

Classes 2024

Campers will list their top 8 preferences the first night of camp

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PrintCraft: Unleash Your 3D Imagination! (All Weeks)

In this design class, creators will embark on a journey into the realm of 3D modeling and printing. Harnessing the power of tools like TinkerCad and SculptGL, students will hone the art of sculpting digital wonders from their wildest dreams. Budding designers will unlock the secrets of successful 3D modeling, learning essential strategies to bring their visions to life with precision and flair. From crafting intricate structures to sculpting fantastical creatures, imagination is boundless in this dynamic classroom. As a grand finale, each participant will have the opportunity to witness their creation materialize before their eyes, as they bring their masterpiece to reality using 3D printers. Join us in PrintCraft and immerse yourself in an environment of creativity, innovation, and boundless possibility.

Space Engineers: Escape from Mars! (All Weeks)

Welcome to Space Engineers: Escape from Mars! Where adventure awaits among the stars. In this pulse-pounding class, aspiring astronauts will dive headfirst into the thrilling world of space exploration. Buckle up as we journey to the dusty plains of Mars, where students will unite on a virtual server in the immersive game Space Engineers. Together, they'll face the ultimate challenge: salvaging spaceship wreckage from the Martian landscape. But that's just the beginning of their cosmic odyssey! Working in teams, our young engineers will pool their skills to construct a habitable base amidst the harsh Martian terrain. With creativity as their compass and cooperation as their fuel, they'll transform the barren landscape into a life-sustaining refuge of innovation and ingenuity. But the real test lies ahead: the race against time to reconstruct a functional spacecraft capable of ferrying them back to Earth. From salvaging materials to crafting intricate components, every decision will shape their destiny as they strive to escape the clutches of the Red Planet. Are you ready to defy gravity, conquer challenges, and soar to new heights?

City Constructors (All Weeks)

Campers will learn how cities grow over time: how they deal with certain geographical obstacles, how to successfully place pieces of infrastructure, and how they make themselves livable for their inhabitants. Campers will take this knowledge and create their own collaborative cities using cardboard and other materials, competing with other classes to design the best city possible!

Comic Book Heroes (All Weeks)

Campers will work on their own comic book over the course of the week. From coming up with a plot to designing their own protagonist, they will learn everything necessary to successfully create their own comic book. The end goal is a fully illustrated comic book of about 5-10 pages in length.

Are you a Rube? Goldberg that is! (Capstone 1 Only)

Do you like to build long complicated contraptions to complete a simplistic task? If so then this class is for you!

Explore simple machines and the wild and creative world of Rube Goldberg and create your very own Rube Goldberg Machine designed to ring a buzzer in the most complicated way possible. Students will work in teams to design, build, and test their designs culminating in a showcase for best design.

Stream Survey (Capstone 1 Only)

If you love nature and want to learn more about ecosystems, consider our stream survey class. Each day campers will walk down to the Limestone Creek and explore! We will conduct tests on water quality, biodiversity, and learn how ecologists and hydrologists do their jobs in the field. By the end of the week, students should have an understanding of what makes an ecosystem healthy and how we can do our part to preserve Maine's wild places.

Chess Etcetera (All Weeks)

We'll start with beginner topics, the rules, how the board is set-up
Basic goals, develop pieces, protect the king, make your position better-a
Play with pins, forks, and other foundations
Then spend a day with chess variations
Learn the game, get practice, have fun with chess, etcetera

Echo-o-o (All Weeks)

An exploration into the physics of sound waves
Like, when pressure hits something how do it behaves
Make instruments, play with hearing
Be loud, be quiet, do engineering
In sound's record, knowledge engraves

Programming (All Weeks)

Students will learn a language called Processing (similar to Java) to create interactive, visual programs. We usually end up making a game involving keyboard inputs, animation, physics, and geometry. These are projects that students can take home and keep working on after. The basic programming concepts from this class will translate well to any other computer language. We'll have a separate beginner (I've never programmed before) and intermediate (I've programmed some) version of this class.

The Tower of (Mathematical) Terror! (Capstone Weeks Only)

How tall is the MSSM radio tower? It seems like a simple question, right? Wrong. To answer that question, we will embark on a thrilling mathematical journey down a rabbit hole of math that just keeps getting deeper. We'll need to find a way to measure height from the ground, starting us off in the world of basic geometry. Quickly we'll find that we need to invent trigonometry, and we'll run with that as far as we can until we find ourselves face-to-face with the coolest theorem in calculus. With our eyes always set on the radio-tower-shaped prize, we will crash through years of high school and college-level math, and at the end of the week we might even get the right answer!

Calc U Later (All Weeks)

This class will be an exploration of key concepts of Calculus. We will look at a wide variety of functions, learn what limits are, and begin working with derivatives and possibly integrals. All these concepts that seem daunting are explained within this one-week snapshot of calculus! Have you ever wondered what calculus was, but didn't know where to start? If so, this class is a perfect introduction to these amazing mathematical concepts! The class will end with a battle of brains to demonstrate the newfound calculus knowledge.

Trek through Trigonometry (All Weeks)

This class will delve into angles, sines, cosines, and so much more trigonometric topics. We will look at and understand triangles, make spectacular graphs about them, and learn about the unit circle. After this class, campers will possess the mathematical tools to find trigonometric success. **It would probably only take around 3 days to teach this so I think it could be cool to have them make their own unit circle.

Architects in Training: LEGO Edition (Capstone Weeks)

In this class, we will learn about architecture and the structure of buildings. We will implement this knowledge by creating various structures to be tested for strength and durability. First we will make Lego towers, and see who made the best and most durable tower by trying to smash them. Then, we will make race tracks out of cardboard and see who can build the most structurally sound ones, and will use these race tracks at the end of the week. After our racetrack has been completed, we will build Lego cars and race them to discover who has made the most efficient one!

Stats and Strats: The Art of Board Game Design (Capstone Weeks)

In this class, we will explore probability and statistics and learn how it plays an integral role in board games. Activities include figuring out the probability of winning a tic-tac-toe game based on where they put their first X, or the likelihood of getting a Yahtzee. The week will progress through basic statistics and how it works in current games with dice. In the final days of the week we will create our own brand new board games and implement some sort of probability and statistics. If you want to learn how to win, this class is for you!

CSI: Limestone (All Weeks)

It's a real whodunit! CSI: Limestone introduces students to the fascinating world of forensic science through hands-on activities, engaging experiments, and interactive lessons. Students will learn the basics of forensic investigation, including crime scene analysis, evidence collection, fingerprinting, hair and fiber analysis, tool mark identification, and more. Students will employ these scientific methods to solve a mystery on campus, all while developing critical thinking skills and gaining a deeper understanding of the role of forensic science in solving crimes.

Reverse Engineering Breakerspace: constructive destruction! (All Weeks)

Reverse Engineering Breakerspace is an innovative class that invites students to explore engineering principles by deconstructing household appliances and gadgets. Through hands-on disassembly, students will gain insights into the design, construction, and function of everyday objects, fostering a deeper understanding of engineering concepts such as mechanisms, materials, and systems. Working in a collaborative and exploratory environment, students will develop critical thinking skills and an appreciation for the intricacies of engineering. After all the deconstruction, students will apply the principles and skills they learned to reconstruct or recombine to build something new!

You Can Do the Cube (All Weeks)

This class will take young cubers of all skill levels and teach them the basics of how to solve a Rubik's Cube. Students can go from having never seen a Rubik's cube to solving one without instructions by the end of the week. We will also look into the math behind the cube and make Rubik's cube mosaics, time permitting.

Higher Level Cubing (Capstone only)

For those that already know the basics of Rubik's cube solving but want to learn more of speed cubing and additional puzzles, this is the class for you. We will learn about more advanced speed cubing methods including CFOP and Roux. We also will learn methods for additional twisty puzzles.

Engineering Exploration (All Weeks)

Engineering is a vast profession with many different fields. In this class we will take a look at different types of engineering and how they are used in the real world. This will be a very hands-on class with different focuses being taken depending on the interests of the class.

Eggstravagant Extraterrestrial Excursion (All Weeks)

Imagine you have landed on a mysterious alien planet teeming with possibilities. Your mission begins with harnessing the planet's abundant lemon supply to create lemon batteries. Campers will delve into the science behind this simple but fascinating source of power, understanding how citrus can generate electricity.

Next, as the alien landscape needs illumination, we will explore the wonders of copper wire and LEDs. Campers will learn how to construct basic circuits and use these components to light up different areas of our alien environment. This hands-on activity will provide a fundamental understanding of electricity and circuitry in a fun and engaging way.

The final and most thrilling challenge is to build an alien landing capsule capable of safely delivering an egg (our alien) from a height of over 20 feet. Using a variety of materials and engineering principles, campers will design and test their capsules, ensuring the precious cargo remains intact upon landing. This activity combines creativity, problem-solving, and practical application of physics.

Soaring Skyward (All Weeks)

This class takes campers on an exciting journey through the world of flight. We begin with the basics by making paper airplanes. Campers will explore different designs and techniques, discovering how slight changes can affect their planes' flight paths and distances.

Next, we dive into the science of aerodynamics, experimenting with ways to make our paper airplanes fly farther. Through trials and adjustments, campers will learn how weight distribution, wing shape, and launch techniques impact performance.

As we progress, the class will transition from paper airplanes to the art of kite making. Campers will understand the principles of lift and drag by constructing kites and adding kite tails. They will see firsthand how these elements work together to keep a kite stable and soaring high in the sky.

The grand finale is a collaborative effort to create a mega paper airplane. Using larger materials and incorporating everything they've learned, campers will design and build an oversized plane. The climax of the class will be a thrilling test flight from a hill on campus, aiming for maximum distance and flight time.

Lift Off! (All Weeks)

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.

Astronomical Adventure Tour (All Weeks)

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.

Real Life CSI (Girls' Week Only)

Cadets will learn how to fingerprint each other using an inkpad and printed cards. They will then learn to lift latent fingerprints from objects. In the final two days, they will stage and solve a simple crime scene: Who stole their object?

Dr. J's Chemistry Lab (All Weeks)

Dr. Jayasundara is Chemistry Teacher at UMPI and MSSM. In his actual lab he will take you through hands-on experiments that bring science to life! Explore the wonders of chemistry through engaging activities like the Soda Balloon and Soap Bubble experiments. Create Milk Plastic and discover Magic Stars. Watch colors blend with the Walking Rainbow and make art with Floating Ink. Witness eruptions with the Lemon Volcano and power a boat with baking soda. Decorate your projects with markers and stickers for a personal touch. Transform an egg with vinegar and craft a DIY Slushie. We will end the week with Elephant Toothpaste. If you don't know what that is, you should google it and look for a video by Mark Rober. Get ready to ignite your curiosity and creativity!