

Sneak Peak!

BANANAS!

Bello, pa poi! Have you ever wondered what we have in common with bananas? In this activity you will crack the genetic code and learn the secret to running longer distances without cramping.

Ready to light up your life? Dive into the electrifying world of soldering as you learn to piece together a circuit board! Use your skills to create a programmable blinking LED kit that will dazzle and amaze – it's tech magic at your fingertips!

Blinky POV

Cars 4

Interested in Mechatronics? Then this is the activity for you! Blending both electrical circuitry and software, you will be building an RC cars while learning about Raspberry Pi microcontrollers, circuit design, hardware, and C/C++ programming languages.

Create your own prototype to visualize drug diffusion! In this activity you will gain an understanding of the process of drug diffusion by experimenting and altering the rate of diffusion with safe materials in a way that is analogous to drug diffusion.

Drug Diffusion

Flow State

Go with the flow in this activity and learn what makes a lava lamp flow. Discover how intermolecular forces influence the behavior of oil, water, and gas bubbles by making your own lava lamp and watching chemistry come to life!

WE'RE ALL IN THIS TOGETHERRRRR! Who doesn't love music? We're well aware it's very personal, that's why we'll be developing analog and digital equalization (EQ) circuits so you can customize your listening experience through a 2-band filter setup, allowing you to personalize the bass and treble frequencies of your audio signal.

High School Musical

Kindergarten Teachers

Step into the fascinating world of Artificial Intelligence and explore the mysteries of machine learning! Develop a Machine Learning algorithm from a blank Python page and train your Teachable Machine to recognize numbers!

Secrets are meant to be discovered! Walk with me through a historical tour of cryptography... beginning in medieval Scotland. Understand the methods implemented to progress with the times, up to modern day RSA, and beyond, into future BB84 Quantum Key Distribution.

Kryptography

Liquid Nitrogen Ice Cream

Brrr! Learn about the three states of matter and the wonders of cryogenics by watching leaders make ice cream with liquid nitrogen. The best part? You get to eat the ice cream!


Plug into the sinister world of cyber threats and unveil the secrets behind different types of malware! Explore real python code to understand how these digital weapons work and sharpen your skills to become a malware master. You'll be ready to analyze the tricks used by cyber villains and outsmart them to keep your data secure!

Mal-where



Medieval Engineering

In the beginning ... early engineers sought to build defenses and prepare from enemy attack. In this activity you will design and build structures and catapults fit to withstand battle to see who will conquer the engineering kingdom.




Ready, set, float! You will embark on the engineering cycle to design and build boats using provided materials, aiming to navigate and conquer the PAC pool.

PAC Up and Row

Pitch Competition

Calling all innovators and changemakers! Develop a groundbreaking product to tackle a pressing social or environmental issue and then pitch your brilliant idea to a panel of judges. Show off your creativity and problem-solving skills in this exciting and inspiring challenge!





The five lights are out... and the Waterloo Grand Prix is underway! In this activity, you will learn the fundamentals of fluid mechanics and understand how to optimally design, simulate, and construct an aerodynamic Formula 1 car. You will test your designs in both a DIY wind tunnel downforce as well in a smoke machine wind tunnel to visualize the airflow.

The Secret Formula

Touching Grass

Lets go outside and play in the mud! In this activity you will investigate the microorganisms living in Laurel Creek. You will collect water and soil samples and enrich them, creating your own mini ecosystem to understand biogeochemical cycling.



Chemistry meets style! You will explore chemical reactions, electrochemistry, and nanotechnology while crafting titanium rings using anodization. Discover the science behind stunning jewelry in this hands-on activity.

That Ring is Ti-ght

