



# The Next Generation

*Transformative Voices of Youth in STEM*



# Chief Science Officers: Who are we?



*"I want to have people be excited and have fun when working in science"*

**Brandon**

CSO, Alhambra High School



*"I want to spread the passion of STEM and help grow the leaders of tomorrow"*

**Shalae**

CSO, Connolly Middle School



*"I want to peak students' interests in STEM related activities and help make them more available to all students."*

**Mackenzie**

CSO, John Glenn High School



*"I want to spread STEM awareness to my peers and bring their ideas to the community"*

**Anthony**

CSO, John Glenn High School



*"I want to share that the world around us is full of science and technology"*

**Sebastian**

CSO, Metro Tech High School



*"I want to help advocate for those who don't have a voice"*

**Mayra**

CSO, Central High School

# Changing Dynamics of Learning

*The transition from textbooks to technology*

1821-

The first public High School was open and books started to be used in school

Will textbooks ever NOT be used?

1991-

SMART boards were introduced to classes and schools

2018-

Most learning is done through the use of some sort of technology, but textbooks are still being used

# Changing Dynamics of Learning

*The transition from textbooks to technology*

We can see that there has been a drastic change in the way students are taught. Every year, more schools and more districts are taking on “Virtual Learning.” Some say that this type of learning will be faster, more efficient and more understandable for students; and in the scheme of things, doesn’t it sound better to open a program and start typing an essay, than to take out a piece of paper and a pencil and have to write it by hand?



# Changing Dynamics of Learning: Curriculum

- As a high school student, I feel some change is needed in our K-12 curriculum
- While all the information we learn is important, we should also be learning real-world skills, like how to pay taxes
- History lessons are important -- but we should be learning about current events as well, so we can be more aware of the world we live in



# Student-Centered Learning

- What is it?
  - A type of education where students take charge of their learning.
- How does it work?
  - Students learn everything that they need to know about a topic, and are then given a few basic guidelines (or even sometimes none at all)
  - Let the students apply what they've learned to make an amazing project that they are proud of.
  - The students work over either a week or a semester to make something awesome.



# Student Centered Learning Con't

- Examples
  - A dome that someone could sit in, and it showed them the Aurora Borealis. It also had an audio about they Aurora Borealis that turned on when you pressed a button.
  - Remote controlled cars that drove around infinity lights
- Conclusion
  - Letting students be creative and take control of their learning has some pretty amazing results.





# Being a CSO on Campus

Being a CSO on campus has allowed me to meet new people and inspire others to become invested in such topics directly correlating with STEM. For instance, the purpose of the festival held here on Central High's campus was to get students to know more about things like Anatomy and Physiology, Art, Robotics and so many more things. At the end of the festival, students knew things that they had not known previously. It was amazing to see them so intrigued. Not only that but as previously mentioned, being a CSO has allowed me to become more engaged with the teachers on campus. That way, it helps me get the word out about the CSO program and STEM.





# Being a CSO in the Community: *Sugar Beet Factory*

"Visiting the Sugar Beet Factory was a great experience, and I learned so much more than I thought I would. I recommend it to anyone who has any interest in a STEM related career, or who just wants to see where their sugar comes from." -Mackenzie Jean-Marcoux, Chief Science Officer

"What at first seemed like a simple tour of the processing plant quickly turned into a fun yet educational experience, not just about the way most sugar is processed but about agriculture in general. This gave us an amazing amount of knowledge and exposure to agriculture and the way people of the world are fed every day; not so much hard manual labor but precise genetic science. " -Anthony Oswald, Chief Science Officer

# Nexteer

The CSO's visit was very informative. While the trip was geared towards those looking to go into engineering, as YiFan if planning to do, it was also a good experience for everyone else. During the tour of the factory, we were able to see how several different parts were made, mostly related to power steering. It's good for everyone who drives to know what parts their vehicles are made of. Unfortunately, we were unable to take pictures, a safety hazard, but it was still a memorable tour.

After the tour, we had the chance to sit down with several engineers who work at the factory, and learned what they do at Nexteer, how their job affects the quality of our driving, and how they worked to get their jobs.

# Dow Chemical

The Dow Chemical plant tour did not turn out as first expected, but in the end it served to be just as effective in most areas of interest by our CSO's. There was indeed a tour but it was of the Dow heritage sight, well preserving Herbert Dow's Original Bromine extraction sight along with his workshops and major discoveries throughout the decades. Such tour was informative yet interactive incorporating multiple areas with hands on learning and the basic ideas Herbert Dow tested so long ago. Shortly after the amazing tour through the past, we then proceeded to talk with multiple different STEM professionals that work at Dow facilities. Such conversations were considerably impactful as we were given a first hand view at what it means to work with and within the different STEM based careers at the Dow Plant. Overall, an extremely interesting yet informative experience that just increases our hands on experience with STEM in the real world.

# Industry Contacts & STEM Professionals

My community and my role as a CSO have both given me opportunities to learn about different careers several times throughout high school. Through these opportunities I have begun to visualize my future in the Medical field, helping my community and encouraging the next generation to go into STEM careers.



# Industry Contacts & STEM Professionals

Not only has networking with STEM professionals allowed me to learn about my future, but it has given me the opportunity to learn about other careers and relay that information back to my peers at school to help them visualize their futures as well.

