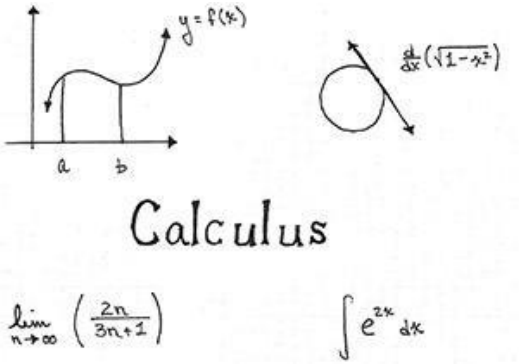
2019 Course Selections

Girls' Weeks

Calculus in a Week: Holy Smokes!

Instructor: James Robertson

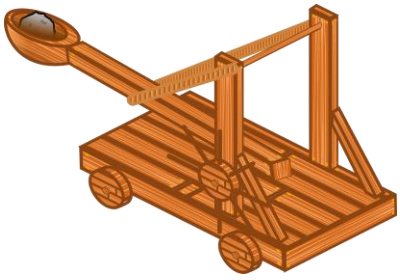
We are going to blast through calculus in a week! In this whirlwind tour of mathematics, we are going take a few functions and learn how to take limits, derivatives and integrals. Don't know what those are? You will at the end of the week! You might even know more than your math teacher!



Just Launch it

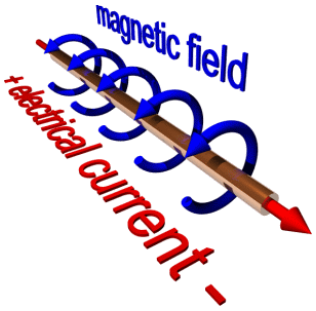
Instructor: Gary Kaszas

Students will create trebuchets/catapults in order to launch a projectile the farthest and with the most accuracy. They will complete their own design research, and construct them using materials supplied. By day 5 students will have applied Sine and Cosine, and eventually, at the end of the course be able to predict ballistic trajectories.



Put a Spark In It

Instructor: Gary Kaszas

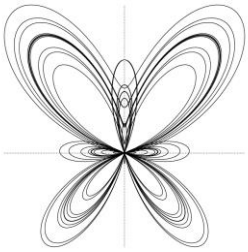


In an exploratory learning environment, students will experience the fun of electricity and magnetism through a variety of experiments, projects, and demonstrations. Students will build lemon batteries and saltwater batteries, construct wind generators and simple electric motors, levitate magnets and even tune into radio signals with their teeth!

Let's Make a "Scien-terpiece"

Instructor: Nicole Karod

We will discover different science concepts through art. Each concept will create amazing art pieces.



You Can Do the Cube

Instructor: Nicole Karod

We will look at the math behind the cube, the algorithms, and you will learn how to solve the cube! Then students will choose a mosaic for the class to work on and by the end of the course we will have made a large mosaic made entirely from rubik's cubes!

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How Healthy is Your Forest?

Instructor: Laurie Spooner

Do you want to learn how to identify tree species? Do you wonder how healthy the forest is around you? We will look at several characteristics that can be used to identify trees and learn some common tree species. We will also inspect the forest for indicators of health such as canopy transparency and dieback, indicators of decay on the trees, and lichen as an indicator of air quality.

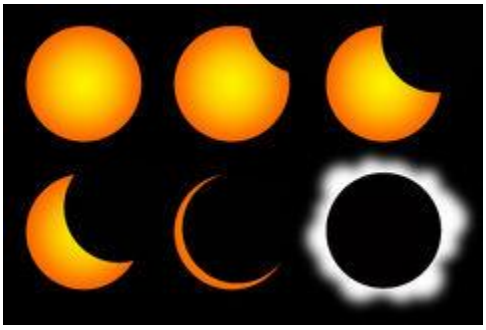
Lego Robotics for Experienced Users

Instructor: Laurie Spooner

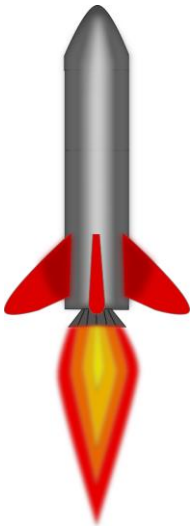
Are you ready to show off your building and programming skills? You and your team will work together to prepare for a pentathlon on the last day of class. On the first day, you will be introduced to the five challenges and provided the lego robotics kits. As the week progresses, you will plan, build, and program a robot to showcase your skills.

Eclipse Explorations

Instructor: Larry Berz



The overall thematic thrust of the week surrounds a hands-on vigorously interactive set of activities and lessons detailing those wonders of the Universe of singular interest to the middle school to early high school age student. Reinforcement occurs throughout the evening, including observations with telescopes and unaided eye.



Lift-Off!

Instructor: Larry Berz

The return of the hands-on, interactive discovery approach investigation of model rocketry along with personalized applications. Special emphasis placed upon rocket design and engineering, construction, instrument making, experimenting, team-building, launch skills, and math applications. Emphasis also placed upon historical significance of American and Soviet (Russian) aeronautics and space exploration during the 1960s and 1970s to provide documented evidence of American and Russian technological achievement and national determination.

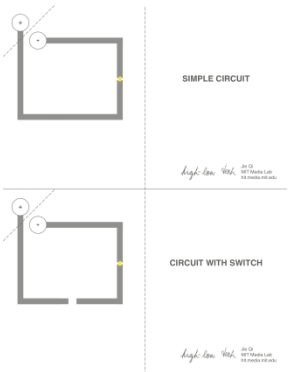
3D Printing

Instructor: Christopher Beckwith

Campers will design a 3D model of something that could benefit them in their everyday life. They may choose to design fins or a nose-cone for their rockets, a musical instrument, a puzzle, a smart phone accessory that illuminates a pattern on the wall/ceiling … whatever they imagine they can model in the application. Throughout the week, the instructor will analyze the students' designs and help them refine their models for successful printing. Ultimately, each student will be able to print a 3D model of their design using 3D printers.

Paper Circuits

Instructor: Christopher Beckwith



Students will use copper tape and LEDs, along with batteries and programmable chips, to create illuminated artwork.

Constructive Chaos

Instructor: Andy Whitman

Exploring the basic building blocks of all the structures around us. What they're made of, how they're made, and how they break. Every day would cover a major material or structure type, and students can be hands on from formation and creation, to testing their materials to failure.

Moneyball

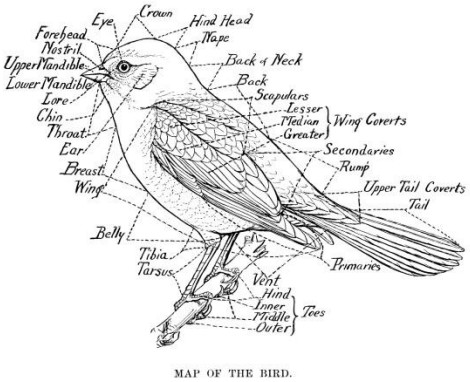
Instructor: Andy Whitman

A deep dive into the math and statistics as it applies to baseball and other sports. Students can learn the underlying mathematics that help professional sports teams today, then apply those to help them develop the best fantasy sports roster over the week.

Wildlife Illustration & Journaling

Instructor: James Dochtermann

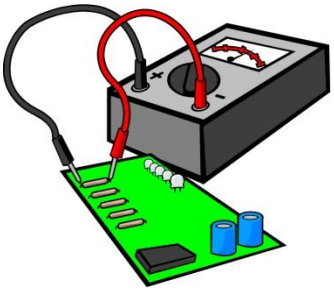
Students will explore historical connections to how scientists described and categorized the natural world through art and how many of them were quite skilled artists before the invention of the camera. We will develop our own science art journals by collecting natural specimens from campus and conducting field studies to create illustrations, and using field guides to positively ID species, and investigate, illustrate and write about the ecology of local habitats. Field trips to local wildlife refuges are a possibility. Advanced drawing/painting skills are not required but an interest in learning and trying is needed.



MAP OF THE BIRD.

Intro to Circuitry

Instructor: James Dochtermann



Students will learn how to create interactive, electronic objects by exploring the wiring behind the open-source electronic prototyping platform, Arduino. We may also do some small DIY electronic kits that require soldering and salvaging of electronic parts. Very hands-on with a requirement for strong hand-eye coordination and fine motor skills.

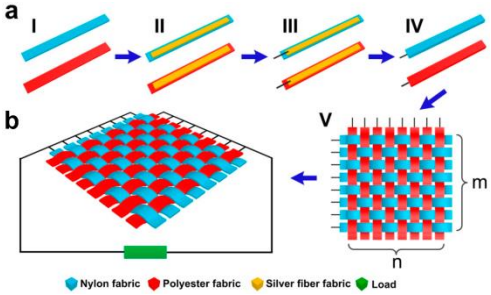
Origami in the 21st Century

Instructor: Junko Dochtermann

In this hands-on class, students will learn about how the ancient art form of origami is being used by modern science and engineering. We will make origami and learn the geometry behind it, along with other paper-based inventions. Japanese language learning will be incorporated into the lessons.

Electronic Fabrics & Fibers

Instructor: Junko Dochtermann



Students will learn the basics of electronics and wiring with different fabrics suitable to create wearable electronics. We will then design, prototype, and wear our own interactive, electronic garments. Very hands-on with a lot of experimentation loads of fun.