 3:00PM-4:30PM	TUESDAY (B) N/A	WEDNESDAY (A) 11:05AM-12:40PM 3:00PM-4:30PM	THURSDAY (B) N/A	FRIDAY (B) N/A
	Objective(s): SWBAT ***Describe the difference between an isotope and a ion** ***Calculate the average atomic mass when given percent abundance of different isotopes**	**Objective(s): SWBAT** * * *	**Objective(s): SWBAT** *** Identify the different electromagnetic radiation invisible to the human eye (UV, radio, etc.)** ***Discuss how different wavelengths of light have different energy**	**Objective(s): SWBAT** * * *	**Objective(s): SWBAT** * * *
P	**Engage** Teacher will greet students and ask them how their weekend was.	**Engage**	**Engage** Teacher will greet students and open the question on what is light.	**Engage**	**Engage**
L **A**	**Explain** Students will review over POGIL (process oriented guided inquiry learning problems) to practice **Explore** Students will play in Kahooot, an online interactive game where they will answer questions about isotopes and subatomic particles. The top 3 will receive a price. **Elaborate** Teacher will review over questions from Kahoot and ask if there were any additional questions.	**Explore** **Explain** **Elaborate**	**Explore (Video)** Students will watch a short clip of video involving how we as humans only see a tiny fraction of the electromagnetic spectrum. Students will be ask to talk to their shoulder partner about the video, and discuss as a class **Explain** Students will go through a worksheet going in depth on how light travels as photons, and how varying wavelengths gives us the electromagnetic spectrum Elaborate Students will read an article relating how the electromagnetic spectrum is used in science to identify chemicals, and other professions .	**Explore** **Explain** **Elaborate**	**Explore** **Explain** **Elaborate**

N	**Evaluate and Summary** Students will be given an assessment test on isotopes in order to clarify misconceptions for later.	**Evaluate and Summary**	**Evaluate and Summary** Students will be given an exit ticket using the 3, 2, 1 method. They will write down three things they feel they should remember, 2 ideas they would like to know more about, and 1 sill they feel they have mastered.	**Evaluate and Summary**	**Evaluate and Summary**
Resources	Calculator				

AGENDAS FOR THE WEEK: *September 23rd – September 27th*

	MONDAY (A) (STAFF DEVELOPMENT-STUDENT HOLIDAY)	TUESDAY (B) 7TH 1:25PM-2:55PM	WEDNESDAY (A) 2ND 11:05AM-12:40PM 4TH 3:00PM-4:30PM	THURSDAY (A) (OUT OF TOWN)	FRIDAY (A) (OUT OF TOWN) (SAME LESSON AS TUESDAY FOR B-DAY)
	Objective(s): SWBAT * * *	**Objective(s): SWBAT** *describe the Pauli exclusion principle using a hotel model *Understand s, p, and d orbitals *write down electron configuration of different elements	**Objective(s): SWBAT** * Identify the different electromagnetic radiation invisible to the human eye (UV, radio, etc.) *Discuss how different wavelengths of light have different energy	**Objective(s): SWBAT** * * *	**Objective(s): SWBAT** ***describe the Pauli exclusion principle using a model** ***Understand electron orbitals** ***write down electron configuration of different elements**
P	**Engage**	**Engage** Teacher will begin with a bellringer having students describe a time they either stayed at a friend place, visited a hotel, or stayed at an inn	**Engage (10 minutes)** Teacher will begin with a bell ringer to have students draw a comic of how atoms can be excited to give light	**Engage**	**Engage** (see Tuesday B day)
L **A**	**Explain** **Explore** **Elaborate**	**Explore** Students will run a hotel called the *Hog Hilton* to which there are specific guidelines on how the rooms will be filled. This will relate to how electron configuration is organized. **Explain** The teachers will review over notes on how the *Hog Hilton* related to electron configuration, and introducing terms such as the Pauli exclusion principle **Elaborate** Teacher will give notes over electron configuration using the *I do, we do, you do* method for practice on writing electron configuration.	**Explore (10 minutes)** Students will be given individual baggies to organize the order of the electromagnetic spectrum from lowest wavelength to highest wavelength **Explain (15-20 minutes)** Using inquiry, students will discuss the order on how the electromagnetic spectrum is organized. Teacher will review over the electromagnetic spectrum using a handout. Teacher will inquire which wavelengths could be used to analyze viruses, molecules, etc. **Elaborate (10 minutes)** Students will play a game of Kahoot to review. The top 3 students will receive a prize. .	**Explore** **Explain** **Elaborate**	**Explore** (see Tuesday B day) **Explain** (see Tuesday B day) **Elaborate** (see Tuesday B day)

N	**Evaluate and Summary**	**Evaluate and Summary** Students will be given additional practice problems along with an exit ticket.	**Evaluate and Summary(30 minutes)** Students will take an assessment at the end of class to gauge their understanding.	**Evaluate and Summary**	**Evaluate and Summary** (see Tuesday B day)
Resources		-Print out cards of hogs	-Plastic baggies -Calculators		(see Tuesday B day)

AGENDAS FOR THE WEEK: *September 30rd – October 4th*

	MONDAY (A) 11:05AM-12:40PM 3:00PM-4:30PM	**TUESDAY (B)** 7TH 1:25PM-2:55PM (B14)	**WEDNESDAY (A)** 2ND 11:05AM-12:40PM 4TH 3:00PM-4:30PM (A14)	**THURSDAY (B)** (OUT OF TOWN) (B15)	**FRIDAY (A)**
	Objective(s): SWBAT *fill electron orbitals for a given number of elections *label the s, p, and d orbitals on the periodic table *write down electron configuration of different elements	**Objective(s): SWBAT** *fill electron orbitals for a given number of elections *write down electron configuration of a given element in shorthand & noble gas configuration	**Objective(s): SWBAT** * fill electron orbitals for a given number of elections * write down electron configuration of a given element in shorthand & noble gas configuration	**Objective(s): SWBAT** * write down electron configuration of a given element in shorthand & noble gas configuration *locate an element on the periodic table based on electron configuration	**Objective(s): SWBAT** (SEE TUESDAY FOR B-DAY)
P	**Engage** ***Bellringer*** Teacher will begin with a bell ringer having students describe a time they either stayed at a friend place, visited a hotel, or stayed at an inn	**Engage (10 minutes)** ***Plickers Activity*** Students will begin with a bell ringer using pickers over an electron configuration (write in journal first)	**Engage (10 minutes)** ***Bellinger*** Students will work on a bellringer in their interactive notebooks over Hog Hilton	**Engage (10 minutes)** ***Plickers Activity*** Students will begin with a bell ringer using pickers over an electron configuration	**Engage** (see Tuesday B day)
L **A**	**Explore** ***Hog Hilton*** Students will run a hotel called the *Hog Hilton* to which there are specific guidelines on how the rooms will be filled. This will relate to how electron configuration is organized. **Explain** The teachers will review over notes on how the *Hog Hilton* related to electron configuration, and introducing terms such as the Pauli exclusion principle **Elaborate** ***Coloring of the Periodic Table*** Coloring of the periodic	**Explain (25 minutes)** ***Notes for Interactive Notebook*** Students using their interactive notebooks will create flaps for writing box diagrams, full electron configuration, and noble gas configuration. **Explore (20 minutes)** ***Valence Electrons Cloze*** Students will go over the Valence Electrons Cloze handout to understand how ions and electrons are relative to Electron Configuration **Elaborate (20 minutes)** Additional practice to go over and questions or concerns they may have over electron configuration.	**Explain (10 minutes)** ***Coloring of the Periodic Table*** Coloring of the periodic table (together) (glue to notebook) **(20 minutes)** ***Notes for Interactive Notebook*** Students will go write over notes regarding the interactive notebook **Explore (15 minutes)** ***Valence Electrons Cloze*** Students will go over the Valence Electrons Cloze handout to understand how ions and electrons are relative to Electron Configuration **Elaborate (10 minutes)** Whiteboard practice with their	**Explore (20 minutes)** ***Periodic Table BattleShip*** Students will play a game of battleship using the periodic table with instructions provided from a PowerPoint **Explain (10 minutes)** Teacher will have a group discussion over how the game was, and how the electron configuration relates to periodic table **Elaborate (20 minutes)** ***Electron Configuration Tweet 'n Follow*** Students will work with a partner on the following handout to explain electron configuration	**Explore** (see Tuesday B day) **Explain** (see Tuesday B day) **Elaborate** (see Tuesday B day)

	table (together)		groups		
N	**Evaluate and Summary** Students will color their periodic table and glue it on their notebook	**Evaluate and Summary** ***Exit Ticket (15 minutes)*** Students will perform an exit ticket to assess what they have learned	**Evaluate and Summary** ***Exit Ticket (10 minutes)*** Students will perform an exit ticket to assess what they have learned	**Evaluate and Summary** ***Exit Ticket (10 minutes)*** Students will perform an exit ticket to assess what they have learned	**Evaluate and Summary** (see Tuesday B day)
Resources	-have hogs printed out -colored paper for hog Hilton -Hog Hilton handout -Periodic table print out	-Plickers Cards (with assigned names on website) -Laptop+phone for plicker -Valence Electrons Cloze Handout -	-Extra Periodic Table Handouts for those absent -Plickers Cards (with assigned names on website) -Laptop+phone for plicker -Valence Electrons Cloze Handout	-Plickers Cards (with assigned names on website) -Battleship cards (handout) -Tweet ‘n Follow handout -Laptop+phone for plicker -Valence Electrons Cloze Handout	(see Tuesday B day)

AGENDAS FOR THE WEEK: *October 7th – October 11th*

	MONDAY (A) 11:05AM-12:40PM 3:00PM-4:30PM	**TUESDAY (B)** 7TH 1:25PM-2:55PM	**WEDNESDAY (A)** 2ND 11:05AM-12:40PM 4TH 3:00PM-4:30PM (CI OBSERVATION-WILL NOT BE TEACHING)	**THURSDAY (B)** 7TH 1:25PM-2:55PM	**FRIDAY (A)** (WILL BE VOLUNTEERING AT CO.LAB)
	Objective(s): SWBAT *fill electron orbitals for a given number of elections *label the s, p, and d orbitals on the periodic table *write down electron configuration of different elements and Noble gas configuration	**Objective(s): SWBAT** *fill electron orbitals for a given number of elections *write down electron configuration of a given element in shorthand & noble gas configuration	**Objective(s): SWBAT** * fill electron orbitals for a given number of elections * write down electron configuration of a given element in shorthand & noble gas configuration	**Objective(s): SWBAT** *Identify the different families on the periodic table *Tell a story about the properties of a family on the periodic table	**Objective(s): SWBAT** **(2nd period)** (SEE TUESDAY FOR B-DAY) 4TH PERIOD (SEE TUESDAY)
P	**Engage** ***Bellringer*** (2nd period) Plickers (4th period) Video Consent Form + Plickers	**Engage (10 minutes)** Plickers	**Engage (10 minutes)** ***Bellinger*** **(2nd period)** Sign up for Pocket Points (4th period) Classrooms Interactions Teach	**Engage (10 minutes)** **Bellringer:** What does family mean to you? (3 to 4 sentences)	**Engage** **(2nd period)** (see Thursday B day) 4TH PERIOD (SEE TUESDAY)
L **A**	2ND PERIOD **Explain (2nd period)** Electron Configuration Flaps (complete) **Explore (2nd period)** *Periodic Table Battleship* *Brainbreak* **Elaborate (2nd period)** *Tweet n' Follow* 4TH Period **Explore** (4th period) Battleship Game	**Explain (25 minutes)** ***Review over Tweet and Follow*** **(Brain break)** **Explore (20 minutes)** Stations for practice -Ions Stations **Elaborate (20 minutes)** Kahoot	**2nd PERIOD** (See B day for Tuesday) **4TH PERIOD** Classrooms Interactions Teach	**Explore (20 minutes)** Talk about families, what it means, compet Stations over families (handout) **Explain (10 minutes)** As a class, discuss about the different families and their different properties from each group **Elaborate (20 minutes)** Students begin rough draft on families in the periodic table	**Explore** **(2nd period)** (see Thursday B day) **Explain** **(2nd period)** (see Thursday B day) **Elaborate** **(2nd period)** (see Thursday B day) 4TH PERIOD (SEE TUESDAY)

	Explain (4th period) Go over how the activity was and the purpose behind it Elaboration (4th period) Tweet n' Follow Activity				
N	**Evaluate and Summary** 2nd Period Exit Ticket 4th period Survey on class	**Evaluate and Summary** Assessment	**Evaluate and Summary** **(4th PERIOD)** Classrooms Interactions Teach	**Evaluate and Summary** ***Exit Ticket (10 minutes)*** On a notecard, students will write on thing they learned, one thing that confused them, and one thing they would like to learn more about	**Evaluate and Summary** **2nd period** (see Thursday B day) 4TH PERIOD (SEE TUESDAY)
Resources	-Handouts for station 7 -Prizes -Notecards	-Plicker Cards -Handouts for stations	(4th period) Classrooms Interactions Teach	-Notecards -Handout for stations -PowerPoint ready	**2nd period** (see Thursday B day) 4TH PERIOD (SEE TUESDAY)

AGENDAS FOR THE WEEK: *October 14th – October 18th*

	MONDAY (A) COLUMBUS DAY STAFF DEVELOPMENT	TUESDAY (B) 7TH 1:25PM-2:55PM	WEDNESDAY (A) PSAT TESTING (NO CLASS FOR SOPHMORES)	THURSDAY (B) 7TH 1:25PM-2:55PM	FRIDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM
	Objective(s): SWBAT	**Objective(s): SWBAT** *explain the different families on the periodic table and what properties they share through story telling *develop their own personal story book about the different families using a variety of materials *	**Objective(s): SWBAT**	**Objective(s): SWBAT** explain the different families on the periodic table and what properties they share through story telling *develop their own personal story book about the different families using a variety of materials	**Objective(s): SWBAT** * write down the similar properties of families in the periodic table by going through each group station * explore properties of transition metals by testing maelibility and reactivity to an acid or base *
P	**Engage**	**Engage** Bellringer: What qualities make a family? List them down (Write/Think/Discuss with shoulder partner/Share) (Have popscicle sticks ready to be made)	**Engage**	**Engage** Bellringer	**Engage** Bellringer: What qualities make a family? List them down. (Write/Think/Discuss with shoulder partner/Share) (Have popscicle sticks ready to be made)
L **A**	**Explain** **Explore** **Elaborate**	**Explore** Rubric Planning Time/Create stories **Explain** **Elaborate** Coloring of the Periodic Table	**Explain** **Explore** **Elaborate**	**Explore** Planning Day 2 Creating Stories **Explain** **Elaborate** Gallery Walk	**Explore** Family Stations **Explain** Talk about the unique properties of each group and what stood out to them **Elaborate** Periodic Trends handout
N	**Evaluate and Summary**	**Evaluate and Summary** Exit Ticket (What family will be based on)	**Evaluate and Summary**	**Evaluate and Summary** Exit Ticket (Feedback forms from observers)	**Evaluate and Summary** Exit Ticket (One thing you learned)

Resources					

AGENDAS FOR THE WEEK: *October 21th – October 25th*

	MONDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	**TUESDAY (B)** 7TH 1:25PM-2:55PM	**WEDNESDAY (A)** 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	**THURSDAY (B)** 7TH 1:25PM-2:55PM	**FRIDAY (B)** 7TH 1:25PM-2:55PM
	Objective(s): SWBAT *name the different families on the periodic table by writing a story about them *describe the physical and chemical properties of each group through writing and crafts	**Objective(s): SWBAT** *name the different families on the periodic table by writing a story about them *describe the physical and chemical properties of each group through writing and crafts	**Objective(s): SWBAT** (see Tuesday B day)	**Objective(s): SWBAT** *discuss the historical importance of scientific figures underrepresented in science by making an Ofrenda *evaluate the impact of scientific contributions by writing how their figure has affected the modern world	**Objective(s): SWBAT** *discuss the historical importance of scientific figures underrepresented in science by making an Offrenda *evaluate the impact of scientific contributions by writing how their figure has affected the modern world
P	**Engage** Bellringer: What is your favorite childhood story book growing up	**Engage** Bellringer: What are the properties of the halogens? *(Think/Pair/Share)*	**Engage** (see Tuesday B day)	**Engage** Bellringer: Talk about someone who you look up to (Think/Pair/Share)	**Engage** Bell ringer *(Think/Pair/Share)*
L **A**	**Explore** **-**Why is this significant? -Storybook -Rubric -Information on handout -Stations **-Arts and Crafts (microbit)**	**Explore (30 minutes)** Students will give the final touches for their periodic table book **Explain (40 minutes)** Students will go through a gallery walk and provide detailed feedback on each person's story **Elaborate (20 minutes)** Check your knowledge (*If there's time*)	**Explain** (see Tuesday B day) **Explore** (see Tuesday B day) **Elaborate** (see Tuesday B day)	**Explore** Offrenda - Dia de los Muertos - Making it for scientists that are not commonly recognized for their accomplishments -Rubric -Groups -Start building (microbits/Stations) (Offer time after class for maker lessons/additional crafts)	**Explore** Finish Offrenda **Explain** Students will do a gallery walk and showcase their Ofrenda in the hallways **Elaborate** Talk about the significance of underrepresented scientist in America (or across the world) Why is it important, why do we care?

N	**Evaluate and Summary** Exit Ticket What would you like to learn more about on the periodic table? -Clean up	**Evaluate and Summary** Students will go over feedback and write about what they could have improved on in their books. -Clean up	**Evaluate and Summary** (see Tuesday B day)	**Evaluate and Summary** Exit Ticket One interesting fact you learned about your person -Clean up	**Evaluate and Summary** Exit Ticket One thing you learned from another person's Ofrenda
Resources					

AGENDAS FOR THE WEEK: *October 28th – November 1st*

	MONDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	TUESDAY (B) 7TH 1:25PM-2:55PM	WEDNESDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	THURSDAY (B) 7TH 1:25PM-2:55PM	FRIDAY (A) 7TH 1:25PM-2:55PM
	Objective(s): SWBAT	**Objective(s): SWBAT** *discuss the historical importance of scientific figures underrepresented in science by making an Ofrenda *evaluate the impact of scientific contributions by writing how their figure has affected the modern world	**Objective(s): SWBAT** (see Tuesday B day)	**Objective(s): SWBAT** *discuss the historical importance of scientific figures underrepresented in science by making an Ofrenda *evaluate the impact of scientific contributions by writing how their figure has affected the modern world	**Objective(s): SWBAT** (see Thursday B day)
P	**Engage** Bellringer	**Engage** Bellringer: Properties of metalloids and where are they located on the periodic table?	**Engage** (See Tuesday B day)	**Engage** Bellringer	**Engage** (See Thursday B day)
L **A**	**Explore** Storybook project (Complete and Turn in) Present on Friday	**Explore (30 minutes)** 15 minutes of revisions for Storybook Start on Ofrenda Who is a motivating person to you? (Think/Pair/Share) Introduce Ofrenda and people for them -Rules and Guidelines -Expectations -Materials -Steps to make it -Rubric -Examples **Explain (40 minutes)** **Elaborate (20 minutes)**	**Explain** (See Tuesday B day) **Explore** **Elaborate**	**Explore (30 minutes)** Objectives -Have students turn in revisions of story book Ofrenda (15 minutes) Gallery walk for Ofrenda **Explain (40 minutes)** **Elaborate**	**Explore** (See Thursday B day) **Explain** **Elaborate**

N	**Evaluate and Summary** Exit Ticket	**Evaluate and Summary** Exit Ticket Write down one interesting fact about the person you learned about from your group	**Evaluate and Summary** (See Tuesday B day)	**Evaluate and Summary** Exit Ticket	**Evaluate and Summary** (See Thursday B day)
Resources					

AGENDAS FOR THE WEEK: *November 4th – November8th*

	MONDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	TUESDAY (B) 7TH 1:25PM-2:55PM	WEDNESDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	THURSDAY (B) 7TH 1:25PM-2:55PM	FRIDAY (B) 7TH 1:25PM-2:55PM
	Objective(s): SWBAT *interpret period trends by observing physical and chemical quantities on the periodic table *explain the reasons on why such trends occur by drawing or writing	**Objective(s): SWBAT**	**Objective(s): SWBAT** *interpret period trends by making a creative item that describes such qualities *explain the reasons on why such trends occur by writing	**Objective(s): SWBAT**	**Objective(s): SWBAT**
P	**Engage** Bellringer Identifying Trend (Warmup should be about a simplistic way of identifying a trend)	**Engage** (See Monday A day)	**Engage** Bellringer	**Engage** (See Wednesday A day)	**Engage** Bell ringer
L **A**	**Explore** Stations for the periodic table -Atomic Radius -Ionization Energy -Electronegativity -Zeff (=Z-S) -Shielding **Explain** -Students write down the trend on whether it increases from going left to right on the periodic table or top to bottom **Elaborate** Give example problems and have students decide which has atoms have the larger radius, Zeff, shielding, ionization or electronegativity	**Explore** **Explain** **Elaborate**	**Explore** **S**tudents will begin on Maker Project for periodic trends -Quick review on families -Rubric -Assigning of groups -Maker materials **Explain** **Elaborate**	**Explore** **Explain** **Elaborate**	**Explore** Students will continue to wrap up their maker project and complete the written portion regarding ionization, atomic radius, Zeff, and electronegativity -Three students to a group -Give two students two index cards, and one student one -Fill out information for maker project -Explain the trend they have made **Explain** **Elaborate**

N	**Evaluate and Summary** Exit Ticket (Should test knowledge on how well they can identify trend on the periodic table)	**Evaluate and Summary**	**Evaluate and Summary** Exit Ticket Identifying trends on periodic table	**Evaluate and Summary**	**Evaluate and Summary** Exit Ticket Identifying trends on the periodic table
Resources					

AGENDAS FOR THE WEEK: *November 11th – November 15th*

	MONDAY (A) VETERAN'S DAY	TUESDAY (B) 7TH 1:25PM-2:55PM	WEDNESDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM (CI INTERATIONS WILL NOT DO)	THURSDAY (B) 7TH 1:25PM-2:55PM	FRIDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM (CI INTERATIONS WILL NOT DO)
		Objective(s): SWBAT *interpret period trends by making a creative artifact that demonstrates the trend going across a period and along a group *explain how ionization, atomic radii, electronegativity, and Z_{eff} occur through writing	**Objective(s): SWBAT** **IMPORTANT: 4th period will have CI teaching, will not do LP till next week** *interpret period trends by making a creative item that describes such qualities *explain the reasons on why such trends occur by writing	**Objective(s): SWBAT** *interpret period trends by making a creative artifact that demonstrates the trend going across a period and along a group *explain how ionization, atomic radii, electronegativity, and Z_{eff} occur through writing	**Objective(s): SWBAT** **IMPORTANT: 4th period will have CI teaching, will not do LP till next week** **(See B day for Tuesday)**
P		**Engage (1:25-1:35)** Video on Glowforge (laser cutting) (5 minutes)	**Engage** Preassessment(?) **NOTE: For A day, 2nd period will have an extended period.**	**Engage (1:25-1:35)** -Bellringer (Ionization bellringer)	**Engage** **(See B day for Tuesday)**
L **A**		**Explore (1:35-2:20)** Students will finish maker project by adding the final touches with additional provided materials -Set timer (40 minutes) -Before 40 minutes have notecards ready **Explain (2:15-2:35)** Students will be given a notecard, and in their own words write about the trend they were assigned in their own words **Elaborate (2:35-2:45)** **Gallery Walk** **-One person stay with their maker project, the other goes to check out other projects** **Alternative option***** **-Sticky notes**	**Explore** Students will begin on Maker Project for periodic trends -Quickly go over rubric -Have builder gather a few materials -Idea with examples -Workshop for microbits & circuits (Thursday-workshop to improve project and tutoring 4:30-6pm) **Explain** Students will go through their Periodic Trends handout to have steps outlined for project **Elaborate**	**Explore** **Choice menu (studying)** **-Blended learning** **Explain** **SUGGESTION: Have materials ready ahead of time for types of stations to make it look more creative** **Elaborate** **Kahoot**	**Explore** **(See B day for Tuesday)**

N		**Evaluate and Summary (2:40-2:55pm)** **-Exit Ticket link (part of grade to check for understanding)** **-accommodate (if more time, can write a pass)**	**Evaluate and Summary** -Last call for materials	**Evaluate and Summary (2:35-2:55)** **Power standard 7**	**Evaluate and Summary** **(See B day for Tuesday)**
Resources		Materials -Note cards -Hot glue guns Link to Exit Ticket:			

AGENDAS FOR THE WEEK: *November 18th – November 22th*

	MONDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM	TUESDAY (B) 7TH 2:00 PM-3:15 PM (ICE-DELAY)	WEDNESDAY (A) 2ND 10:30AM-12:40PM (NOT AVAILIBLE) 4TH 3:00PM-4:30PM	THURSDAY (B) 7TH 1:25PM-2:55PM (NOT AVAILIBLE)	FRIDAY (A) 2ND 11:00AM-12:40PM 4TH 3:00PM-4:30PM
	Objective(s): SWBAT *interpret period trends by making a creative artifact that demonstrates the trend going across a period and along a group *comprehend how ionic bonding plays a role in daily lives by reading an article on cellphone screens *write the IUPAC for ionic compounds by taking notes in the INB	**Objective(s): SWBAT** (See 2nd period A day)	**Objective(s): SWBAT** *comprehend how ionic bonding plays a role in daily lives by reading an article on cellphone screens *write the IUPAC for ionic compounds by taking notes in the INB **NOTE: Will not be available for 2nd period due to pedagogy exam, will be available for 4th period**	**Objective(s): SWBAT** *interpret period trends by making a creative artifact that demonstrates the trend going across a period and along a group *explain how ionization, atomic radii, electronegativity, and Z_{eff} occur through writing **NOTE: Will not be available for this period due to pedagogy exam**	**Objective(s): SWBAT**
P	Engage **2nd period** Bellringer Survey of Maker Project **4th period** Bell ringer: Does ionization increase or decrease as you go down a group in a periodic table	**Engage (2:00-2:10)** (See 2nd period A day)	**Engage (10:30-10:45)** **2nd period** Bellringer: What is the name of the following compound? **-NaBr** **-Iron having a 2+ charge combining with chlrorine (hint: iron can have various charges)** **-Reverse: Write the ionic formula for Copper(II)Sulfate** **4th period** Have students complete survey and exit ticket for the beginning of class to review for content knowledge. Go over together	**Engage (1:25-1:35)** (See 2nd period Wednesday)	**Engage** Bellringer -Plickers (questions on IUPAC) -Ex. What is the name of the following compound? -Ex. How would you rate your confidence in today's questions on a scale from 1-4 (4 being the highest)?
L	**2nd period** **Explore** Introduction of ions -Reading on smartphone screens	**Explore (2:00-2:50)** (See 2nd period A day) **Explain (2:50-3:15)** (See 2nd period A-day)	**2nd period** Explain -Have students complete notes for IUPAC for ionic compounds -Formative assessment through questions and problems not done	**Explore (1:35-2:30)** (See 2nd period Wednesday) **Explain (2:05-2:30)** (See 2nd period Wednesday)	**Explore** Microbit Lesson: Ionic batteries **Explain** -Relate lesson to bonding plays a role in technology

A	-Think/Pair/Share about article and how it relates to everyday lives Explain -IUPAC Notes over ionic compounds **4th period** **Explore** Reintroduce maker project and the purpose behind periodic trends -Rubric/Groups -Safety -Making **Explain** Have students present their trends through a gallery walk		during note taking **4th period** (See 2nd period A day for Monday) **Explore** **2nd period** **Ionic bonding puzzle sheet handout** -Have students work at their tables for this -Students will fit puzzle pieces and name the ionic compound -Have stamps ready for them if completed **4th period** (See 2nd period A day for Monday) **Elaborate** **2nd period** -Brainbreak -Students will do additional short problems on IUPAC Thanksgiving artwork -Work on making a thanksgiving turkey or other artwork to have fun with -Cards/etc	**Elaborate** Additional practice problems to work on	-Technology and skills in the classroom/coding **Elaborate** -Practice more with microbit with free time Extra time: Thanksgiving artwork -Work on making a thanksgiving turkey or other artwork to have fun with -Cards/etc
N	**Exit Ticket** -(If time) Have students complete exit ticket over assignment.		**Evaluate and Summary** Popsicle sticks -Provide a question they would like to know more about	**Evaluate and Summary** -	**Evaluate and Summary** Plickers
Resources	Exit Ticket	Materials -Survey print out -Powerpoint -Articles (30 class set) -Notebook example -Written notes example -Plicker exit ticket???	Materials	Materials Plickers Availible	

AGENDAS FOR THE WEEK: *September 9th – September 13th*

	MONDAY (A) 11:05AM-12:40PM 3:00PM-4:30PM	TUESDAY (B) N/A	WEDNESDAY (A) 11:05AM-12:40PM 3:00PM-4:30PM	THURSDAY (B) N/A LATE START SCHEDULE	FRIDAY (A) N/A SEMINAR 1:00P,-4:30PM
	Objective(s): SWBAT ***discuss which subatomic particle gives a element different isotopes** ***Calculate the average atomic mass for different percent of isotopes** ***Explain the difference between an ion and an isotope using subatomic particles**	**Objective(s): SWBAT** ***** ***** *****	**Objective(s): SWBAT** *** Explain the difference between an ion and an isotope using subatomic particles** ***Solve additional problems of average atomic mass**	**Objective(s): SWBAT** ***** ***** *****	**Objective(s): SWBAT** ***** ***** *****
P	**Engage** Students will be introduced to Mr. Phill, given video consent form, and go over classroom rules Students will be asked about if elements can be different?	**Engage**	**Engage** Teacher will begin with a warmup and review over what the students did last class with fruitloopium	**Engage**	**Engage**
L **A**	**Explore** Students will be given the isotope fruitloopium, a high dangerously delicious element (froot loop cereal) that can only be consumed when it's properties are learned and discussed through inquiry Students will solve for fruit lupioum's average atomic mass **Explain** Students will through inquiry will discuss how fruitlupium relates to isotopes by calling on teams.	**Explore** **Explain** **Elaborate**	**Explain** Students will go over and practice over POGIL (process oriented guided inquiry learning) problems regarding isotopes. **Explore** Through inquiry, the teacher will facilitate a class discussion over what the students learned and struggled with	**Explore** **Explain** **Elaborate**	**Explore** **Explain** **Elaborate**

	Elaborate Teacher will ask if frutilupium was an element on the periodic table, which one would it be?				
N	**Evaluate and Summary** Students will be given a paper exit ticket to determine if they know what an isotope is.	**Evaluate and Summary**	**Evaluate and Summary** Students will have to write about one thing they learned and one thing they struggled with before exiting the class	**Evaluate and Summary**	**Evaluate and Summary**
Resources	Fruitloops Calculator		Calculator		