



McLeod
Innovation
Center

NEWSLETTER
JUNE 2024



Editor's Note



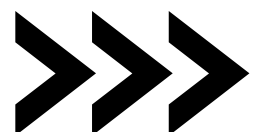
Dear Fairfield Prep Community,

This semester has been a tremendous showcase of creativity and collaboration at the **McLeod Innovation Center**. As you delve into this newsletter, you will read about the diverse activities our students engaged with, ranging from sustainable engineering design challenges to innovative technology integrations in language and theology studies.

We are immensely grateful for our partnerships with our faculty. Our teachers' domain-level expertise has been crucial in developing these eclectic and multifaceted projects. Each initiative, ignited in our state-of-the-art facility, advances our technological frontiers in the educational landscape and steadfastly upholds our Jesuit mission to develop thoughtful, well-rounded leaders committed to ethical action and compassionate service.

I invite you to hear directly from our teachers and administrators about their experiences — these testimonials highlight these partnerships' profound impact on educators and students alike. Thank you to all who have contributed to making this semester a success. Your dedication and enthusiasm continue to inspire and drive forward our mission at Fairfield Prep.

Warm regards,
Dr. Rinat Levy Cohen
Director of Innovation at Fairfield Prep



SPANISH LEARNING FUSED WITH CREATIVITY, CULTURE & TECHNOLOGY

Women's History Month

In honor of Women's History Month, my class, Dr. Cohen, and I created a website to celebrate women authors who have significantly contributed to Spanish literature and culture. The authors we honored included Ana María Matute, Laura Esquivel, Isabel Allende, Alfonsina Storni, Claribel Alegria, Daisy Zamora, Carmen Laforet, Zoé Valdés, Rosalía de Castro, and Rosa Montero Gayo.

My students researched a female author who has made a significant impact on Spanish literature and culture. They created a video in Spanish that provided a brief biography and work history for each author. My students spent many days in the McLeod Innovation Center, utilizing the microphones and green screen room for their videos. They learned how to add audio files to videos, incorporate transitions, subtitles, and music, and became proficient with new audio recording devices used for podcasting. Then we created a website showcasing all the projects. We also built an interactive exhibit in Arrupe Hall where our community could view the videos on iPads.

One of the project's highlights was when Frank Zaino, James Costs Couto, Chris Contreras, and Colin Banks emailed the author they were researching. They emailed the Spanish author and journalist Ms. Rosa Montero Gayo, expressing their appreciation of her work and notifying her that they created a video about her. Ms. Montero Gayo was so moved by their email that she sent them a video message in response, which they proudly included in their final video. Click on the image to the right or scan the QR code to watch the videos my students

created. The video include English subtitles so that both monolinguals and bilinguals can enjoy the content.



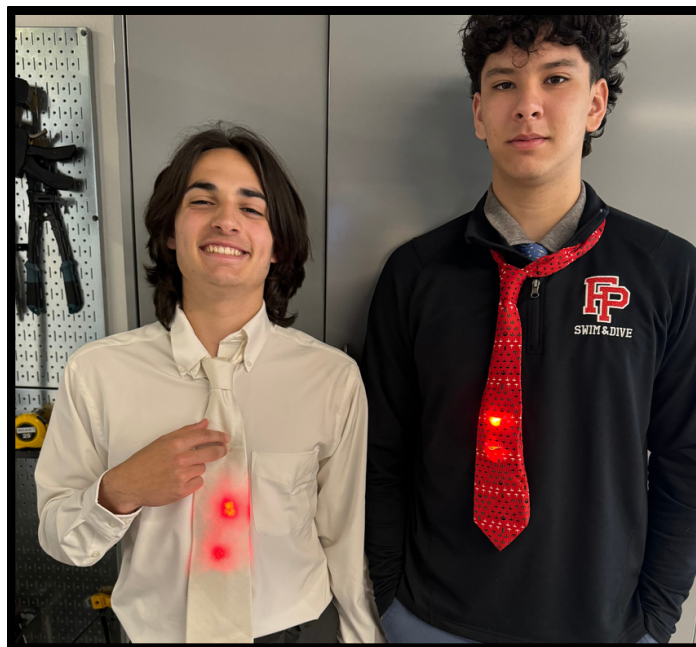
Mr. Jozef Tremblay
Spanish Teacher



Wearable Tech

As my **AP Spanish Language** class finished the Beauty and Aesthetics unit, I introduced the Science and Technology unit. This transition created the perfect opportunity to explore wearable technology! My students eagerly took a break from the usual Spanish videos, articles, and conversations to design ties and bracelets that light up using simple circuitry.

They collaborated on installing batteries, ensuring their LED lights were illuminated with conductive tape affixed to felt. The day was fantastic, seamlessly blending the previous unit's fashion elements with the current one's technological creativity.



Customized T-Shirts

In the second semester, students in my **AP Spanish Literature** class explored thirty-eight pieces of literature. To engage them further, I decided to add a creative twist by having them design their own t-shirts featuring meaningful Spanish quotes or sayings. The class embraced the challenge with enthusiasm, crafting designs ranging from the Kairos logo to professional soccer teams. They thoughtfully placed quotes along the sleeves, neckline, and pocket area, showcasing their personal connection to the Spanish language.

It was inspiring to watch students collaborate, research original designs, and identify Spanish quotes that resonated with. The joy and creativity they displayed while helping each other and exploring new ideas made the activity not only productive but also highly entertaining! Both AP sections enjoyed a bit of downtime

from their rigorous routine and laughed while still integrating the language into the creative, tech-based lesson!

Mrs. Melissa Goodwin
Spanish Teacher



ENGINEERING DESIGN CHALLENGES

Renewable Energy

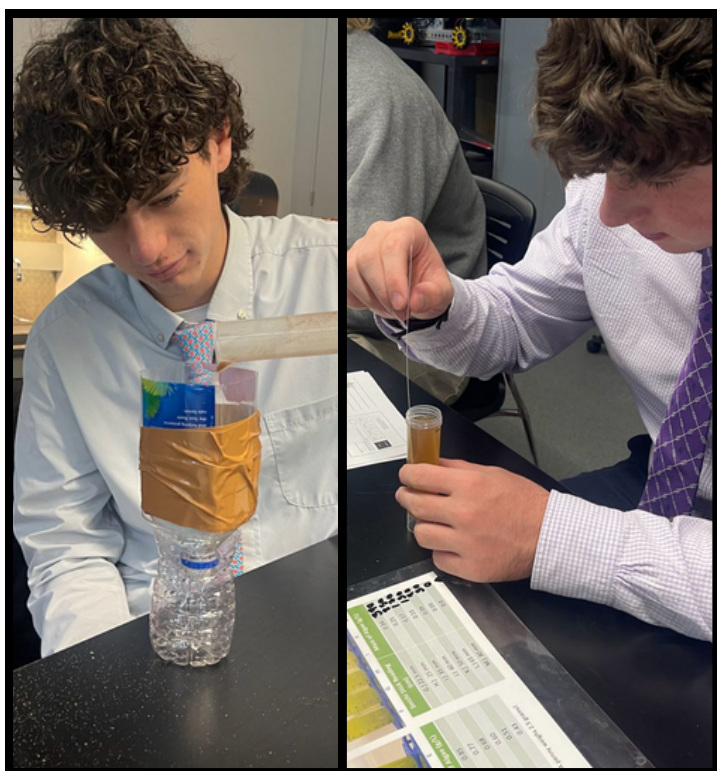
On Giving Day, we hosted a renewable energy design challenge where students participated in a sustainability-focused engineering competition. Their mission was to conceptualize and build windmills using recycled materials. The challenge was to create a design that mitigates the downsides of traditional wind turbines while still generating enough electricity to power an LED.

As they put their designs into action, students showcased their engineering prowess and their dedication to crafting eco-friendly solutions. The windmills they created stood not only as symbols of innovation but also as beacons of



sustainability, inspiring others to embrace the power of eco-conscious design.

Mrs. Cassandra Kinskey-Lebeda
Innovation Teacher



Water Filtration

As global water demand is projected to increase fivefold by 2050, the amount of fresh water on Earth will remain unchanged, presenting a formidable challenge for the future. Students in my **Ecology/Field Biology** class took proactive steps to understand and prepare for these looming water issues. With the help of Dr. Cohen, they reflected on their water footprint and delved into the complexities of purifying fresh water. Finally, students used the engineering design process and facilities in the McLeod Innovation Center to develop water filtration devices and test for water clarity. Redesigns improved on their initial efforts. The McLeod Innovation Center



provided a unique opportunity for our students to apply classroom learning in a practical manner.

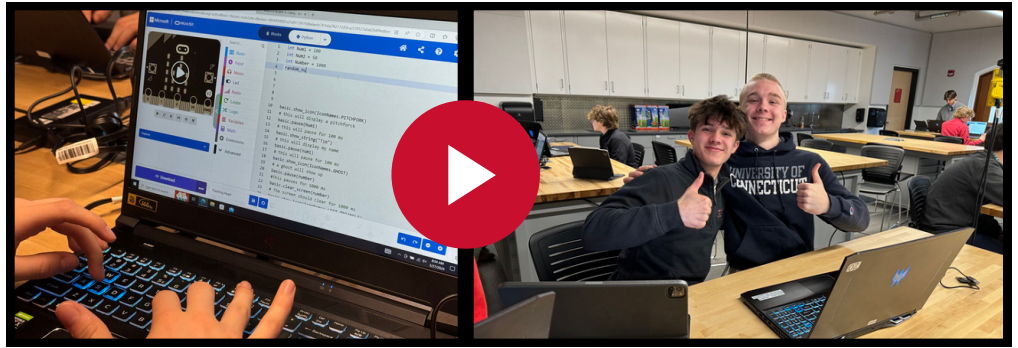
Bob Ford
Former Science Teacher

micro:bit

We were thrilled to launch the **Introduction to Innovation** course this year at Fairfield Prep. This new offering allows our incoming freshmen

to master a wide range of skills and interact with the diverse technologies available at the McLeod Innovation Center.

Our freshmen learned basic programming using Python. They programmed a micro:bit to function as interactive games like rock-paper-scissors and a digital eight-ball and to sound an alarm in response to movement or changes in light levels. This hands-on approach to programming deepened their understanding of coding principles and allowed them to apply them in real-world scenarios creatively. Observing our freshmen diligently refining their projects during their FREE periods was incredibly heartwarming, showcasing their enthusiasm and dedication. This level of curiosity and commitment demonstrates the transformative impact of innovative educational approaches on student learning and engagement. Click the play button above or scan the QR code to watch one of the micro:bit projects.



Earthquake-Proof Buildings

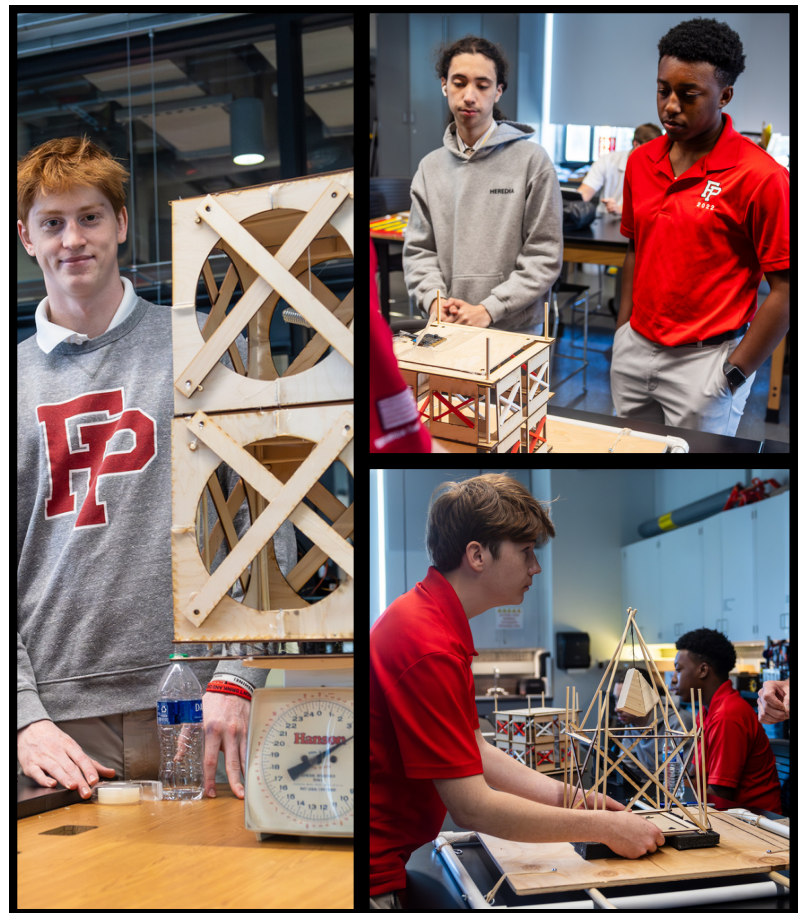


In my **Introduction to Engineering** and **Digital Fabrication** course, students embarked on a journey to learn about designing earthquake-proof structures. This culminated in an exciting performance test where they put their designs to the test on a shake table, mimicking seismic waves to evaluate the buildings' ability to withstand such forces. Each student-built model was assessed for cost and weight, integrating practical considerations into their engineering solutions. Additionally, we programmed a micro:bit to measure the effectiveness of each building during the simulated earthquake. A special thanks to engineers Mike Lonergan and Christopher Rodriguez for their invaluable insights and mentorship, which greatly enhanced our students' learning and understanding

of structural engineering in the context of earthquake safety.



Dr. Rinat Levy Cohen
Director of Innovation



AN INTERDISCIPLINARY EXPLORATION OF HYDROPONICS

In March of 2023, I was working with a group of students participating in an Urban Plunge, one of Prep's local service immersion programs. Students spend time working and serving at local schools and food banks where the need is greatest. On this particular Saturday, our students focused on food insecurity and how difficult it is to get fresh produce in more urban areas. After building containers for kitchen gardens, students were given a tour of a local hydroponics facility. I have to admit I knew nothing about hydroponics, and I was immediately fascinated by the tour. As I looked at the facility, my teacher brain began to turn; we could develop an interdisciplinary project with a group of creative teachers! And with that, I went back to Prep and told Dr. Cohen what I was dreaming about. By October, we had a team of excellent teachers working on the project!



In Dr. Cohen's course, students crafted hydroponic systems from scratch using raw materials. They cut and smoothed wood, painted components, and assembled wood and PVC pipes into sturdy, efficient setups. After assembly, they planted lettuce, initiating the growth cycle. This hands-on project deepened their understanding of hydroponics and sustainable farming. Mrs. Millott's students investigated how temperature, electrical conductivity, pH, and nutrient levels affect lettuce growth in hydroponic systems. They used their findings to create informative charts, tables, and posters.

They also analyzed the ongoing costs associated with maintaining these systems, considering their impact on potentially benefiting organizations and communities.



Ms. Jackson's students explored the nexus between social justice, climate change, and food insecurity. They examined how climate events disproportionately impact marginalized communities and linked these issues with teachings from Pope Francis' encyclical, *Laudato Si*, Principles of Environmental Justice, and the United Nations



Declaration of Human Rights. This analysis helped students understand the global interconnectedness of these challenges.

Ms. Elaine Clark
Academic Dean



GEOMETRY CLASSES CELEBRATE PI DAY



In March, the **Innovation and Math Departments** joined forces to orchestrate a dynamic Pi Day celebration for our students. The collaborative effort showcased the practical application of mathematical principles in innovative ways. The Innovation Department was pivotal in developing activities that infused artistic expression and hands-on experimentation into the celebration.

Students were immersed in a variety of engaging activities that not only reinforced their mathematical knowledge but also allowed them to experience math through different lenses. In one activity they measured the circumferences of various objects to understand Pi as the circumference-to-diameter ratio. They also applied their knowledge in the Buffon's Needle Game to explore probability and geometric reasoning. Additionally, a computer simulation demonstrated how collisions of objects can result in Pi, offering students a unique visual and interactive experience.

Together, we crafted an engaging and educational event that deepened students' understanding of mathematical concepts while sparking their creativity and imagination. Through interdisciplinary learning, students saw

firsthand how mathematical concepts can be dynamically applied in various real-world and theoretical contexts. We are excited to make Pi Day an annual event!

Mrs. Katherine Brennan
Math Department Head



EMPOWERING CONNECTIONS WITH COMMUNITY AND BIBLICAL CHARACTERS



"Book of Judges" Game Cards

In **Theology II**, we cover various events, figures, and deeper religious truths in the quest to understand the relationship between humanity and God within the Old Testament. The books of Judges, Samuel, and Kings provide rich learning and teaching experiences. Specifically, the characters presented are a nuanced blend of strengths and weaknesses, but all teach us something about the human condition and the will of the divine. Students are captivated by learning about Samson, David, and many others from these books.

I approached Dr. Cohen with the idea of having small groups of students develop a trading card game based on the various characters within Judges, Samuel, and Kings. Together, we created a process where students could collaborate and sharpen their technological and design skills. Using Adobe Illustrator to bring form to their ideas and utilizing the laser cutters and 3D printers in the McLeod Innovation Center, students were empowered to demonstrate their understanding of the various characters they read about in scripture

and bring them forth in a contemporary medium for an unforgettable learning experience that was an amazing success!



Mr. Vijay DaCosta
Theology Teacher



Mentorship Program with FCDS

This year, I launched a mentorship program with Fairfield Country Day School (FCDS) to foster empowerment, wellness, social media literacy, and balancing academic and athletic life. This program pairs Fairfield Prep students with FCDS Middle School students, offering a platform for both groups to exchange advice, experience, and professional development across various focuses and structures.

In March, a pivotal moment for the program occurred when Fairfield Prep mentors welcomed their FCDS mentees for their inaugural visit. Under Dr. Cohen's guidance and with their mentors' support, fifteen FCDS students participated in a hands-on activity at the McLeod Innovation Center, where they crafted light-up wristbands. The FCDS students were impressed by the

facilities, expressing their admiration for the resources available to Fairfield Prep students, which they can regularly utilize.



Mr. Ruben Goodwin
Director of Diversity
& Community Engagement