

Challenge Camp



A Summer of Fun and Learning, too!

This is our Challenge Camp class schedule for Summer 2023. The schedule is subject to change for compliance with State and County Health Department guidelines.

- 1) **A full day of camp consists of 5 classes and is from 9am – 4pm.** Morning Workshops are 90 minutes (9:00 and 10:30), and Afternoon Classes 60 minutes (1:00, 2:00 & 3:00) are a mixture of sports and enrichment options as campers are encouraged to challenge both their minds and bodies.
- 2) We use camper's **CURRENT GRADE as of September 2022** for class selection.
- 3) There are over 100 STEM & Arts Enrichment Options for you to customize a schedule based on your child's interests. Everything at Challenge Camp is elective, your camper takes the classes you select for the entire 4 week or 3 week session.
- 4) Certain courses may have a materials fee listed. These are typically for class kits or projects.
- 5) If you need assistance or have any questions, please email info@challengecamps.com or call the camp office on 914-779-6024.

Challenge Camp – Summer 2023

1) Science Magic **Session 1** **9:00** **Grades K-1**
Instructor: Michael Donovan **10:30** **Grades 2-3**

Get ready for a wondrous experience as we learn the science behind these seemingly "magical" experiments! We will explore scientific principles as we experiment with thunder and lightning in a bottle, make eggs bounce, craft frozen silly putty, keep paper underwater dry, create glowing slime, pierce a straw through an apple and much more. This class allows young scientists to think creatively, problem solve and draw conclusions while discovering the magic behind science. Grab your lab goggles and get ready for spectacular science fun!

2) Planes, Trains & Automobiles **Session 2** **9:00** **Grades K-1**
Instructor: Michael Donovan **10:30** **Grades 2-3**

Have you ever wondered how an airplane flies or what makes a boat floats? Join us on a fast-paced journey as we create various forms of transportation and learn the scientific principles behind them. Campers will apply basic engineering and physics to the construction of soap box derby cars, boats, planes, trains, rocket ships, and more! In this class, campers will be introduced to STEM concepts and learn about the scientific process – making a hypothesis, predicting, experimenting, and drawing conclusions. All powered by rubber bands, propellers, hydraulics, and imagination!

* **Supply Fee: \$30**

3) STEAM Art Studio **Session 1** **9:00** **Grades 2-3**
Instructor: Anne O'Connor **10:30** **Grades K-1**

If you are an artist with a scientific bent, or a scientist or engineer with artistic inclinations, this is the class for you! Discover how changing the shape of an object can make it stronger as you build bridges, castles, and treehouses. Develop your understanding of potential and kinetic energy, gravity and friction as you design and decorate a race car or construct a beautifully painted marble run. You can capture a rainbow on paper using refraction, create a spectacular volcanic landscape with acid-base reactions, make a mesmerizing sensory bottle exploring the varying densities of liquids and solids, and learn about viscosity while testing the properties of different slime recipes.

4) Pixicade Game Maker **Session 2** **9:00** **Grades 2-3**
Instructor: STEM STAFF **10:30** **Grades K-1**

Have you ever wanted to create your own video game? Do you like to doodle or draw? In this class you will learn how to make your very own video games using Pixicade! All you need to do is draw, then watch your doodles magically come to life as playable games. Campers will learn to use the exciting new Pixicade App and all of its editing and Power-Up features! This exciting class will teach campers game mechanics and concepts through STEAM and literacy exploration and mini drawing lessons. At the end of the session campers will have a collection of games they created from the stories, characters, goals, worlds, hazards and game challenges developed in class.

* **Pixicade Kit Fee: \$30**

5) The Artist's Palette

Session 1 9:00 Grades K-2

Instructor: Lida Zimmerman

An art palette is full of life! Red roars, blue whispers, and yellow yells about the possibilities and appreciation of color you can achieve. Create rainbows, jungles, landscapes and still life with your new understanding of color theory as a means of self-expression. Our art projects will include various mediums such as paint, crayons, colored pencils, cut paper and pastels. We will look at the works of great artists, highlighting Picasso, Pollack, Van Gogh and Monet to explore how their unique ways of using color have made their works special. There will be an exhibition to showcase the children's art. Remember Da Vinci produced his first masterpiece at age 18... so you will have a head start!

6) If You Give a Camper Art Supplies...

Session 1 10:30 Grades K-1

Instructor: Lida Zimmerman

Everyone loves Laura Numeroff's books "If You Give A Mouse a Cookie", "If You Give a Pig a Party", "If You Give a Moose a Muffin" and many more. Through reading her stories highlighting comedy, fantasy, friendship, kindness and generosity, we will create animal and food art from the books utilizing different mediums. Through model magic, paint, paper, markers and more we will design cupcakes and muffins, pig masks, magical mice, and even some of our own stories and characters!

7) Painting ROCKS!

Session 2 9:00 Grades 1-3

Instructor: Lida Zimmerman

Rock painting is a wonderful way to decorate indoor or outdoor spaces. After selecting and priming your rocks, you'll turn them into animals, foods, images, or even characters like Minions and emojis! The possibilities to enhance nature's wonders are endless. Bring happiness to your home or garden with your one of a kind hand-painted rock collection.

8) The Enchanted Castle

Session 2 10:30 Grades K-2

Instructor: Lida Zimmerman

Join us on an imaginative, magical, fantastical, artistic journey into the land of fairy tales: pixies, princesses, princes, knights and dragons. This literature-based art course explores our favorite fairy tales, myths and magical stories. You will build an exciting castle, storyland or characters complete with gemstone and sparkling royal crowns, fanciful hats and enchanted projects to enhance our storytelling experience. You are cordially invited to our Castle in the Kingdom for our Royal Banquet!

9) Fine Feathered Friends

Session 1 9:00 Grades K-2

Instructor: Al Pearlman

10:30 Grades K-1

Did you know there are over 18,000 different birds in the world? Did you know that birds evolved from dinosaurs? These feathered friends are some of the most amazing creatures on Earth. In this class, we will become experts on a variety of birds, from the smallest (hummingbird), to the largest (ostrich), to the fastest (falcon), and so many others. You will make your own bird wings to "fly" around camp and build birdhouses for them to live in. Join us to learn about these fascinating feathered friends!

10) A Bug's Life
Instructor: Al Pearlman

Session 2 **9:00** **Grades 2-3**
10:30 **Grades K-1**

Ugh! A bug! In this class, bugs don't bug us! Are you just "buggy" about the lives of insects? Then come join us we explore the amazing world of entomology. This course will be an exciting hands-on approach to studying insects. Watch caterpillars grow into colorful lively butterflies. Observe a ladybug lay egg on a leaf. Experience the incredible process of how silkworms produce silk. Fun activities include going on an insect hunt, constructing your own butterfly house, creating an insect book, designing a bug mobile, and more!

11) LEGO Tech Junior
Instructor: STEM Staff

Session 1 & 2 **9:00** **Grades K-2**

Use Legos as the inspiration to construct, investigate and communicate like little Einsteins. Students will use models to predict, observe, measure and collect data, experiencing forces, motion, energy, mechanisms and magnetism first hand. They will develop complex problem-solving skills and understand the interaction between forces and motion, measurement, energy, speed (velocity) and weight (mass). This course is will introduce campers to simple machines concepts while building teamwork and communication skills. They will discover basic physical science concepts such as gears, pulleys, levers, and wheels and axles through observation, reasoning, prediction, and critical thinking.
*** Lego Fee: \$25**

12) LEGO Tech
Instructor: STEM Staff

Session 1 & 2 **10:30** **Grades 2-4**

Are you curious about how things work? Do you ask the question "why" often? Do you dream of tomorrow? Then come and enjoy "Lego's Simple and Motorized Mechanisms." This course is designed to give campers an understanding of machines, mechanisms, structures, and mechanical advantage. You will explore the world of technology by studying and building projects that use renewable and alternative energy sources such as wind, solar power, water and your own body. You will investigate energy supply, transfer, accumulation, conversion and consumption through hands-on activities and exciting real life models. You are the engineer, you design, you build, you turn your dreams into reality.
*** Lego Fee: \$25**

13) The Illusionist
Instructor: Joseph Fields

Session 1 & 2 **10:30** **Grades 1-4**

Have you ever wanted to make a coin disappear, read someone else's mind, make solid objects pass through each other or cause a rope cut in two to magically restore itself? Learn how to do this and much more by joining renowned magician Joseph Fields to uncover magic's biggest secrets, fool your friends and be the life of the party. The delightful art of balloon sculpture will also be taught. Transform yourself into an illusionist with a personalized magic briefcase full of tricks!
*** Magic Fee: \$40**

14) Checkmate
Instructor: STAFF

Session 1 & 2 9:00 Grades K-2
Session 1 & 2 10:30 Grades 1-4

An introduction to the exciting world of chess. Chess enables children to develop and enhance their skills in discipline, concentration and patience. Students will learn basic opening, middlegame, and endgame strategies and how to achieve a proper coordination of pieces. Students will learn useful skills such as pattern recognition, calculating and analyzing. Chess notation will be taught in order to review games. Interactive instruction will focus on lecture, discussion and basic strategy.

15) Around the World
Instructor: Rathi Gulati

Session 2 9:00 Grades K-2
10:30 Grades 2-4
Session 1 10:30 Grades K-2

Travel around all seven continents in one camp session! The trips are planned, and your tickets have been purchased, but where in the world are you going? Follow the clues on our map to help us get to our destination. You will make your own passport and board a plane to explore each country as you solve the riddles that lead you to them. At each destination you will sample the food, listen to the music, play the games, enjoy the stories, create the art and celebrate the holidays of that country. If you've always wondered about life in faraway lands, then pack your bags as we take a terrific trip around the world!

16) Math Explorations
Instructor: STAFF

Session 2 9:00 Grades 2-3
10:30 Grades K-1

Join us in summertime math exploration as we introduce mathematical vocabulary, basic arithmetic and analytical skills for younger numbers fans! In time, fun math activities will include sets, patterns, fraction hunts, multiplication games, logic puzzles, group problem solving, riddles and brain teasers. This high energy class will help develop campers' curiosity, courage and confidence to take on any math challenges.

17) The Spongebob Musical – Youth Edition!
Artistic Director: Anne Pasquale
Musical Director: Regina Talbot

Session 1 9:00 Grades 1-4
10:30 Grades 4-9

The stakes are higher than ever in this dynamic stage musical, as SpongeBob and all of Bikini Bottom face the total annihilation of their undersea world. Chaos erupts. Lives hang in the balance. And just when all hope seems lost, a most unexpected hero rises up and takes center stage. The power of optimism really can save the world! Campers are invited to join the cast and crew of this hilarious musical as we sing, dance, and more, all while telling a story based on the beloved animated series.

*** Script, score, costume and materials fee: \$50**

18) Sleeping Beauty and Magnificent Maleficent
Artistic Director: Anne Pasquale

Session 2 9:00 Grades 1-4
10:30 Grades 4-9

The Classic legend of Maleficent is now brought to life at Challenge! Trouble ensues when the birth of Princess Aurora is celebrated throughout the land and Maleficent the Magnificent is not invited to the festivities. The Wicked Fairy and her Gruesome Ghouls arrive, place a 100 year sleeping curse upon the kingdom that can only be broken by true love's kiss. Let's sing and dance our way through this spell-binding production!

*** Script, score, costume and materials fee: \$50**

19) Minecraft City Builders
Instructor: STEM Staff

Session 1 9:00 Grades 1-3
Session 1 & 2 10:30 Grades 1-3

How are cities planned? Who decides what a building looks like and where it should go? What role do parks and other public spaces play in a city? What are the integral components of cities that they need to function? Campers will plan, design and build a city using Minecraft Education edition! Minecraft will be used to enhance creativity, problem-solving, self-direction, and collaboration skills.

20) Edison Robotics
Instructor: STEM Staff

Session 2 9:00 Grades 2-4

Enter the world of robotics and coding with Edison Robotics. The Edison robot is a powerful, engaging tool for teaching children computational thinking and computer programming in a hands-on way. Campers can immerse themselves in a variety of STEM and engineering projects as they learn to build and invent. Using the EdBlocks and EdScratch software, these programmable robots will open up the world of coding and bring computer science to life. Students will take home their kit to continue exploring with Edison.

*** Robot fee: \$75**

21) Tiny Habitats
Instructor: Anne O'Connor

Session 2 9:00 Grades 1-3

We will use a variety of sculptural materials including clay, paper mache and natural objects to create miniature landscapes in shadowboxes and dioramas. Create a tiny habitat for your favorite animal, such as a turtle pond, a butterfly garden, or a dinosaur jungle. Or you can design alien planets, farms, castles, and more.

22) Little Fashionistas
Instructor: Sherita Cuffee

Session 1 9:00 Grades 2-4

For all aspiring fashion designers, this is the perfect class for you! A professional designer will teach techniques of fashion design by creating fashion illustrations inspired by a mood board. Using individual imagination, fabric swatches, and a color story, each aspiring designer will have fun producing their own fashion garment or accessory to showcase their unique style at the final fashion show!

*** Fashion Fee: \$40**

23) Fashion Reimagined: The Art of Upcycling**Session 2 10:30 Grades 2-4****Instructor: Uvana Doran**

Turn a basic garment into the next season's fashion must-have! Aspiring designers will learn how to take ordinary fashion "basics" and turn them into one-of-a-kind fashion pieces. With the help of a sewing machine, hand-sewing techniques, and decorative trims, designers will learn about the upcycling process to give new life to existing clothing items as a reimagined runway garment!

*** Fashion Fee: \$30****24) Code Central: Javascript Animation and Design****Session 1 & 2 9:00 Grades 3-6****Instructor: Neil Grand**

Learn coding basics while having fun creating animation, games and sketch art. We will be using a version of Javascript known as p5.js. Javascript is the most widely used computer programming language and the backbone to most web pages. p5.js makes coding fun and easy for artists, designers and beginners. In less than 15 lines, you will be able to create an arrow shooting across the screen or a waterfall of balloons of different sizes and colors bouncing around the screen (and needing to be popped!) p5.js is great for visual learners. You will learn how to create variables, loops and algorithms.

25) Photo Finish**Session 1 & 2 9:00 Grades 3-9****Instructor: Liz Steger-Hartzman**

This exciting class will teach the fundamentals of basic digital photography to capture images throughout the camp or home setting. Campers are required to have a fully charged digital camera or cell phone camera. Each day, Liz will teach you all you need to know to develop your photographic eye. Class time will be spent learning technique, shooting pictures and creating your portfolio for weekly contests. Each camper will receive a personal printed portfolio featuring their best work.

26) Fun with Photoshop**Session 1 & 2 10:30 Grades 5-9****Instructor: Liz Steger-Hartzman**

Have you ever wondered how funny pictures are made? Have you seen a cat's head looking natural on a person's body? What about the imperfect photo made perfect? In this class you will learn about all of the tools to enhance your pictures and make fun photos. Topics include basic image editing, transformation, retouching, enhancement, and compositing taught by a professional photographer. Campers will work on their own portfolios and participate in group projects. We will be working in Photoshop CC and students participating in Photo Finish will learn advanced techniques.

*** Photoshop Fee: \$50**

27) Junior Entrepreneur
Instructor: Sid Jain

Session 1 **9:00** **Grades 3-5**
10:30 **Grades 5-9**

Have you ever wanted to run your own small business and make your own design, plan, price and sales decisions? Campers will enter the “shark tank” and become entrepreneurs building an idea from scratch and ending with a business plan. You will generate a product or service and decide how to market and advertise. After honing your analytical, logical and communication skills, you'll confidently present your plan to "investors" from Wall Street and raise play-money. Learning practical and operational aspects of the stock market, campers will determine the most viable businesses. Entrepreneurs will also brainstorm ideas for the Challenge Cares Carnival. The money raised will be used for the charitable entity chosen by Challenge Camp.

28) Op Art
Instructor: Ana Saura

Session 1 **9:00** **Grades 4-9**

Op Art, also called Optical Art, is a compilation of bewildering images which play tricks on your eyes and brain. These fascinating visual illusions are a reminder that our senses are imperfect, and our perception of the world is often distorted. We will examine various types of Op Art, from M.C. Escher to the more modern Gianni Sarcone, and discover how to make these amazing paintings and drawings that trick the senses. Your original optical wonder artwork will thrill all, because NOTHING is what it seems in the Museum of Illusions!

29) I Want My Mummy
Instructor: Ana Saura

Session 1 **10:30** **Grades 2-6**

Travel back in time to the land of the Pharaohs and explore the wondrous pyramids and miraculous mummies. Learn about the life of the Egyptians of thousands of years ago filled with unbelievable riches and golden jewels. Create fascinating artifacts from this ancient civilization such as paper plaster carvings, maps, pyramid models, mummy cases, jewelry and paper Mache mummies. You will write in hieroglyphics and recreate it on papyrus that you will craft. Come join us in an artistic world of mystery, wonder and intrigue!

30) Collage Painting
Instructor: Ana Saura

Session 2 **9:00** **Grades 2-6**

Join us to create a great masterpiece using the unique process of painting and paper collage! Campers will create original drawings of animals, figures or portraits, which will dazzle when painted and completed with colorful papers from magazines or newspapers!

31) Fine Art Finds
Instructor: Ana Saura

Session 2 **10:30** **Grades 3-9**

Design your very own wooden keepsake or treasure box to brighten your bedroom! Inspired by Monet and Van Gogh campers will exhibit creative freedom as they prepare, sand, paint, decorate and gloss their unfinished keepsake box. We'll use paint, art images, decoupage, and more. This cool art class is perfect for campers to illustrate fine art creativity and uniqueness to storing their personal items.

Material Fee: \$25

32) Stop Motion Laboratory
Instructor: Anne O'Connor

Session 2 10:30 Grades 3-6

Whether you love drawing, painting and sculpture or whether you would like to write stories or act out dramatic scenes, you will have fun exploring the possibilities of animation. Spend a little time learning the basics of handling the camera setup and stop-motion app, then let your imagination take off as you bring your drawings to life or create your own 3-D characters with modeling clay. You can also use small toys, or even animate real people in your films. Students will receive a digital copy of their films.

33) The Illusionist 2
Instructor: Joseph Fields

Session 1 & 2 9:00 Grades 4-9

Would you like to perform like Criss Angel, David Blaine, and David Copperfield? If you would, this is your chance to discover the magic secrets that these and many other professionals use to baffle audiences worldwide. Join Joseph Fields this summer and learn the secrets, the sleight of hand and the proverbial tricks of the trade that helped make these professionals famous. Imagination, individuality and creativity will be encouraged to develop a personal magical act with polished showmanship. Extraordinary and advanced balloon sculpture techniques will be learned! Advanced magical secrets of illusion, levitation and sleight-of-hand will highlight this course as well as presentation and performance before an audience. Enhance your skills and transform yourself into a master illusionist with your personalized magic briefcase full of tricks.

Magic Fee: \$50

34) Drone Flight School
Instructor: Drone Cadets

Session 2 9:00 Grades 2-5
Session 1 & 2 10:30 Grades 3-9
Session 1 9:00 Grades 3-9

This beginning drone class will explore the various uses of drones. They can be used for delivery, surveillance and security, aerial photography, filmmaking and more! In Drone Flight School, campers will receive practical, hands-on instruction that gives them the exciting experience of flying a drone through obstacles, while learning the FAA required rules and safety procedures. As their skills progress, they will begin coding autonomous drone flight to promote further STEM learning and provide real-world career insights. Campers will fly and take home their pre-assembled drones! Drone Cadets helps spark the bright young minds of students of all ages and light up new pathways for further scientific exploration.

Drone Fee: \$350

35) Dash Robotics
Instructor: STEM Staff

Session 1 9:00 Grades 4-5
10:30 Grades 2-3

Woohoo! Meet Dash, a real robot that will make learning to code fun. Responding to voice, navigating objects, dancing, and singing, Dash is the robot you always dreamed of having. Campers will use Wonder, Blockly, and other apps to create new behaviors for Dash — doing more with robotics than ever possible. Let Dash open a canvas for exploration and collaboration by unleashing your creativity as you program Dash to greet you, deliver a message to a friend, follow you on a journey, and become a true partner in fun.

*** Robot Fee: \$175**

36) Math-letics
Instructor: STAFF

Session 1 10:30 Grades 3-6

The speed of a runner, the number of points scored, a batter's average, a goalie's save percentage . . . Math is everywhere in the world of sports and a fun way study numbers and logic in this hands-on and engaging class. Campers will sharpen your pencils and math skills with numerical sequences, logic puzzles, brain teasers and Sudokus. We will play Fantasy Baseball to understand and analyze statistics. Campers will draft their own baseball players and track their player results. By learning about the mathematics and statistics behind baseball, basketball, soccer and more, you will find you better understand the sports you love.

37) Quiz Show
Instructor: STAFF

Session 1 9:00 Grades 4-9

How much do you know about movies, history, sports, music, science, and geography? Impress your classmates in our competitive and fun games of trivia knowledge! Campers will work in teams to be the champions of the day, week and even entire camp session. You'll even have a chance to write some of your own questions to stump your classmates! Join us for this fun, fast-paced experience that will test your knowledge of academic subjects, pop culture, current events and more!

39) Digital Film Academy
Instructor: Tony Ely

Session 1 9:00 Grades 6-9
10:30 Grades 4-5

Let's make movies! In this interactive digital movie making class students will participate in the full creative process of developing an original professional short film. With a professional Director leading the production, campers will be part of a high-quality collaborative team effort to brainstorm ideas and costumes, write, location scout, shoot, direct, act and edit their film. Campers will gain an enhanced understanding of digital media while learning appropriate and responsible use of technology to become good digital citizens. We can't wait to see the premiere!

Film Fee: \$50

40) Escape Room
Instructor: STEM STAFF

Session 1 9:00 Grades 4-9
Session 1 & 2 10:30 Grades 4-9

Trapped in a room with a group of friends with only one way out, you must search for clues and solve several kinds of puzzles and riddles to plot your great escape. When the challenge has been mastered, you will be guaranteed laughter, a sense of accomplishment and a new respect for your classmates and their abilities. Groups will complete a series of escape room challenges together and will then design their own escape room models and games for others to solve. This is an experience that will be remembered for a lifetime... assuming you ever make it out!

41) Challenge Makerspace
Instructor: Michael Nathenson

Session 1 **9:00** **Grades 5-9**
10:30 **Grades 3-5**

Are you eager to create and experiment utilizing engineering principles? Challenge Camp Makerspace provides a creative way for students to design, experiment, build, and invent in a science, engineering and tinkering environment. In this project-based STEAM class, campers will work in a collaborative environment and develop their problem-solving skills. Woodworking, electricity, as well as force and motion will all be explored through hands-on projects. Sample activities may include building catapults, model electric cars and creating our own electric motors.

Maker Fee: \$100

42) Cardboard Engineering
Instructor: Michael Nathenson

Session 2 **9:00** **Grades 5-9**
10:30 **Grades 3-5**

Enter the Makerspace to engage in a fan favorite medium... Cardboard! Campers will invent and create a variety of projects utilizing simple yet versatile cardboard as a base. Campers will learn and apply electrical, civil, and mechanical engineering to develop sample projects such as mini cities, foosball/carnival games, suits of historical armor, and even bridges capable of withstanding hundreds of pounds. Art, science, and engineering will come together to provide students an interdisciplinary way to indulge their passions in our collaborative learning environment.

Engineering Fee: \$75

43) Speakers Corner
Instructor: Rathi Gulati

Session 1 **9:00** **Grades 4-9**

Learn the art of persuasion in this writing and public speaking course. We'll work on organizing your thoughts and conveying them in a way that grabs attention and leaves a strong impression. We will brainstorm ideas on topics to consider, for example: If you could make one major change to your school or community, what would it be and why? The class will divide into groups to compare the pros and cons and develop a strategy for their preferred option. Through persuasive speaking methods we will develop the skills to put together a convincing argument. Various tools such as Keynote and poster boards will be used for creative ways of presenting a position. We will help boost confidence by focusing in on key aspects of good public speaking: eye contact, facial expressions, body language, and even tackle how to deal with nervous energy. At the end of the session students will present their individual ideas and have group final presentations.

44) Beautiful Biology
Instructor: STEM STAFF

Session 1 **9:00** **Grades 3-5**
10:30 **Grades 5-9**

Take a fascinating journey into fun and easy experiments focused on biology, the science of life! We'll explore Gummy Bear Osmosis, Colorful Capillary Action, Flower Dissection and more! Learn what DNA is and have fun extracting it in our lab. Learn about fingerprints and cells, and what makes each of us unique and what binds us together so closely. Join us to learn what makes biology so beautiful!

45) Adventures in the Lab**Instructor: STEM STAFF****Session 1****9:00 Grades 5-9****10:30 Grades 3-5**

Are you fascinated by science? Join us for an adventure into the scientific world where we will perform hands-on experiments! We will learn about different chemical compounds, conduct demonstrations to observe different chemical principles, and make science come alive. We will learn about exothermic reactions by making elephant toothpaste, rainbow volcanoes, Oobleck and more! See the world with amazement and wonder as we embark on our lab adventures!

46) Radical Chemistry**Instructor: STEM STAFF****Session 2****9:00 Grades 3-5****10:30 Grades 5-9**

Calling all chemists! In this course we will learn about how chemistry plays a role in our everyday life. Learn what Elements, Atoms, Molecules and Ions are. We will learn about crystallization by studying rock candy, exothermic reactions by making elephant's toothpaste and acid base reactions by blowing up a balloon with a water bottle. Have you ever wondered how a raw egg would look without its shell, how to make a lava lamp or what type of fruit is the most acidic? Then this class is for you! Young scientists can join us in the lab for an enlightening, hands-on experience and see the world with amazement and wonder!

47) HACKS – Creative Problem-Solving**Instructor: STEM STAFF****Session 2****9:00 Grades 5-9****10:30 Grades 3-5**

A HACK is a strategy or technique for managing one's time or activities more efficiently. HACK-A-THONS, which don't necessarily involve technology, allow children to test their skills and to gain experience working with a team, solving actual problems. Many of us use "life hack" tricks every day, from using a binder clip to seal a bag in the kitchen, to tying a colored ribbon on luggage or using an eyeglass case to hold charging cables in our backpack. We will analyze the characteristics of good life hacks and even create new ones of our own using a maker mentality. We will also be presented with Hack-a-thon team challenges to develop our problem solving and teamwork skills. As we collaborate and form inventive solutions to real world problems, students will learn that their ideas should be interesting not only for them but also for potential consumers, government entities, or even investors.
Hacks Fee: \$75

48) The Great Debate**Instructor: Sara Teimor Charles****Session 2****9:00 Grades 4-9**

Life, Liberty, and the Pursuit of Happiness...these are the rights that all Americans possess. But how does our government put these ideals into action? Public speaking and the ability to articulate a position are critical to ensure that your voice is heard and you have a platform to share your ideas. In this class, we will become the government. You will research and propose a bill about an issue that is important to you, like the environment, schools, or health care. As a member of the "House of Representatives", you will explore how a bill becomes a law and engage in passionate debate. Can you convince an audience in the face of informed, persuasive competition, or take a considered approach to both sides of a position? Can you think on your feet and bring your words to life as you tailor your performance to an audience? Get ready to be civically engaged in the great debate!

50) Catwalk Couture
Instructor: Sherita Cuffee

Session 1 10:30 Grades 4-9

Do you have interest in learning the art of fashion design from a professional designer? After illustrating fashion design ideas/concepts using a mood board and color stories, each design will be brought to life utilizing hand and machine sewing. This imaginative course will immerse aspiring designers into the fashion design process, from sketch to sewing, to create a unique couture garment to be modeled in the final fashion show.

Fashion Fee: \$50

51) Sew What?! Sewing Bootcamp
Instructor: Uvana Doran

Session 2 9:00 Grades 4-9

Do you dream of becoming a fashion designer? In this class, students will be introduced to the process of creating clothes! Sewing students will learn to draft, pin, and cut a sewing pattern, how to use a home sewing machine and even how to take measurements. Students will complete a final project involving the designing and sewing of shorts, pajama pants, or a reversible tote bag. All items will be personalized to show off each camper's unique style. Project Runway, here we come!

Fashion Fee: \$50

52) 3D Printing Lab
Instructor: STEM STAFF

Session 1 & 2 9:00 Grades 3-9
Session 1 & 2 10:30 Grades 3-9

This course is designed to introduce 3D modeling and printing techniques to beginners. Campers will learn an overview of the components of the printer and how the process works. They will learn how to navigate a variety of 3D design software including the popular TinkerCad, Cura and Meshmixer to develop their own 3D models. In this project-based course the students will learn the possibilities for creativity are endless and will take home a printer and filament to continue inventing.

3D Printer and Filament Fee: \$400

53) Drone Racing Club
Instructor: Drone Cadets

Session 1 9:00 Grades 5-9

Drone Racing is one of the hottest and fastest growing esports in the nation. In this exciting technical course, we will build a First Person View (FPV) Racing Drone. Campers will learn how to fly from an FPV perspective, as if you were in the cockpit and practice flying and racing techniques, including races of our own! With practice, campers will master this advanced flight skill and begin racing in real life. We will address safe and ethical uses of drones and learn to be responsible drone operators and owners. Each camper will assemble and keep their own fully-functional drone and FPV goggles. Ready, set, drone!

*** Drone Fee: \$550**

54) Code Central: Introduction to Java**Session 1 & 2 10:30 Grades 4-9****Instructor: Neil Grand**

This course aims to teach the basics of one of the most powerful and wide spread programming languages—Java. You will learn about variables, loops, control structures (if/then logic), arrays and how to write classes. You will learn to think both algorithmically and creatively. We will use Java to calculate PI, and solve problems – for example, did the Native Americans get a good deal when they sold Manhattan to the Dutch for \$24 in 1626? We will create games like Mad Libs, guess the state capitals, and how to convert English into Pig Latin. There are no prerequisites other than a desire to learn.

55) Minecraft: Challenge Camp Edition**Session 1 & 2 9:00 Grades 4-9****Instructor: Geoffrey Byrne****Session 2 10:30 Grades 4-9**

Minecraft combines easy to use graphics and game play coupled with multi-player in several different modes accessible to learn at different levels. Journey from simple game play, to more complex world creation and server hosting. Campers will work together to create their own computer-generated worlds with an almost infinite combination or primitive mechanical devices, electrical circuits, and logic gates built with an in-game materials known as Redstone. Using teamwork to create a world from the ground up, Minecraft will serve as a gateway to enlighten students how to safely and securely utilize technology involved in game creation. Many aspects of the computer science and information systems worlds will be introduced including, but not limited to, software programming, overall concepts and principles of networking and the hardware required in building these seemingly complex systems.

PLEASE HAVE A CURRENT MINECRAFT ACCOUNT PRIOR TO THE START OF CAMP**56) PC Builders Academy****Session 1 10:30 Grades 5-9****Instructor: Geoffrey Byrne**

Ever wonder what it takes to actually assemble a personal computer? In this course we will learn about each component by understanding how to tear down and rebuild a used PC, then we will build our own from soup to nuts! Starting with a bare case, to the motherboard, to the operating system and software involved, you will fully assemble, operate, tweak, and in the end use your new blazing fast PC! This PC can replace that aging desktop at home. Campers will have an option to upgrade their processor for an additional fee.

Computer Fee: \$850**57) Engineering Design Thinking****Session 2 9:00 Grades 3-5****Instructor: STEM STAFF****10:30 Grades 5-9**

Design thinking and the spirit to solve problems are a critical 21st century skill. We will complete engineering design thinking challenges using Tinkercad 3D design software. Our design lab will have hands-on projects and materials for discovery and inspiration.

