

Challenge Camp



A Summer of Fun and Learning, too!

This is our Challenge Camp class schedule for Summer 2022. 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 2021** 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 2022

1) Spectacular Science **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 phenomenal 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. Young scientists will hypothesize, draw conclusions and develop problem solving skills. Grab your lab goggles and get ready for spectacular science fun!

2) How Things Work **Session 2** **9:00** **Grades K-1**
Instructor: Michael Donovan **10:30** **Grades 2-3**

We all wonder how the important inventions and modern conveniences in our lives seem to work. How can a person's ideas be harnessed into a very useful invention? What are the mechanisms involved in a combination lock or a bicycle? Why does a magnet attract or a battery create energy? How do every day items like a piano, a remote control, a fire extinguisher, or all of that sunscreen that our parents make us wear actually work? These questions will be explored and basic scientific principles of physics, motion, inertia, velocity, force will be introduced. Campers will participate in a team design challenge called "Junk in the Box." The goal is to create a useful engineering marvel out of your team's box of junk. You will test, experiment, invent and present to the class how your invention "works."

3) Adventures in Art **Session 2** **9:00** **Grades K-2**
Instructor: Anne O'Connor

This class is for children who love to experiment with art materials. We will emphasize techniques that create surprising and exciting effects and rich textures, such as marbling, monoprints, painted-paper collages, melted-crayon drawings, scratchboard and more. We will draw, paint, sculpt, squirt, swirl, roll and stamp and let the element of discovery enhance our creativity. By creating animations with some of our drawings and collages, we will see our art in motion!

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 and then watch your doodles magically come to life as playable games. Campers will learn and use the exciting new Pixicade App and all of it's 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) This is Olivia

Session 1 10:30 Grades K-1

Instructor: Lida Zimmerman

Join us in a discovery of friendship and adventure as we explore the brilliant tales of Olivia the Pig. Created by Ian Falconer, his beautiful books explore the themes of caring, friendship, adventure and excitement among Olivia, her best friends, parents and two brothers. Discover what happens when Olivia saves the circus, goes to Venice, goes to school, becomes a spy and ballerina. We will use various art materials including paint, yarn, paper, fabric and decorations to recreate the characters we love and imagine some new adventures of our own!

7) Mermaids and Manatees

Session 2 9:00 Grades 1-3

Instructor: Lida Zimmerman

Let's go under the sea and explore the colorful ecosystems of unique and delightful fish, plants, mammals and mythical creatures who will come to life in this imaginative art class. Using an array of materials, paint and decorations, students will create their own works of art including shellfish, plants, jellyfish, octopus, mermaids, starfish and more!

8) If Picasso Went to the Zoo

Session 2 10:30 Grades K-2

Instructor: Lida Zimmerman

Everyone loves a day at the zoo and books about animals! Our artists will design their own classroom zoo by making 3Dimensional animals like elephants, giraffes, zebras, bears, and tigers. The campers will create an original space for them to live in using paper, paint, foam, feathers. Their imagination and this celebration of animals will be unforgettable.

9) Dr. Goodbody

Session 1 9:00 Grades 2-3

Instructor: Al Pearlman

10:30 Grades K-1

Your body is an incredible machine composed of thousands of working parts. In this class we will explore all of the different ways your body functions to keep you alive. You will learn life science: bones (an adult has 206) and how they keep you standing, muscles, nervous, circulatory systems and more. Understand why you get dizzy when you spin around, check your blood pressure and see how you fare in our senses, lung capacity and reflex challenges. Make your own model of edible internal organs. We will schedule an exciting ambulance tour (complete with EKG machine, stretchers, blood pressure and bandaging) as part of our emergency medical experience.

10) DNAMazing
Instructor: Al Pearlman

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

Why do you look like your Mom or Dad? Explore your genetic code through exciting hands-on investigation. Your biotech lab will lead you to uncover the blueprints of life. Experiment with a tomato to extract and play with its ooey, gooey DNA. Construct, split and replicate a DNA ladder. Grow germs and make them glow a brilliant florescent green. Create a family tree and see what traits you share. Assemble DNA models out of candy (yum!). Learn how Mendel discovered traits with pea plants. Analyze DNA evidence to solve a crime. Understand the mysteries of these and other fascinating elements of genetics and how DNA is the building block of all of us.

11) LEGO Tech Junior
Instructor: Michelle Hessing

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: Michelle Hessing

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

Do you want to know 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 2-4

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) EZ Math
Instructor: Vaibhavi Gala

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

EZ Math is a program that makes math easy to understand that enables campers to enjoy learning math. The lessons focus on building confidence, igniting curiosity & inspiring a love for math – making a long term impact on your child’s academic growth. We help your child develop skills that extend far beyond the classroom. Get ready for an enlightening math experience as you learn tips and tricks to make math easy and fun!

16) Art Loves Math
Instructor: Vaibhavi Gala

Session 2 10:30 Grades 1-3

If you can't decide what you love more, math or art, then do both at once! Do you have patience and a love of color and design? We will combine the best of both as we generate tessellations, quilt patterns, games of artistic solitaire, string art and 3-dimensional puzzles. Experiences in these visualizations and constructions lead to greater appreciations of both mathematics and art. Campers will make Individual projects illustrating their art and math creativity.

17) The Descendants
Artistic Director: Anne Pasquale
Musical Director: Regina Talbot

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

It's present-day, and in the kingdom of Auradon, all of Disney's beloved heroes and royalty are living happily ever after, safe from the terrifying villains and no-good sidekicks they have banished to the magic-free Isle of the Lost. That is until Ben, the son of Belle and the Beast, and the troublemaking children of Maleficent, the Evil Queen, Cruella De Vil, and Jafar all find themselves attending school together. Now entering a completely new world and way of life, the four Villain Kids have a difficult choice to make: should they follow in their parents' wicked footsteps or learn to be good? Our exciting musical numbers include "Rotten to the Core," "Evil Like Me" and "Good is the New Bad." At the end of the session there will be a spectacular production.

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

18) Kid Frankenstein
Artistic Director: Anne Pasquale

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

Frankie and Irving are science fanatics who have an unusual idea for the upcoming Science Fair! When Doctor Frankenstein's secret book arrives from Transylvania, the friends are whisked into a sci-fi adventure. Irving and Helga sneak into the science lab to grab a monkey brain for Frankie's new monster but it gets mixed up with the brain of little Fluffy, a sweet puppy dog...imagine the excitement and laughter as Frankie and his crew present a surprising creature to the Fair! Highlighted with synch dances and videos to such horrible hits as Thriller/Feed Me Melvin and Monster Mash this is a sure Summer Shocker!

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

19) Minecraft City Builders
Instructor: Sydney Sullivan

Session 1 **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: Sydney Sullivan

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

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) Where in the World...
Instructor: Rathi Gulati

Session 1 **9:00** **Grades 2-4**
10:30 **Grades 4-6**

Help us crack the case! Global Investigators Inc. needs your help solving a mystery. An infamous underground art collector has stolen a precious artifact from the Egyptian Museum in Cairo and we need your help tracking down the thief! Join us on a fun adventure as we travel around the world, finding clues and learning about different countries along the way. Get ready for a multi-sensory adventure, where we will listen to music, taste new flavors, learn a few steps of a dance, admire the beautiful art, and read a bit of poetry or literature from each of these countries. Students will be encouraged to research their own cultural heritages and share what they have learned by bringing in an "artifact" that has special meaning to them. Join us on this adventure and help us crack the case!

22) Dash Robotics
Instructor: Sue Laramie

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**

23) Architecture and Design with 3Dux
Instructor: STAFF

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

Join us in this illuminating architecture and design class. Using a 3Dux Design kit designed for Challenge Camp, the campers will focus on physics, geometry, problem solving, and complex spatial thinking to build modern structures. You can construct a futuristic city, or a towering castle complete with a neighboring farm. Create prototypes for your inventions, or collaborate with a friend to create new ideas to develop and expand. We will also discuss electrical engineering concepts as we light up our projects. The possibilities are endless!

*** Architecture Kit Fee: \$50**

24) Code Central: Javascript Animation and Design
Instructor: Neil Grand

Session 1 & 2 9:00 Grades 3-6

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
Instructor: Liz Steger-Hartzman

Session 1 & 2 9:00 Grades 3-9

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****Session 1 10:30 Grades 4-9****Instructor: Sid Jain**

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'll be challenged from concept to generation of a product or service including marketing and advertising. 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) Drone Flight School**Session 2 9:00 Grades 4-9****Instructor: Grace Cantwell / Tony Reid****Session 1 & 2 10:30 Grades 4-9**

Our beginning drone class will explore the various uses of drones. They can be used for delivery, surveillance and security, aerial photography, filmmaking and more. We will discuss safe and responsible drone operation and local laws that apply. Campers will then fly their pre-assembled drones using Line of Sight (LOS) techniques. With practice, our new drone pilots will fly through obstacles and learn advanced flying techniques. Each camper will take home their own fully-functional drone.

Drone Fee: \$300**29) The Art of Architecture****Session 1 9:00 Grades 4-9****Instructor: Ana Saura**

In this beautiful architectural drawing and painting class we will learn how to use perspective and style in artwork. We'll discuss how measurement, dividing spaces and vanishing points on canvas help to create a more realistic cityscape or panoramic view. Using mixed media, colorful acrylics and 3D plaster work on a double canvas, we will paint original or well known structures like the Eiffel Tower, London Bridge or the Freedom Tower with our own creative architectural flair using size, detail and nearby objects as visual effects.

30) Creative Clay Sculpting**Session 1 10:30 Grades 4-9****Instructor: Ana Saura**

Sculpture is three-dimensional artwork that includes adding material to get a shape and carving is scraping away material to create another effect. Sink your hands into this clay and wire sculpture class as we use both techniques to create fanciful mother nature inspired flower vases. The finished vases designed, shaped and painted by you will have faces and personality to hold flowers or decorate your room!

31) Craft Your Happiness**Session 2 9:00 Grades 4-9****Instructor: Vaibhavi Gala**

Get crafty and discover the artist hidden inside your child and unleash their creativity. They will learn to make something new with their own hands in a variety of medium that their friends will envy. From jewelry making and modern fiber art to making jiggly soaps and candles, to water coloring and painting abstract art, your child will walk away with wonderful new projects each week. Additionally, campers will explore various materials and processes while practicing critical thinking skills.. This class is designed to encourage creativity, experimentation and self-expression, while introducing various arts and crafts techniques.

32) Fantastic Beasts**Session 2 10:30 Grades 4-9****Instructor: Anne O'Connor**

Create characters using a variety of art materials, including felted wool (great for making soft cuddly animal buddies), paper-mache, clay, and more. Then learn how to make them come to life and fly, walk, run or swim using stop-motion animation techniques. Work with your friends or on your own to film your beasts' adventures. This class will focus on sculpture and painting techniques in addition to the animation projects.

33) The Illusionist 2**Session 1 & 2 9:00 Grades 4-9****Instructor: Joseph Fields**

Would you like to perform like Criss Angel, David Blaine, and David Copperfield? If you do, 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) Podcast Kidz **Session 1** **9:00** **Grades 3-5**
Instructor: Sean Hardy Rivera **10:30** **Grades 5-9**

Learn how to tell stories about your favorite topics ranging from sports, news, fashion, books, comedy, video games to discuss “on-air”. You can choose topics that go from serious to silly, from fun to frightening and everything in between. We will learn how to write, improvise, interview, and edit your own recording in our podcasting studio. We will discover the various podcasting platforms to allow you to share your broadcasts with friends and family all over the world.

35) Digital Film Academy **Session 1** **9:00** **Grades 6-9**
Instructor: Tony Ely **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

36) Escape Room **Session 2** **9:00** **Grades 4-9**
Instructor: STAFF **10:30** **Grades 4-9**

Trapped in a room with a group of friends and 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!

37) Engineering Design Thinking **Session 2** **9:00** **Grades 3-5**
Instructor: 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.

38) Challenge Makerspace **Session 2** **9:00** **Grades 5-9**
Instructor: STAFF **10:30** **Grades 3-5**

Are you eager to create and experiment in engineering? A makerspace provides a hands-on, creative way to encourage students to design, experiment, build and invent as they engage in science, engineering and tinkering. In this project based STEM class campers will work in a collaborative setting and build invaluable problem solving skills. Examples of the fun engineering based projects may include building catapults, electric boats, a flashlight, pendulums, pneumatic machines, and a solar car.

Maker Fee: \$100

39) Forensic Files**Instructor: Michael Nathenson****Session 1****9:00 Grades 5-9****10:30 Grades 3-5**

Explore the Challenge Camp crime lab as we investigate various capers around camp! In this class, we will be looking at the methods and techniques used by scientists as we perform our own experiments to determine the nature of the crime! We will make our own cardboard microscope and use it to analyze biological material. Use luminol to find hidden blood stains, and learn to perform fingerprint analysis. All of your observation skills will be needed as you collect and record evidence and draw scientific conclusions.

40) Radical Chemistry**Instructor: Danielle Spano****Session 1****9:00 Grades 3-5****10:30 Grades 5-9**

In this course we will learn about how chemistry plays a role in our everyday life. 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. We will also learn about physical phenomena such as diffusion and osmosis, optical inversion, chromatography and density by observing chemical reactions. Join us in the lab for an enlightening, hands-on experience and learn science that is totally radical!

41) Adventures in the Lab**Instructor: Danielle Spano****Session 2****9:00 Grades 3-5****10:30 Grades 5-9**

Do you know what it takes to be a good scientist? Join us for an adventure into the scientific world where we will perform hands-on chemistry 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, experiment with polymers by making bouncing balls, the principles of buoyancy using common household materials, and attempt to fool our friends with some science magic! See the world with amazement and wonder as we embark on our lab adventures!

42) Forces and Motion Makers**Instructor: Michael Nathenson****Session 2****9:00 Grades 5-9****10:30 Grades 3-5**

Explore the interactions between force, mass, acceleration and momentum. We will use magnets, motors and circuits to make items float, launch and move in a variety of hands on experiments to illustrate the key principles of physics. As a final project, campers will combine the principles of mechanics, motion, electricity and aerodynamics to make their own air hockey table!

Physics Maker Fee: \$100

43) Speakers Corner
Instructor: Rathi Gulati

Session 2 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 presentation tools such as Keynote, 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) Agency X
Instructor: Rathi Gulati

Session 2 10:30 Grades 4-9

Ever wondered what it would be like to run your own advertising agency? Well, here's your chance! Students will be divided into groups to create their own mini advertising agency. They will come up with a name for their agency, design a logo, and create a mission statement. The campers will gain an in-depth understanding of the entire advertising process, from initial client briefing, identifying key targets, performing research, insight mining, concept creation and final presentation of concepts. The client for this summer will be an organic cotton luxury children's clothing line start up. At the end of the session there will be a competition, and the founder of the company will choose the winning team.

45) Outside the Box Engineering
Instructor: Hudson Apotheker

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

Think outside the box in this exciting and ambitious engineering class. Projects include designing and building a mini electromagnet using a D battery. Campers will use their magnets to solve various electrical and mechanical engineering challenges. As a class project we will build a massive electromagnet to test its capabilities doing tasks such as lifting heavy weights and measuring effects on electronic devices and how they interact with ferrofluids! Other activities include creating a potato launcher, vortex cannon, and many other educational and fun experiments.

46) 3D Printing Lab
Instructor: STEM Staff

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

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: \$350

47) APP Developer
Instructor: Sid Jain

Session 1 9:00 Grades 5-9

We have all heard "there's an APP for that"... Great apps start with a tangible idea that can grow into something ground-breaking, clever or useful. We will explore exactly how apps work, what features they include as our programmers use the Shopify platform to develop their product. Our app expert will discuss factors that should be integrated into your business model: What do people want or need in an app? How do I make sure it works well? Are there competitors in the marketplace? And most importantly how do I launch my app? This is a modern business focused class for motivated campers. There will be an additional platform fee, if the camper launches their app on IOS or Android,

*** App Hosting & Development Fee: \$200**

48) FPV Drone Racing
Instructor: Grace Cantwell / Tony Reid

Session 1 9:00 Grades 5-9

In this exciting technical course we will build a First Person View (FPV) Racing Drone. Building and programming are taught as an important part of this assembly process. Campers will learn how to fly from a FPV, as if you were in the cockpit and practice flying and racing techniques, including races of our own! 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.

*** Drone Fee: \$500**

49) Code Central: Introduction to Java
Instructor: Neil Grand

Session 1 & 2 10:30 Grades 4-9

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 Indians 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 capital, and how to convert English into Pig Latin. There are no prerequisites other than a desire to learn.

50) Code Central: Python
Instructor: Sydney Sullivan

Session 1 9:00 Grades 4-9

This course aims to teach the basics of Python, an object oriented programming language. Perfect for beginning programmers or budding technologists to squeeze programming power and fun out of their computer, Python uses a simple syntax and has an easy learning curve. Learn about variables, loops, decision statements, and other basic programming concepts using this easy-to-read programming language. The coding principles will provide the building blocks to learn programming languages in the future. There are no prerequisites other than a desire to learn.

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

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 of primitive mechanical devices, electrical circuits, and logic gates built with an in-game material 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**52) 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: \$750**53) Cybersecurity 101****Session 2 10:30 Grades 5-9****Instructor: Geoffrey Byrne**

In this rapidly evolving technology environment, everyone needs to be cognizant of cybersecurity and its impact on all aspects of daily life. Cybersecurity focuses on protecting computers, networks, and information from unauthorized access or attacks. Through hands-on activities we will learn to be good digital citizens, best practices for staying safe online and what the future holds for this incredibly popular industry.

54) Blender 3D Simulations**Session 1 9:00 Grades 5-9****Instructor: Dan Tepper**

Blender is a powerful 3D computer graphics software toolset which is used to create animated films, physics simulations, video games and so much more. Using Blender, you can create an impossible scene by controlling and animating physics: Quickly build a tower just to knock it down and watch how it falls from any angle, pour water into a glass cup and get the perfect, photo-realistic picture as it splashes out, write your name in big 3D letters and then hit it with a wrecking ball - smashing it into a million pieces! Computer creativity and imagination is all you need to produce endless animated possibilities.

