



April 2025  
Volume 1, Issue 1

# ORIGINS

## Welcome to Origins

— By Clint Rodenfels

Welcome to the first issue of *Origins*, the monthly newsletter of the STEM Origins Foundation. Founded by engineers, scientists, and technology professionals, the STEM Origins Foundation seeks to increase the number of American children pursuing careers in STEM (Science, Technology, Engineering, Math) by focusing on the educational pipeline from kindergarten to college.

Each issue of *Origins* brings news of our efforts, program updates, accomplishments of our Bay County students, and some fun bits of information about how STEM can help us better understand our world.

## The First 100 Days

— By Mark Bradshaw

In our first 100 days, STEM Origins has launched several exciting initiatives to benefit the students of Bay County. Here's a look at what we've accomplished so far.

### Bay Base STEM Pilot Project

We created a pilot project to incorporate STEM education into the Bay Base Summer program for 2025. We negotiated an \$8000 grant from the National Inventors Hall of Fame (NIHF) to lower our cost to \$5000, and are in the process of securing additional funding for the remainder. This project has two major parts:

- **Classroom STEM Experience:** We partnered with NIHF to provide STEM kits for students in grades 3-5 at Patronis and Highland Park Elementary schools. Each school received kits like Lost Treasure Modules, Robotic Pet Vet Modules, NIHFTY Bot Explores, GAMES Kits, and BASE CAMP kits. These kits offer hands-on, inquiry-based experiences that inspire curiosity, creativity, and build 21st-century skills.

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### Special points of interest

- Check out our first STEM Student of the Month
- Discover STEM in our everyday activities

## First 100 Days (continued)

- **Field Site Hands-On Experience:** Funding field trips for 30 students from Lynn Haven and Tyndall Elementary schools to explore seagrass beds and diverse species at Tyndall Air Force Base or St. Andrews State Park. These trips, led by Emerald & Forgotten Coast Adventures, aim to increase environmental awareness and inspire stewardship.

## Corporate Partners Program

We launched a program to connect with corporate partners to fund classroom STEM equipment wish lists, ensuring our students have the tools they need to succeed. So far, we have secured corporate sponsors for Beach and Patronis Elementary schools.

## STEM Professionals in Classrooms

We recruited STEM professionals to visit classrooms, career days, and STEM/STEAM nights, providing students with insights and inspiration.

## Special Achievement Awards

Created the STEM Origins Special Achievement Awards to recognize outstanding students in activities like the regional Invention Convention.

## STEM Student of the Month Awards

Every month, we celebrate a STEM Student of the Month, highlighting their achievements and encouraging their peers.

## Monthly Newsletter

We started this newsletter to keep parents, students, and teachers informed about our programs and achievements.

## Rising Star Scholarship Program

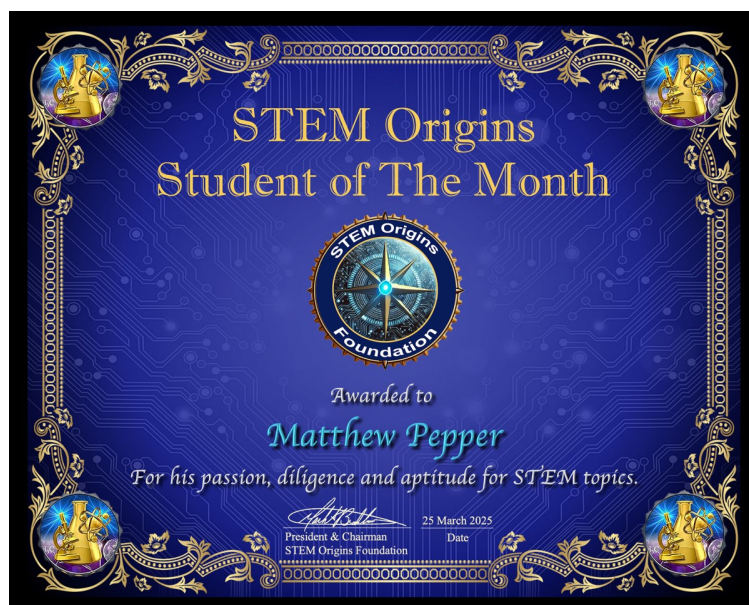
We are preparing to launch the Rising Star scholarship program to support students pursuing STEM education.

## Student of the Month

— By Steven Pavelitz

On 25 March 2025, the STEM Origins Foundation presented our first **STEM Student of the Month** award to **Matthew Pepper** of Tyndall Academy.

Matthew received a medal, a certificate suitable for framing, and a \$50 gift certificate to Margaritaville Restaurant in Panama City Beach's Pier Park. Ms. Crystal Lee, the teacher who nominated him, also received a \$50 gift certificate from Osaka's Restaurant. Congratulations to Matthew on his achievement and being our first STEM Student of the Month!



## Bay Regional Invention Convention

— By Mark Bradshaw

We had the honor of participating in judging the Bay Regional Invention Convention in March. There were some very impressive inventions from local students. We selected 10 students to receive our STEM Origins Special Achievement Award.

I was so impressed by one of the designs that I offered to connect the student and their family to a local small business incubator I happen to know, because I think it has distinct market potential.

The winners of our Special Achievement Award were:

- Kaitlyn Bailey
- Kyle Bloomfield
- Kennedy Flores
- Obayda Hussein
- Devin Jani
- Isabella Jones
- Prescott Korol
- Abigail McCann
- Camden Sovel
- Emma Windsor



Each student received a STEM Origins Certificate and our new Special Achievement Challenge Coin. Congratulations to them and all the Category Winners who will progress to the National level competition.



## Looking to Volunteer?

### **Emerald & Forgotten Coast Adventures**

Volunteers of all backgrounds support half-day ecology and marine science programs for K-12 students. ([emeraldforgottencoastadventures.org](http://emeraldforgottencoastadventures.org))

### **STEM/STEAM (Science, Technology, Engineering, Arts, Math) Nights**

Meet with elementary, middle, and high school students and parents to inspire interest in STEM and Art. Next Opportunity is April 24 at West Bay Elementary. Contact [Steven Pavelitz](#) for details.

### **Career Discussion Meetings**

Meet with students to help them see and understand STEM career paths. Contact [Steven Pavelitz](#) for details.

### **Support Fund Raising for STEM Origins Foundation**

Know any organizations or corporations looking to fund STEM activities? Contact [Mark Bradshaw](#) or [Lois Paglione](#)

## Resources

STEM-related information links:

### **STEM Origins on Facebook**

Join us on Facebook. <https://www.facebook.com/profile.php?id=61572445529356>

### **Invention Convention World-wide**

The Henry Ford Foundation's site for information about the global Invention Convention. <https://inhub.thehenryford.org/icw/home>

### **Bay District Schools**

Official site for Bay County schools. <https://bay.k12.fl.us>

# Why is STEM Important?

— By Mark Bradshaw

With every issue of *Origins*, we bring you an excerpt from our Strategy Plans to help you better understand the importance of STEM education.

The following brief overview of the history of STEM education in the United States provides a foundation for understanding the importance of increasing the number of students who pursue STEM careers.

- **2005 – The Gathering Storm:** The National Academies of Science, Engineering, and Medicine predicted "dire consequences" if the U.S. couldn't compete globally due to a poorly prepared STEM workforce.
- **2006:** An international study (PISA) ranked the U.S. 21st out of 30 countries in scientific competency and knowledge.
- **2009:** The Presidential "Educate to Innovate Initiative" aimed to move U.S. students to the forefront of STEM careers, increasing federal investments and targeting 100,000 better-prepared STEM teachers by 2021.
- **2014:** The STEM Education Act was established, offering advanced teacher training programs.
- **2022 PISA Results:**
  - The United States ranked 18th out of 81 countries.
  - Math: #34
  - Science: #16
  - The United States trails China, Japan, and Europe in Science and Math and is behind Vietnam and Latvia in Math.

A strong STEM education is crucial for the United States to maintain its competitive edge in the global arena. Despite initiatives like the Presidential "Educate to Innovate" and the STEM Education Act, recent international assessments reveal that the U.S. continues to lag behind countries such as China, Japan, and several European nations in STEM proficiency. This is exacerbated by a growing shortfall of STEM professionals, with over 50,000 positions going unfilled annually.

This gap poses serious risks to national security, economic stability, and future prosperity. Therefore, enhancing STEM education and encouraging more students to pursue careers in STEM fields are imperative steps for the country to secure its future.

## Where Did Band-Aids Come From?

A wife's kitchen cuts were the reason Band-Aid was created in 1921. Johnson & Johnson worker Earl Dickson invented easy-to-use bandages by combining tape and gauze so his wife could apply them herself. They only gained popularity after being given free to Boy Scouts. Now, over 100 billion Band-Aids could encircle the earth 30 times! Source: Empowering Facts

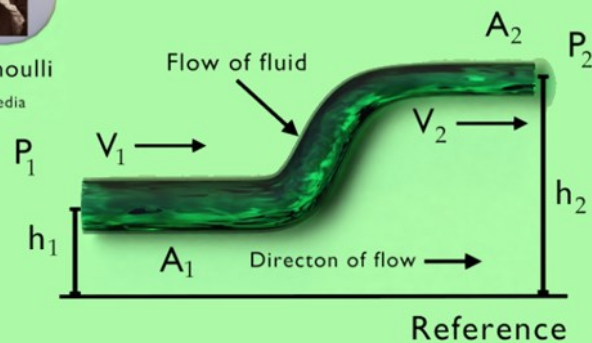




Daniel Bernoulli

Image Source: Wikipedia

## Bernoulli's Principle



Bernoulli equation,

$$P_1 + \frac{1}{2} \rho V_1^2 + \rho g h_1 = P_2 + \frac{1}{2} \rho V_2^2 + \rho g h_2$$

P = Pressure.

$\rho$  = Density of fluid.

V = Velocity of fluid.

A = Area of cross-section.

g = Acceleration due to gravity.

h = Elevation height from the reference.

## Why do Planes Fly and Boats Sail?

The pressure difference ( $P_1 - P_2$ ) described by Bernoulli's Principle at left, is exactly why planes fly and why a sailboat can move faster than the wind. Bernoulli's principle, named after mathematician and physicist Daniel Bernoulli, states that as the speed of the fluid increases, the pressure or the potential energy in the stream of fluid decreases. Bernoulli's principle works on the principle of conservation of energy.

Source: Oneheaven.

## Fire has no Shadow

Fire itself does not cast a shadow. Shadows form when an object blocks light from reaching a surface. Since fire emits light rather than obstructing it, it does not create a shadow.



## Donations

— By Lori Goetz

We are very fortunate to have so many generous local businesses and individuals who contribute financially or with products (in-kind donations) to support STEM Origins' mission.

### Major Financial Donors

- Lucy Collins Law Firm
- Tech Farms, Inc.
- Mr. Scott Wray
- Dr. David Holdnak

### In-kind Contributions

- Carrabba's Restaurant
- Chili's Restaurant

- Diego's Burrito Factory
- Duplin Winery
- Margaritaville Restaurant
- Osaka's Japanese Steak House
- San Marcos Mexican Restaurant
- Texas Roadhouse

## About Us

Our mission is to support local education in science, technology, engineering, and mathematics (STEM) with projects that inspire students and teachers at every level of the academic ladder from kindergarten through college.

We seek to increase the quantity, quality, and diversity of high school and college STEM graduates. Our approach involves engaging students early (K-5) to foster interest in STEM subjects and maintaining engagement throughout middle school, high school, and college with progressively advanced activities.

Programs include providing hands-on experiences, classroom equipment, and access to STEM professionals through visits, virtual presentations, and coaching on innovation and long-term goals. We plan to offer scholarships for college STEM fields and STEM camps for all grade levels over time. Additionally, we support STEM teachers through grants for career development, professional growth, and innovative classroom experiments to enhance student learning experiences.

The STEM Origins Foundation is a 501 (c)(3) nonprofit organization in Bay County, Florida. IRS Certification, Articles of Incorporation, and By-Laws are available on our website (see below).

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<https://stemorigins.org/>

## Programs

The STEM Origins Foundation coordinates a portfolio of programs to support Bay County schools in STEM education. Our current and upcoming initiatives include:

- **STEM Kits for Classes:** These kits provide hands-on experiences that enhance the lessons and expand students' exposure and understanding across various STEM fields.
- **Summer Camps:** These STEM camps offer extended learning environments and unique hands-on experiences for students. Our program helps fund access for students who would otherwise not have the opportunity to attend.
- **STEM Awards:** We regularly acknowledge students who excel beyond the norm and serve as exemplary role models for their peers.
- **STEM Professionals as Mentors and Coaches:** We engage STEM professionals to mentor and coach students at all levels. They assist students during the Invention Convention process, sponsored by the Henry Ford Foundation, as well as participate in interactive classroom events, school Career Days, and other activities.
- **College Scholarships:** This program provides college scholarships to students pursuing STEM degrees. Scholarships are awarded based on merit and need.
- **Strategic Partnerships:** This initiative fosters collaborations between businesses, employers, community groups, the Bay District Schools, local colleges, and universities.

## Upcoming Events

- **4 April:** Deadline for April Student of the Month
- **5 April:** Volunteer Day at LMWS Town Ctr (we have a booth)
- **9 April:** Farmer's Market (booth)
- **7 April—1 May:** Initiate Rising Star Scholarship Process (call for nominations)
- **11 April:** April Student of the Month selection process complete, winner and teacher notified
- **16 April:** Bay Schools CTE Career Expo (booth) - Juniors
- **17 April:** Bay Schools CTE Career Expo (booth) - Seniors
- **22 April:** School Board meeting
  - Award Student of the Month
  - Announce Rising Star Scholarship process underway
- **24 April:** West Bay STEM night
- **29 April:** Rutherford HS STEM Pro Mentor visit
- **9 May:** Deadline for nominations of Rising Star Scholars as well as May Student of the Month