Global STEM Challenges Program
Edison HS

Thursday, January 23, 2025

Introductions

Amanda Burke, Principal, Thomas A. Edison High School

Deborah Guillen, Director, Student Services

Tim Boyd , Assistant Principal, Global STEM Challenges Program

Introductions

9th Grade Cohort

Chris Kniesly (Science and lead for GSCP)
Alex Jarama (Math)
Desa Elwell (Engineering)

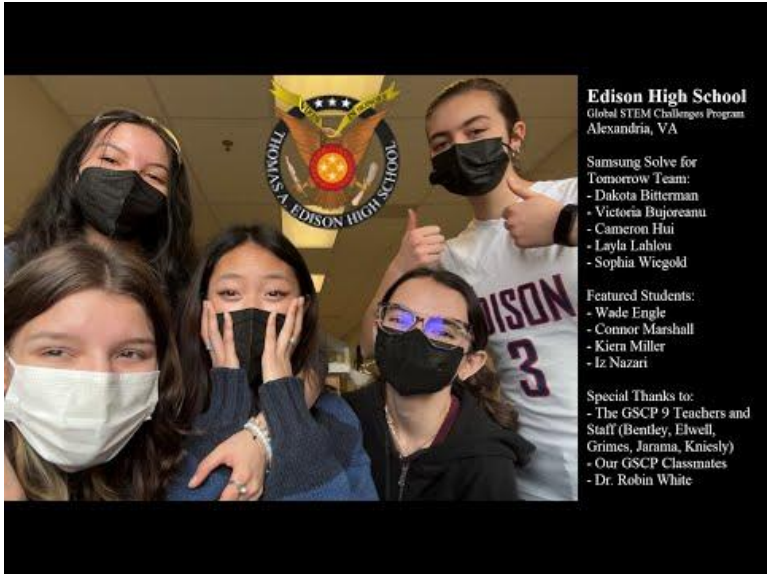
10th Grade Cohort

Cathryn Schoeppner (Science)
Kelly Dresen (Math)
Ivan Chirinos (Engineering)

11th Grade Cohort

Peter Roden (Science)
Alex Jarama (Math)
Desa Elwell (Engineering)

What Is Global STEM?



What Is Global STEM?

GSCP Mission Statement

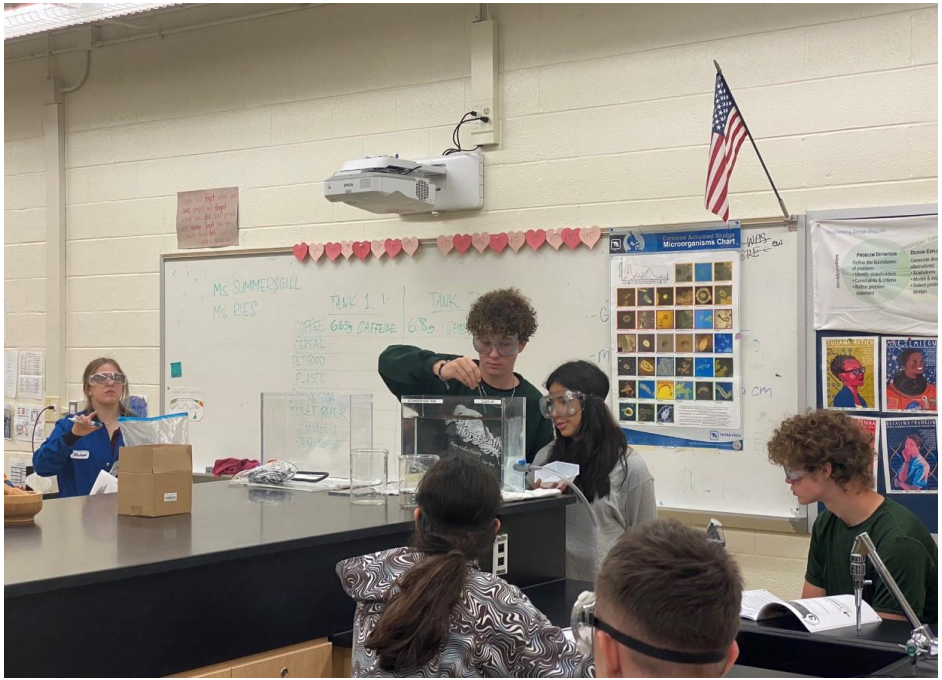
The Global STEM Challenges Program cultivates curious, collaborative, and responsible future leaders. The program:

1. Integrates mathematics, science, and technology/engineering into a unified learning experience.
2. Utilizes problem-based learning with real-world challenges. Students explore the National Academy of Engineering's 14 Grand Challenges and the United Nations' 17 Goals for Sustainable Development.
3. Fosters collaborative learning environments and Portrait of a Graduate and IB Learner Profile attributes. Students work in teams to develop critical thinking, communication, and problem-solving skills.
4. Equips students with the knowledge, skills, and confidence to tackle complex modern challenges.
5. Inspires a passion for STEM and encourages students to pursue careers that make a positive impact on the world.

Through this approach students solve complex problems and create a more sustainable future for all. The Global STEM Challenges Program empowers students to become the next generation of innovators!

Program Overview

Students in the Global STEM Challenges Program participate in a three-year cohort of integrated courses focusing on project-based instruction to solve real-world problems.



Program Overview

Interdisciplinary curriculum that links to the Grand Challenges of Engineering and:

- Meets the Virginia Standards of Learning
- Integrates mathematics, science, and engineering courses
- Provides authentic project/problem-based learning opportunities for all students
- Links to college and career readiness, global dimension, research, entrepreneurship, and service learning
- Integrates computer science throughout the program

NAE GRAND CHALLENGES FOR ENGINEERING

NATIONAL ACADEMY OF ENGINEERING

- Advance Personalized Learning
- Enhance Virtual Reality
- Engineer Better Medicines
- Restore and Improve Urban Infrastructure
- Provide Access to Clean Water
- Manage the Nitrogen Cycle
- Develop Carbon Sequestration Methods
- Prevent Nuclear Terror
- Make Solar Energy Economical
- Reverse Engineer the Brain
- Advance Health Informatics
- Secure Cyberspace
- Provide Energy from Fusion
- Engineer the Tools of Scientific Discovery

Year 1 (9th Grade): Food and Waste	Year 2 (10th Grade): Clean Water	Year 3 (11th Grade): Sustainable Energy
POTENTIAL PROJECTS:		
Students Design: - A microscope for diagnosing plant diseases - A system that uses "waste" to create an agricultural product	**Students Design:** - A multistage water filtration system - A low-cost turbidity sensor for analyzing water quality	**Students Design:** - Sustainable electricity generation systems such as wind, solar, or tidal · A system for providing services by aerial drone
INTEGRATED COURSES		
Computer Science integrated into courses all three years (*one credit*).		
Integrated Math 1 Honors Applies knowledge from: **Geometry**, Algebra 2, and Precalculus	**Integrated Math 2 Honors** Applies knowledge from: Geometry, **Algebra 2**, and Precalculus	**IB Math Analysis 1** Integrates IB Math Analysis 1 concepts in with other GSCP classes
Integrated Science 1 Honors Applies knowledge from: Environmental Science, **Biology**, Chemistry, and Physics	**Integrated Science 2 Honors** Applies knowledge from: Environmental Science, Biology, **Chemistry**, and Physics	**IB Physics 1** Integrates IB Physics 1 concepts in with other GSCP classes
Integrated Engineering 1 Honors	**Integrated Engineering 2 Honors**	**Integrated Engineering 3 Honors**
IB courses weighted 1.0, Honors courses weighted 0.5		

Sample Global STEM Student Schedule

Red Day	Blue Day
Global STEM Challenges Program	English 9
	Advisory/Return Period
	World Language or Elective
Health/PE 9	Social Studies

*This is a sample schedule only. Student course selections outside of Global STEM and student schedule will vary. All incoming students will work with their counselor to select their courses for the 2025-2026 school year.
**Student course selections are not permitted to change during the school year.

Senior Year Course Options

Science	Tech & Eng.	Math
IB Physics 2 HL	STEM Advanced Drawing	IB Math Analysis II SL/HL
IB Chemistry II SL/HL	Architectural Drawing	Probability & Statistics
IB Bio 2 HL	STEM Advanced Engineering	Trigonometry & Discrete Math
IB Environmental Systems and Society SL		
Non-IB Science courses		

*Students may also be offered opportunities for work-based learning, continuation of portfolio preparation, and participation in a peer tutoring program.

How To Register

Zoned for Edison

- Talk to your counselor at course selection
- Tell them you want to be in the Global STEM program and sign up for the following courses
  - Integrated Math
  - Integrated Science
  - Integrated Engineering

Transfer Student

The online transfer process for GSCP will be the same as all other FCPS student transfer options.

Transfer portal opens on February 1

Applications will be accepted on a first come first served basis until the program is full.

https://www.fcps.edu/registration/student-transfer-information

There is a $100 application non-refundable fee to apply.

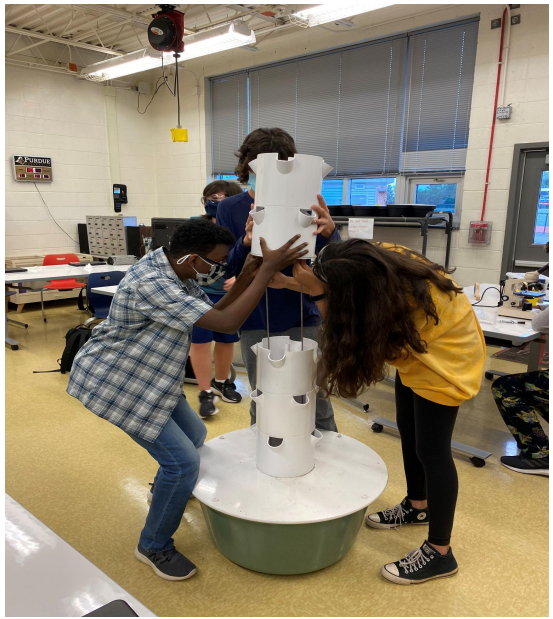
The fee is waived for students receiving Free or Reduced Price Meals. If your family does not qualify for Free or Reduced Price Meals, but the fee presents a hardship, please talk to your current school's principal for assistance.

Students in the Global STEM Challenges Program

Want to learn in an alternative way which emphasizes inquiry, teamwork, and making the world a better place.

Are willing to ask questions to develop knowledge and understanding.

Recognize that what some see as "failure" is part of the process of learning and growing.



Enjoy working in groups and working on problems that do not have a definite answer..

Completed Algebra I in 8th grade and are committed to remain in the program for three years.

Are capable of using unstructured time wisely and have strong organization and time management skills.

Students in Global STEM are also...

Student Leaders

Student Athletes

Involved in other student organizations

Pursuing various diploma types

Interested in various career fields

All different types of learners

Students in Global STEM are also…

ACE MENTOR PROGRAM
ARCHITECTURE · CONSTRUCTION · ENGINEERING

Co-Curricular Activities

TECHNOLOGY STUDENT ASSOCIATION

These two after school activities are only available to students who participate in the Integrated Engineering or STEM Design Courses

GSCP Panel

Students

Vivienne P., 9th grade	Victoria B., 12th grade
Connor H., 9th grade	Layla L., 12th grade
Ingrid M., 10th grade	Cameron M., 12th grade
Colleen M., 10th grade	Joaquin T., 11th grade
Jalani M., 11th grade	
Rina T., 11th grade	

GSCP 1st Graduating Class

Ehite Anteneh, Junior at Virginia Tech

Questions?

Contact Us

Visit our website:
https://edisonhs.fcps.edu/academics/stem

Follow us on social media:

@EdisonSTEMprg

Contact our STEM Administrator:

Tim Boyd
tboyd@fcps.edu

Optional Classroom Tour

Group A

H112, H129, H137

Group B

H137, H112, H129

Group C

H129, H137, H112