ISSUE #2

ORIGINS

STEM Origins Foundation

May 2025

Nicholas Martrain: Student of the Month

Every month of the school year, we select a STEM student in recognition of those who most reflect our core values of Passion, Diligence & Aptitude for STEM, while also demonstrating Collaboration with others.

On 22 April 2025, the STEM Origins Foundation presented our monthly STEM Student of the Month award to **Nicholas Martrain** of **Deer Point Elementary**. Nicholas received a medal, a certificate suitable for framing, and a $50 gift certificate to Margaritaville restaurant in Pier Park. Because outstanding teachers produce outstanding students, we also recognized his teacher, Ms. Kaila Thornton, with a $50 gift certificate from Carrabba's restaurant along with a copy of Nicholas' award to display in her classroom. Congratulations to Nicholas on his achievement! Below is the nomination written by Nicholas' STEM teacher:

Whether he is designing a circuit to test water salinity or coding a game online, Nicholas is always up to something that stretches his brain in ways I can only describe as awe-inspiring. He is so curious and always eager to learn about new things and investigate the world around him. He is passionate about engineering and inventing, and loves to share ideas for how we could improve the world around us. Nicholas' strong aptitude for logic and mathematics make him a strong peer tutor in class, and he is more than willing to help explain difficult concepts to his classmates and showcase his unique methods for solving problems. He is extremely well-spoken and clearly communicates his thoughts across a variety of subjects--he teaches me something new everyday! When we do experiments or analysis, Nicholas is constantly

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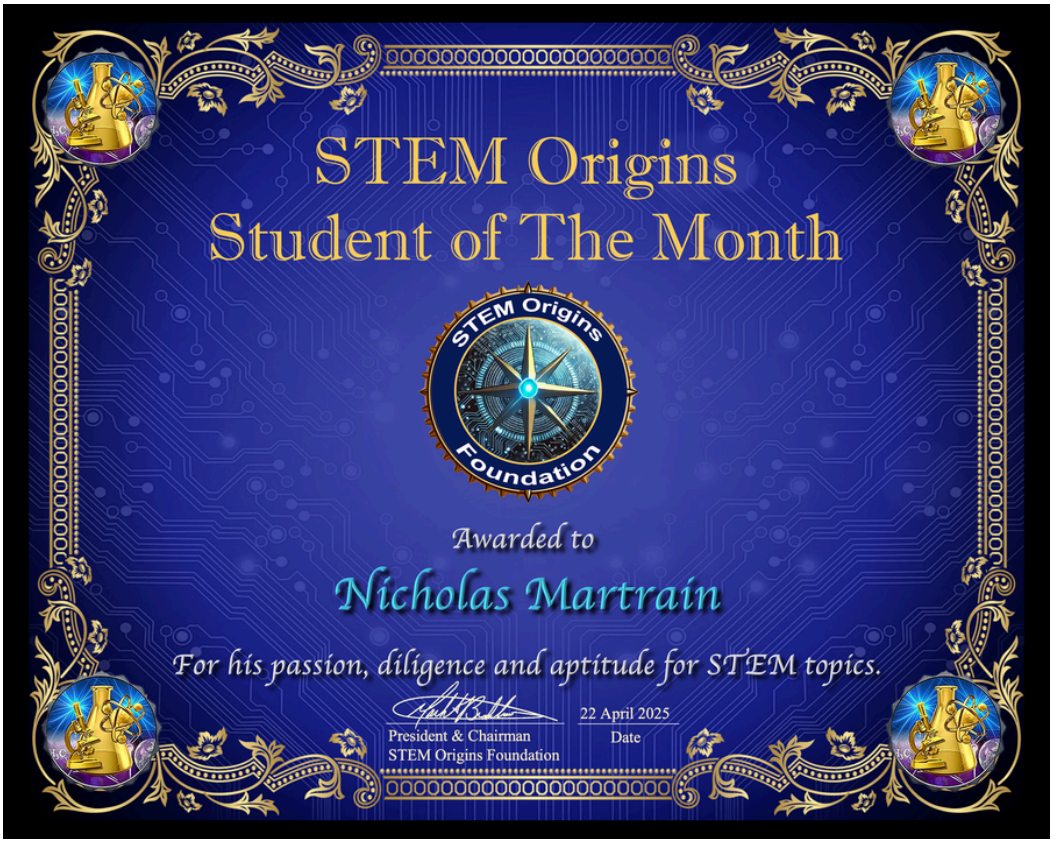
looking to push the analytical boundaries of the assignment to dive deeper into his understanding. He is not satisfied until he can form a full picture of a concept in his mind, and he has an amazing ability to make even the most abstract concepts feel concrete. Above all, his compassionate heart and sense of humor endear you to him instantly. Nicholas has blown me away this year with his love of science and technology, and I cannot wait to see this young man change the world!

–Ms. Kaila Thornton (Nicholas' Teacher)



15-year-old Scientist!

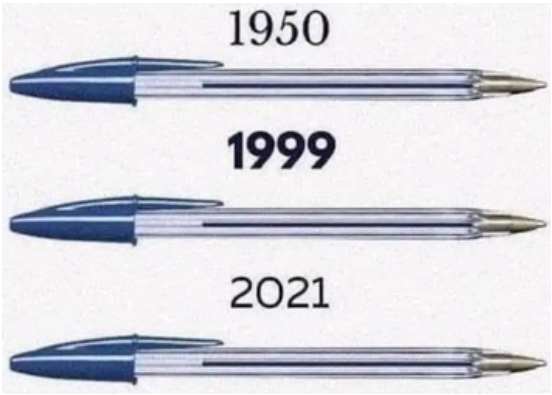
15-year-old American scientist Jack Andraka made history by inventing the fastest and most affordable method to detect early-stage pancreatic cancer!

At an age when most teens are navigating high school, Jack was busy revolutionizing cancer detection — creating a sensor that's 168 times faster, 26,000 times cheaper, and over 400 times more sensitive than current tests at the time.

His invention could potentially save thousands of lives by catching pancreatic cancer early — when it's most treatable. Proof that curiosity + determination = game-changing innovation.

Attribution: Neil Degrasse Tyson

Origin of the Ballpoint Pen



In 1930, a Hungarian inventor observed children playing with marbles in a puddle, noticing that the marbles left a trail of water in their wake. That's how the idea came about: why not use a ball-shaped metal nib for writing? This is how the pen was born. László József Biro shared his idea with his brother György, a chemist, and together they began researching and experimenting to create a new type of pen based on this concept. Finally, they found the perfect combination: a viscous ink and a tip with a small ball that rotated freely, preventing the ink from drying out and controlling its flow. They presented their invention at the Budapest International Fair in 1931 and patented it in 1938, although they did not market it immediately. With the start of World War II, the brothers emigrated to Argentina, where they founded a company in a garage. Although they were initially unsuccessful due to the high cost of the product, they secured a contract with the British Air Force, which boosted their popularity. In 1943, they licensed their invention to Eversharp Faber in the United States for $2 million. In 1950, Marcel Bich acquired the rights and, on the recommendation of an advertising expert, dropped the "h" from his surname and founded the company BICGroup. In that year, they launched the first BIC Cristal, one of the most perfect designs ever created, of which more than 20 million units are sold every day around the world. Since 1953, more than 100 billion BIC Cristals have been manufactured, making it the best-selling pen of all time. –Attribution: David Attenborough Fans

Resources

STEM-related information links:

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

Invention Convention Worldwide
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?

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

Our Systematic "Pipeline" Approach

- **Define the Pipeline**: Consider the entire journey to become a STEM professional – from first origins in K-5 grades through secondary education (6-12) and finally the college degree. This is the STEM pipeline through which all STEM professionals must travel, overcoming all the obstacles, barriers and misperceptions along the way.

- **Work the Challenges**: Each level presents its own challenges that can restrict the natural flow of STEM oriented students toward a STEM profession. In order to reduce the friction of the overall pipeline, we must understand the challenges in each level and develop initiatives to mitigate them as much as possible.

- **Focus on the Big Rocks with an understanding of Systemic issues**: We must understand these challenges enough to be able to focus on the areas where we can have the biggest impact (the Big Rocks) while also understanding the synergistic effects that one challenge can have on others. We must strive to identify the systemic issues underlying these challenges so that we can address the root of the problems in a manner that can effect a host of other related challenges.

- **Develop and implement a long-range plan, that also has near-term impacts**: We should engage at all levels of the education ladder in a synergistic way such that our initiatives are mutually reinforcing, as much as possible. We should strive to start changing perceptions today, igniting passions today, and continue to serve as a persistent force across the academic ladder for decades to come.

Big STEM News at Hutchison Beach Elementary

We're excited to share some amazing news for Hutchison Beach Elementary School! This past month, the school received a $5,000 grant to help students explore science, technology, engineering, and math (STEM) in exciting new ways. This gift was made possible thanks to a generous donation from Lucy Collins—thank you, Lucy!

Here's what the grant will help bring to the classroom:

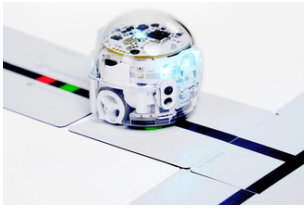
Aquaponics System
Students will get hands-on with an aquaponics system that grows plants using water and fish—yes, real fish! It's a fun way to learn about how plants, water, and animals work together in a natural cycle. Up to 10 fish and 14 plants can live in this system, so students will get to see science in action every day!

Bristle Bots
Have you ever seen a robot made from a toothbrush? Students will build their own tiny robots—called Bristle Bots—using toothbrush heads and vibrating motors. These bots wiggle, spin, and scoot around, teaching students about engineering, balance, circuits, and how motors work.

Ozobot Magnets
With these colorful magnetic pieces, students can learn about logic, sequencing, and problem-solving by designing paths for mini robots to follow. It's like turning a puzzle into a STEM adventure!

Underwater Robot Kits
Beach Elementary will also receive special kits to build underwater robots, also known as ROVs (remotely operated vehicles). With the Angelfish ROV Kit, hydraulics tools, a power supply, and a testing pool, students can build and test their own robots just like real marine engineers!

These tools will help students learn through discovery, creativity, and lots of fun. We're so proud to support young inventors and scientists at Beach Elementary as they dive into the world of STEM.



Our First Rising Star Scholarship Award Approaches

STEM Origins Foundation is proud to announce our upcoming Rising Star Scholarship. This award offers selected 5th grade students a $500 scholarship to Gulf Coast Community College (GCSC) if they elect to attend and pursue a STEM-related degree. Students are nominated by STEM teachers, as the scholarship is intended to provide recognition of those students who demonstrate outstanding potential in STEM subjects while exemplifying our core values.

Limited to 5th grade students, the Rising Star Scholarship is awarded the summer following completion of the student's 5th grade school year. Nominations focus on the following Core Values:

Passion
- Curiosity for STEM topics or the natural world
- Enthusiasm for research and innovation

Diligence
- Self-discipline, persistence, patience, focus and determination
- Strong work ethic

Aptitude for STEM
- Rational and objective thinking
- Structured/logical thinking

Collaboration and Cooperation
- Works well with mentors and team members
- Contributes to a body of work
- Performs collaboratively with a team
- Communicates ideas clearly

The nomination deadline for prospective Rising Star Scholars is 9 May 2025. For more information, contact: info@stemorigins.org.

STEM Fun Heads to Patronis Elementary

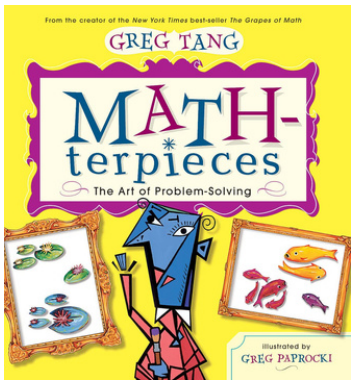
This month, we had the awesome opportunity to deliver a set of brand-new STEM kits to the students and teachers at **Patronis Elementary School**—and it's packed with exciting games, books, and activities to make learning math extra fun and sequential thinking! Even better? This set of kits, worth $1,209, was funded by a donation from **Mark Kinkade** of **State Farm in PCB**. Thank you Mark for bringing STEM learning to life!

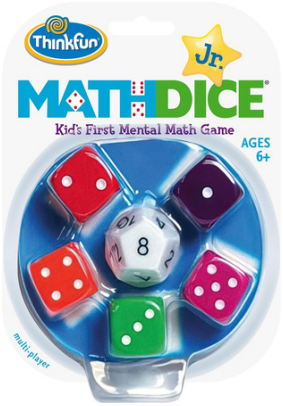
These STEM kits are designed to help 3rd through 5th graders grow their math and thinking skills through play, puzzles, and hands-on learning. Check out the cool things inside:

- **ThinkFun Laser Maze** – Use mirrors and logic to solve laser-powered puzzles!
- **Battleship & Math Dice** – Classic strategy games that sneak in math practice!
- **ThinkFun Gravity Maze** – A marble-powered challenge that builds spatial skills.
- **Mathterpieces & The Grapes of Math** – Fun books that make math creative and colorful.
- **Fraction Games** – Learn about fractions with magnetic tiles, cards, and more!
- **Number Line Dry-Erase Boards** – Great for practicing number sense.
- **Geometric Solids** – Hands-on 3D shapes to explore and learn.
- **Rush Hour** – A traffic-jam puzzle that challenges sequencing and logic.

With these awesome tools, teachers at Patronis Elementary are ready to make math and sequential thinking exciting and meaningful. Students will build strong skills while having fun—just the way learning should be!

We're proud to support students as they grow into future problem-solvers, inventors, and STEM stars.





Upcoming Events

Some of our exciting events and activities coming in May and beyond:

- **9 May**: Student of the Month Submission Window Closes
- **9 May**: Rising Star Scholarship Window Closes
- **16 May**: Student of the Month Selection complete
- **28 May**: End of School year
- **30 May**: NIHF Training Day for Bay Base
- **July**: Rising Star Award Ceremony at GCSC CHC building (date pending)

Fun(d) Raising News

We had a variety of events to raise awareness of (and funds for) STEM Origins. Over the past month:

- **Latitude Margaritaville Volunteer Day**: On Saturday, 5 April, we participated in the Volunteer day event. We recruited 3-4 new mentors and raffled off a wine gift basket.
- **Latitude Margaritaville Farmers Market**: On Wednesday, 9 April, we participated in the Farmers Market. We recruited more volunteers and raffled off another Duplin Wine gift basket.
- **Mark Kinkade of State Farm in Panama City Beach**: Donated $1209 to support Patronis Elementary School STEM Equipment.

Volunteer Profile: Steve Pavelitz, Director, Mentor & Coaching

Mr. Pavelitz has 40 years of experience in engineering and project management in support of military and space systems. In 2022, he retired from the National Aeronautics and Space Administration (NASA) George C. Marshall Space Flight Center (MSFC) after 22 years as a civil servant. Prior to that he supported MSFC as a Sverdrup Corporation (now JACOBS) contractor for 12 years, worked at SPARTA Inc. in Huntsville, Alabama for 4 years performing missile defense analysis. He began his career with the Naval Surface Weapons Center (NSWC) in Dahlgren, Virginia, developing strategic system simulations.

His expertise and experience in system engineering and project management is highlighted by his roles as: Payload Manager for the Imaging X-Ray Polarimetry Explorer (IXPE) (an award-winning astrophysics satellite mission), Project Manager for the International Space Station (ISS) Lightning Imaging Sensor (LIS) (an external payload on the ISS), and as System Engineer for 10 years covering development of ISS modules Node 2, Node 3, and the Permanent Logistics Module.

He has received numerous individual and NASA Group Achievement Awards, the NASA Silver Snoopy Award, and the NASA Exceptional Achievement and Exceptional Service Medals. Mr. Pavelitz has a degree in Aerospace Engineering from Pennsylvania State University. He resides with his wife, Susan, in Panama City Beach, Florida.

Nature Found the Answer, Science Made it Unstoppable

Worms figured out how to eat plastic. Scientists just made it scalable. Superworms like Zophobas atratus can digest polystyrene using special bacteria in their guts — but they're too slow to fix our plastic crisis. So researchers at NTU Singapore built a synthetic worm gut: a lab-grown reactor that mimics the microbes inside the real worms. No live worms needed. No toxic byproducts. Just efficient plastic breakdown. This is more than recycling. It's bio-inspired engineering — and it actually works.

Attribution: Insect Wars

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 overtime. 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).