

Edison Global STEM Challenges Program



2018-2019
2nd Quarter

Second Quarter Updates!

The second quarter has gone by rapidly and schedules have been adjusted several times. Students and teachers are working hard to keep the projects on track. Please encourage your student to stay up-to-date with assignments in Google classroom and keep up with their projects even when they are not in class.

We are also full swing into recruitment season for the incoming freshman cohort. If you know any current 8th grade students who would be a good fit our program, please invite them to contact Dr. Ketchledge or come to our Open House event on March 19th!

We also appreciate all of the parents and families who joined us for the recent Global STEM family night. We hope you enjoyed being able to see your student's work with their team and learned about the projects they have been working on.

9th Grade Cohort

The 9th grade students have adjusted to the program and are making great progress. During the second quarter they worked with their teams on the

9th – Grade STEM Course Content:
Design a greenhouse system to cultivate a specific food.

Grand Challenges:

- Manage the nitrogen cycle

Organizing Theme:

- Sustaining life on Earth

Main Mathematics Content	Main Science Content	Main Engineering/Technology Content
<ul style="list-style-type: none"> • Rates of change • Unit conversions and ratios • Balancing ratios • Solving systems of equations • Exponential growth and logarithms • Efficiency 	<ul style="list-style-type: none"> • Processing and cycling matter • Cell cycle • Photosynthesis • Chemical nomenclature • Stoichiometry • Cell transport • pH 	<ul style="list-style-type: none"> • Full design process • Elevation drawings • Woodworking skills

greenhouse project. They began with selecting a location and crop, and then built conceptual models. Students have now moved into building actual greenhouses in our courtyard and are excited to see their crops grow.



Students from the 9th grade cohort collaborate to assemble a wall for their greenhouse conceptual model.



Sophomore students working on creating a turbidimeter incorporating Arduino technology.

The **10th grade cohort** took their biology and geometry SOLs at the end of December/early January. We are thrilled to report that every student passed these exams! The 10th grade team has been working hard on incorporating computer science and the teams have developed apps and websites for their latest projects.

10th – Grade STEM Course Content: Design a therapeutic food and delivery system for the hungry.		Grand Challenges: <ul style="list-style-type: none"> • Engineering better medicines • Restore & improve urban infrastructure Organizing Theme: <ul style="list-style-type: none"> • Sustaining life on Earth
Main Mathematics Content	Main Science Content	Main Engineering/ Technology Content
<ul style="list-style-type: none"> • Linear and quadratic functions and predictions • Optimization and solving systems of equations 	<ul style="list-style-type: none"> • Energy • Energy and matter in the human body • Macromolecules 	<ul style="list-style-type: none"> • Propulsion • Wheel and gear ratios • 2-D laser cutting • 3-D modeling basics

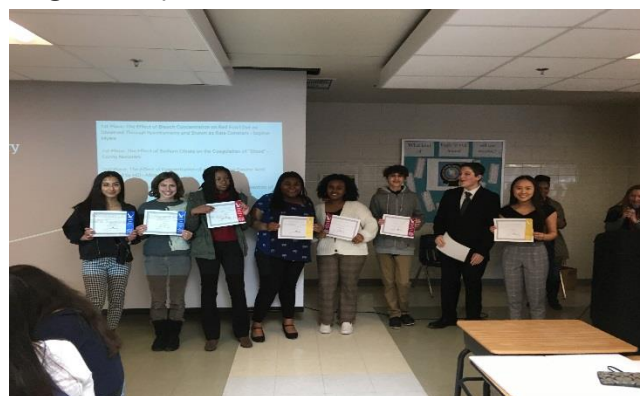


A student from the junior cohort makes final adjustments to his team's adaptive flywheel energy storage system.

11th – Grade STEM Course Content: Use a digital animation to demonstrate a speculative design solution for space debris.		Grand Challenges: <ul style="list-style-type: none"> • Enhance virtual reality • Secure cyberspace Organizing Theme: <ul style="list-style-type: none"> • Sustaining life on Earth
Main Mathematics Content	Main Science Content	Main Engineering/ Technology Content
<ul style="list-style-type: none"> • Vectors • Limits • Composite Functions • First & Second Derivatives • First & Second Integrals 	<ul style="list-style-type: none"> • Kinematics, dynamics • Projectile motion • Circular motion • Newton's Laws • Momentum, impulse 	<ul style="list-style-type: none"> • Cognitive, graphical, physical, aesthetic, mechanical & digital modeling • Speculative design • Animation programming

The **11th grade cohort** has been moving at a rapid pace, focusing on their energy projects and working towards the science fair. We have been amazed and encouraged to see all of their hard work and success. Students are working through very challenging science and math content, but they are still able to apply their learning through their hands-on activities and projects. We also want to congratulate our Global STEM students on their participation and success at the science fair and our science fair winners! First through third place teams will move on to the regional science fair at Robinson Secondary School in March.

- First Place – Leah Nohra, Melody Llinas, Arya Naren
- First Place – Sarah Myers
- First Place – Luis Nino Walder, Jacob Parker
- First Place – Evan Wigode, Liam Wallace, Shea Irvin
- Third Place – Anthony Cruzy, Paul Pantaleo
- Honorable Mention – Fanna Henok



Parent Information

- **Regional Science Fair:** Check out some of our Global STEM 11th grade students as they compete at the Regional Science Fair March 15-17 at Robinson Secondary School. Good luck to our students!
- **We want to hear from you:** If you have comments or feedback about the program, please complete the short Google Form found at <https://goo.gl/forms/XU1bkE2sY2Ao1PP42>. We look forward to continuously improving our program through feedback from all stakeholders and educational research in best practices. Thank you for your feedback and support!
- **Parent Volunteers:** We are compiling a list of parents who are interested in being emailed when there are opportunities to support the program by sending in supplies, assisting with events, chaperoning field trips, etc. Please complete this form if you would like to receive these emails - <https://goo.gl/forms/Bk9ovR7YvGaj1Hwr2>.
- **Ask Your Student:** The best way to learn content is to teach others. Have your student explain current concepts and projects to you. As their level of understanding increases, you should see them appear more comfortable discussing ideas and concepts and hopefully you will see them excited about their learning!

Important Dates:

- 3/8 – 11th Grade Cohort Project Presentations
- 3/11 – Three hour early release
- 3/19 – Global STEM Open House for prospective families
- 3/21 – 10th Grade Cohort Project Presentations
- 4/5 – Teacher Work Day
- 4/9 – 9th Grade Cohort Project Presentations
- 4/15 – 4/19 – Spring Break



10th grade students presenting their ideas for a communication tool to collect data on the Chesapeake Bay!

Contact the Edison Global STEM Challenges Program Instructors:
[Mr. Patel](#), [Mr. Canales](#), [Mr. Chirinos](#), [Mrs. Drew](#), [Dr. Besterman](#),
[Ms. Dresen](#), and [Ms. Storey](#)
 Program Administrator: [Dr. Ketchledge](#) Principal: Pamela Brumfield



Team members collaborate to prepare for their upcoming presentations.

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