



Engineering

Rising 9th Graders
2021-2022



Mill Creek
High School

Welcome



What is EPIC at Mill Creek?

- ❑ STEM Certified Program that intentionally designs & executes relevant interdisciplinary projects and ventures including MATH!
- ❑ Our Vision: Together we can change our world, education and aspirations; we do this as a team with learning that is **E**xperiential, **P**roject-Based, **I**nnovative, **C**ross-**C**urricular, and **C**ollaborative
- ❑ 4 courses in 3 periods: Math, LA, SC and Engineering
- ❑ Students will learn by **DOING** and gain skills needed for a career in STEM

What is EPIC at Mill Creek?

E *xperiential*
P *roject-based*
I *nnovative*
C *ollaborative &
cross-curricular*

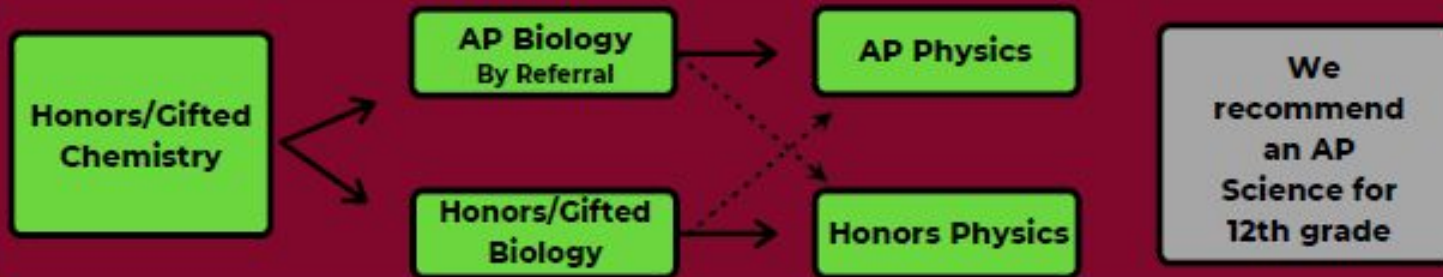
DISCOVER BY DOING, BUILD & TEST,
HANDS-ON LEARNING

LEARN THROUGH THE ENGINEERING
DESIGN PROCESS WITH SHORT VENTURES
AND LONGER PROJECTS

USE TECHNOLOGY IN INNOVATIVE WAYS,
BE A PROBLEM SOLVER FOR THE FUTURE

LEARN HOW TO WORK IN GROUPS
EFFECTIVELY TO SOAR

CONNECT YOUR CLASSES WITH REAL
WORLD STEM APPLICATIONS

9th Grade EPIC**10th Grade EPIC****11th Grade EPIC****12th Grade EPIC****Language Arts****Science****Math****Pathway**

Students in EPIC take 4 classes in 3 periods for half of their schedule.

The remainder of their schedule includes 3 traditional classes.

A Student in EPIC at Mill Creek ...

- ❑ Wants to Learn Through Discovery, Inquiry & Projects
- ❑ Enjoys Brainstorming and Thinking “Outside of the Box”
- ❑ Monitors & Takes Ownership of Their Learning
- ❑ Willing to Develop Time Management & Organization
- ❑ Is An Active Team Player & Leader
- ❑ Is Self-Motivated
- ❑ Is Ready To Be Challenged



STEM

Engineering students will learn by DOING and gain skills needed for a career in STEM

- ❑ Our students complete the Engineering & Technology CTAE Pathway
- ❑ Engineering Ventures & Projects reinforce key academic concepts in an authentic, collaborative environment
- ❑ Inquiry and discovery-based learning that creates the problem solvers of the future
- ❑ “Failure is only the opportunity to begin again, this time more intelligently” - Henry Ford



Projects & Ventures include:

- | | | |
|--------------------|-------------------------|-----------------------|
| - Let's Fly a Kite | - The Martian & Rockets | - Safety Innovation |
| - It's Electric | - Follow the Flow | - Solar Panel Car |
| - Soda Maker | - It's A Colorful World | - Medea & Engineering |
| - It's In My Genes | - Scorpion King Chess | - Trebuchets |
| - R&J Techno Dance | - Ozobot Orbitals | |

MEPIC Academics

MATH SCIENCE LANGUAGE ARTS



- ❑ Student-centered
- ❑ Learn through an inquiry and task-oriented approach
- ❑ Students will make connections between mathematical ideas, the real-world and their science and language arts classes
- ❑ Explore multiple methods to solve problems

21st Century Skills (Soft Skills)

Students develop and apply 21st Century Skills across all of the EPIC classes and projects:

- ❑ Collaboration
- ❑ Communication
- ❑ Creativity
- ❑ Critical Thinking
- ❑ Problem Solving



MC EPIC How to Apply

Your student needs to complete the EPIC application available on our website by 2/12/2021.

<https://www.gcpsk12.org/Domain/4850>

A green graphic with the word "EPIC" in large, stylized letters. The letters are filled with a pattern of smaller words: "EXPERIENTIAL", "PROJECT-BASED", "INNOVATIVE", "COLLABORATIVE", and "CROSS-CURRICULAR".

2021-2022 Application for MC EPIC Program

EPIC is a STEM program at MCHS.
EPIC includes learning that is Experiential, Project-based, Innovative, Collaborative and Cross-Curricular.

4400 Braselton Highway, Hoschton, GA 30548 · Phone (678) 714-5850 · Fax (678) 714-5863
Twitter: @MillCreekEPIC Instagram: millcreek_epic Website:
<https://www.gcpsk12.org/Domain/4850>

Please submit this application through this Google form (or you may complete the paper form and return it to your middle school teacher with your registration form) by February 12, 2021. This program is intended for students enrolling in Geometry, Accelerated Geometry, Gifted Geometry, or Gifted Accelerated Geometry their freshman year at Mill Creek High School and have an interest in STEM and project based learning.
#makeHighSchoolEPIC

Questions?

- ❑ kelly.dyar@gcpsk12.org
- ❑ Follow us on Twitter @EPICMillCreek , Instagram @epic_millcreek, and Facebook @epicmillcreekhs
- ❑ Website: <https://www.gcpsk12.org/Domain/4850>
- ❑ [FAQ for Rising 9th Graders](#) (available on website)
- ❑ Students can apply online on our website!
- ❑ #makehighschoolEPIC

Soaring to EPIC Heights!

Additional Information

Thank you for hearing about EPIC today. The following slides will be available on the registration website and provide additional information. Let us know if you have any questions.

kelly.dyar@gcpsk12.org



Current Administrators & Teachers

Administration

- ☐ Principal - Jason Lane
- ☐ Assistant Principal - Lacey Jakes

Engineering

- ☐ Foundations & Concepts - Kelly Dyar
- ☐ Applications & Research - Matthew Bennett

Math

- ☐ Geometry & Accel Geometry - Elizabeth Leonard
- ☐ Algebra II & Accel PreCalculus - Doria Draghiciu
- ☐ PreCalculus & Accel PreCalculus - Josh Ellis

Science

- ☐ Chemistry - Danielle Mutchler
- ☐ Biology/AP Biology - Mary Morris
- ☐ Physics/AP Physics - Jon Harper

Language Arts

- ☐ 9th LA - Marjorie Hammond
- ☐ 10th LA - David Moore
- ☐ 11th LA/ AP Lang - Shannon Sanderson

Dual Enrollment & Counselor

- ☐ Kelley Griffin



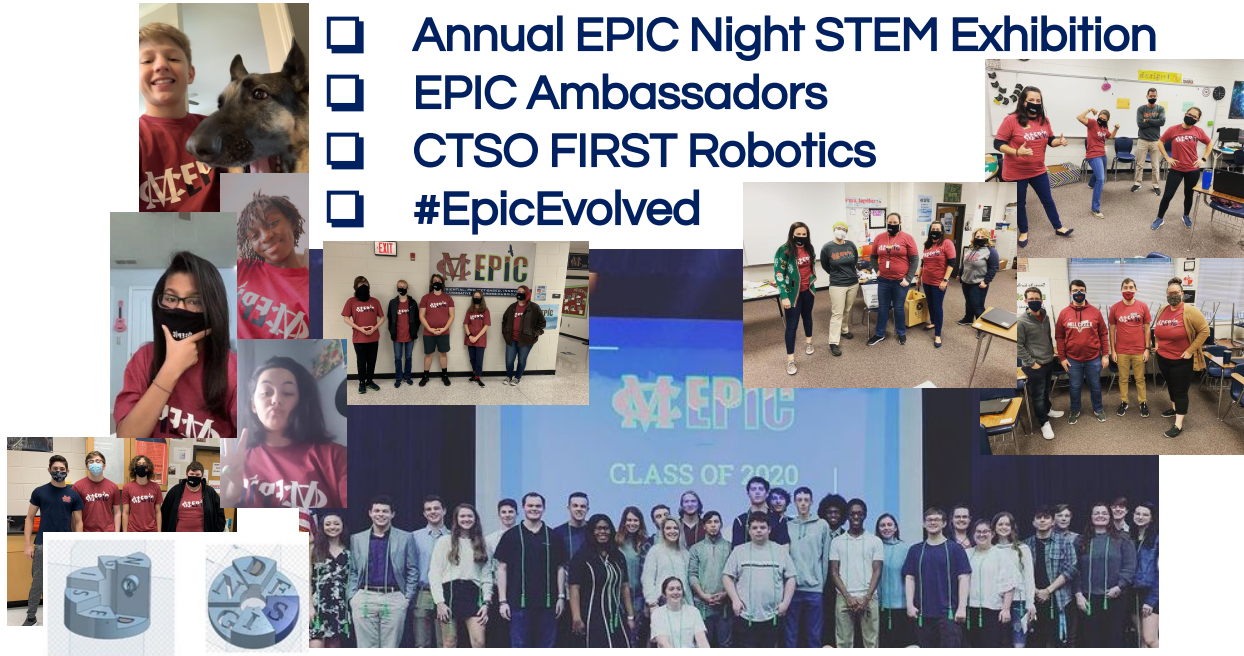
Based on the top meme of 2020:

How It Started...

- ❑ MC PBL
- ❑ 5 Teachers
- ❑ 9th Grade Only, Cohort of 43 Engineers
- ❑ Received our 1st grant for 2 3D printers

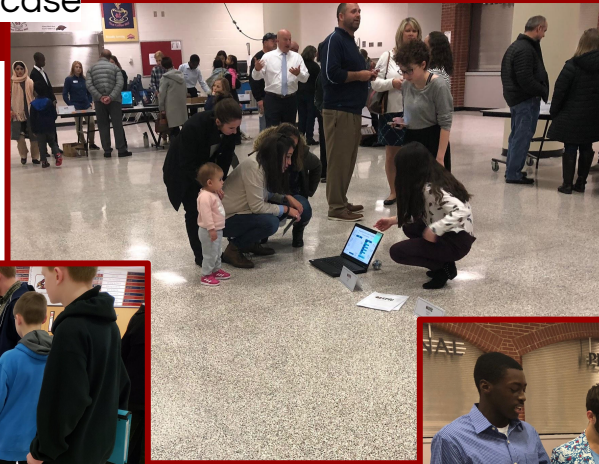
How It's Going...

- ❑ MC EPIC
- ❑ STEM Certification from GA DOE
- ❑ 11 Teachers, 1 AP
- ❑ 9th Grade Cohort of 80 STEM Students
- ❑ Graduated EPIC Seniors
- ❑ Launched EPIC Capstone
- ❑ 7 3D printers
- ❑ Over \$90k in Grants
- ❑ Annual EPIC Night STEM Exhibition
- ❑ EPIC Ambassadors
- ❑ CTSO FIRST Robotics
- ❑ #EpicEvolved



EPIC Night

EPIC Night is our annual STEM Exhibition to showcase our students and honor our seniors. Check out highlights from last year [here](#).



SAVE THE DATE

EPIC

EPIC NIGHT

VIRTUAL EDITION

JANUARY 28, 2021

@EpicMillCreek

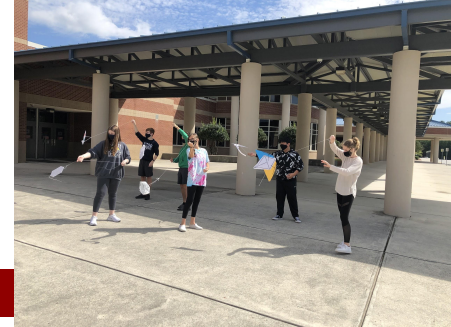
@epic_millcreekhs

epicmillcreekhs

EPIC has earned **STEM Certification** from the Georgia Department of Education



Project Spotlight



9th Grade Project Spotlight: Let's Go Fly A Kite

Driving Question: "How can we as Engineers spread cultural awareness to all ages?"

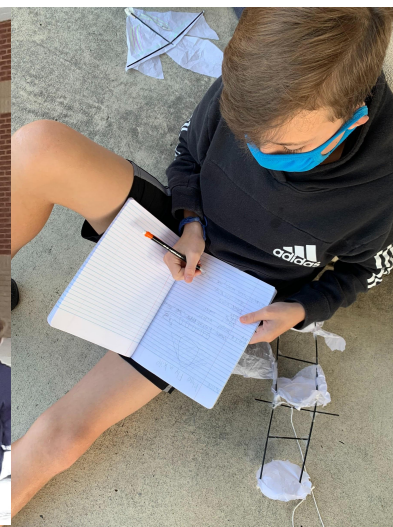
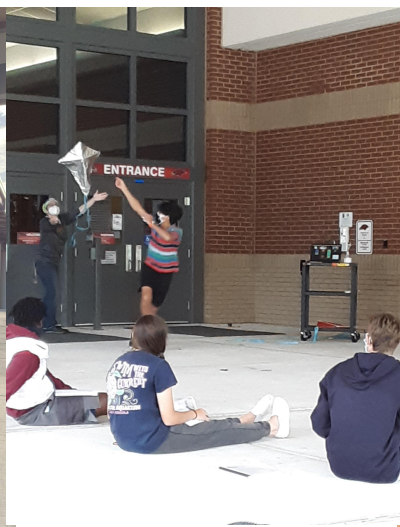
Kick-off: Students flew store-bought kites of different shapes, and observations were documented as part of the E- Explore the Research step

Research: Students investigated different cultures; researched and analyzed three kits comprised of different material properties in Chemistry

Mid-point: Students had individual mini-kites that they tested outside, observing for revisions

Deliverables: Groups created a final kite and video with a 3rd grade audience in mind

Cross-Curricular: LA - Culture Research, Script; Egr - DESIGN process; Math - Shapes found in Kites; Chemistry - Material Properties



Concurrent Learning

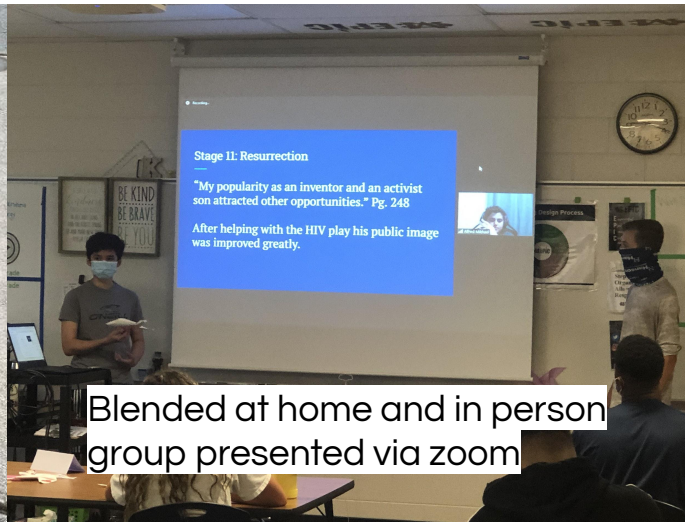
What is Concurrent learning? Concurrent is the term we use within GCPS to represent we teach both in person and digital students at the same time. While we hope to return 100% to in person learning soon, this is how EPIC has adapted to Concurrent learning.

#EpicEvolved is our mission this year to make sure the students still have learning that is experiential, project-based, innovative, cross-curricular and collaborative regardless of platform

What does this mean?

- STEM Kits were sent home so EPIC students had access to hands-on learning such as mini-kite supplies
- Intentional grouping including the platform of the student
- Kickoff experiences where students travel along via camera
- Presentations via zoom and screen sharing
- Roomies vs. Zoomies Games

At home students travelled outdoors to experience kite kickoff and take observations



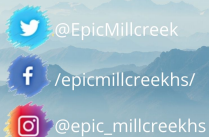
Blended at home and in person group presented via zoom

STEM Kits for every student





Experiential
Project-based
Innovative
Collaborative & cross-curricular



Use the hashtag:
#EPICEvolved

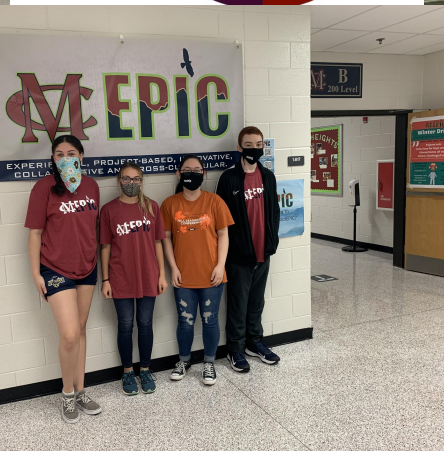
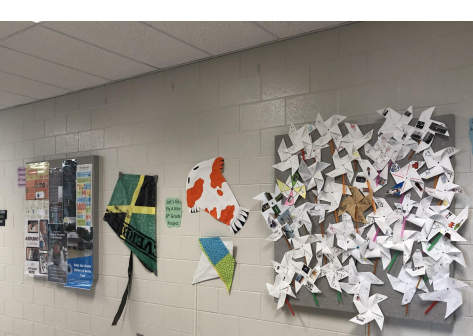
EPIC STEM Culture



The EPIC STEM Culture

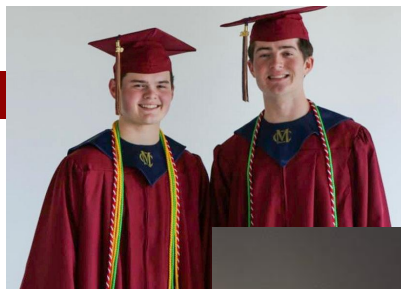
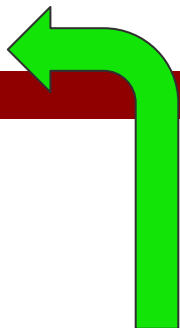
- Lime Green accents the traditional school colors
- Student work & driving questions displayed in hallway
- EPIC t-shirts designed by student Ambassadors
- EPIC Extravaganza virtual game nights
- The DESIGN process & Norms in every classroom
- Culture is for teachers & students
- Social Media proudly displays STEM Culture

Engineering Design Process





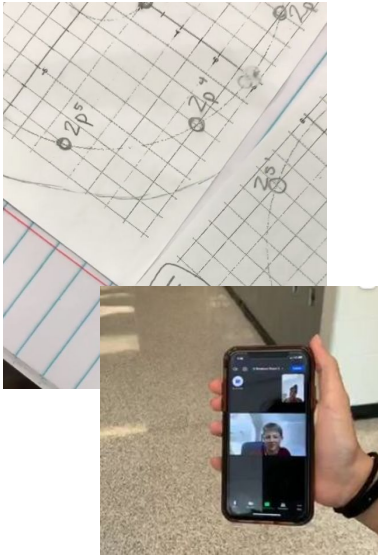
EPIC Family



Why follow my EPIC sister?

- Savana: "I originally joined EPIC because I was interested in seeing the different learning style. I wanted to be challenged in class, but also enjoy how I was learning."
- Ciara: "I joined EPIC because I saw how much it helped my sister grow as a better student and a better person. How much EPIC has changed her in the last two years is amazing and I wanted it to do the same to me. I needed the extra push in school that all epic teachers give. EPIC has and will help me to be a better version of myself!"

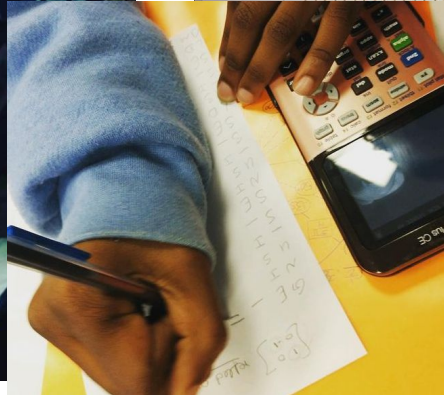
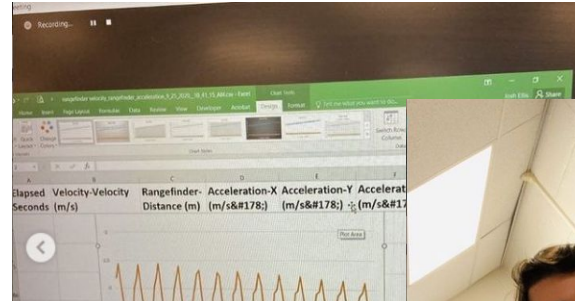
Math & Science



Students used their knowledge of coordinate geometry and chemistry to graph elements on a plain. Next each student will show their graphs using an @ozobot ..



Students collaborated to discover the relationship between light intensity and distance using solar panels and multimeters. They collected data and created a graph that was modeled by a rational function. Then, they discussed the implications of light intensity and photo syntheses.



Students used live data and data graphs gathered with a Pocket Lab sensor attached to a slinky to model harmonic motion. Students then made connections between periodic motion, sine and cosine waves, distance vs time, velocity vs time, and acceleration vs time! Finally, they talked about how these concepts are used in automotive and sound engineering

Community



Kick off with Heraeus led by Greg Mihalik



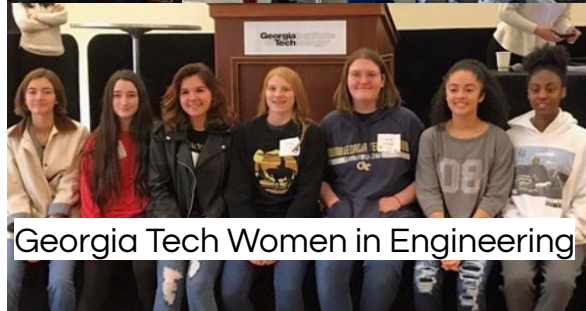
Field trip to World of Coke



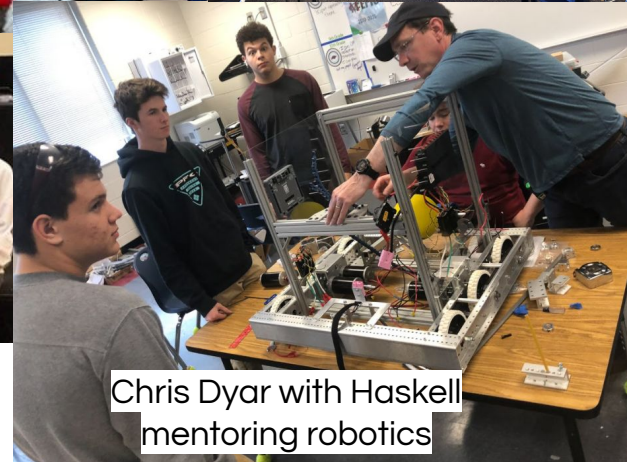
Susan Evans with Coke training students in Agile Project Mgmt



Clint Tucker Of Sugarhill Outdoors mentoring on CAD and Landscape Architect career



Georgia Tech Women in Engineering



Chris Dyar with Haskell mentoring robotics