

Summer 2019 5th-8th Class Descriptions Alphabetized

5th-8th grade

Advanced Engineering Design Challenges	Engineering	Surprise yourself tackling engineering challenges with perseverance and imagination! Teams will be given an objective to meet, materials to use, and time to imagine, design, build, test, and rebuild. Expect your creativity and problem solving to be brought up a level or two!
Advanced Virtual Reality: Imagination Registration	Virtual Reality	Participants will learn about the human eye and develop their own virtual reality world using drag and drop coding similar to SCRATCH. The majority of the time will be spent creating their own VR creations on the computer. If they can dream up a world, they can build it and “visit” it. We will build the worlds on the computer but they will be viewed via a smartphone placed in Google Cardboard VR glasses. NOTE: Students will need to provide and extra \$10 to purchase the Google Cardboard VR glasses.
Ahhh . . . The Power of Math	Mathematics	See math come alive in business and engineering scenarios. Participants step into the shoes of a magician, a factory production scheduler, an architect, a flight engineer or a hardware engineer and see math in action in the real world of science, technology and engineering.

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Competitive Robotics	We Do 2.0 Robotics	Test your Robotic skills against the competition! Robotics challenges will be provided each day for the children to tackle. They will work in teams to plan, build, program, and run robots to meet specific challenges. Although robotic experience is a plus, new roboteers are welcome.
Entrepreneur: Build to Market Challenge	Entrepreneurship	The great inventions and technologies that shape our worlds today are a result of successful market launches. STEM and innovations need business ethos and acumen to become a desirable product or service. It is never too early to educate young children in the process of designing, launching and running a new business. In this special series of programs, our goal is to inspire the next generation of STEMpreneurs! The total package includes: STEM + Innovation + Entrepreneurship In Build to Market Challenges, participants will work like innovators in designing a robot to solve an engineering or entertainment problem, build its prototype and then, like an entrepreneur, they will explore ways to market their product.

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Escape room: DIY	Multiple STEM Curricula	Take our STEM Escape Room Challenge and then collaborate with fellow campers to make your own. The sky is the limit!
Game Making with SCRATCH	Computer Programming	This is an exciting introduction to computer programming. Curriculum is designed to engage young minds and help them advance from being merely computer users to creators. Participants learn the basics of creating using computers through some unplugged activities followed by drag-and-drop programming; Various tools are utilized including code.org and Scratch programming. They apply their programming skills to create simple, yet engaging video games. NOTE: More advanced games than younger campers.
Home automation with Raspberry Pi	Internet of Things	The Internet has revolutionized how we search, consume and share information. The Internet of Things (IoT) involves extending internet connectivity to everyday devices like lights and fridge in your home to change the way we live, work, entertain, travel and even how governments and businesses work! The outlook is promising...it is estimated that by 2020, worldwide market for IoT will be ~\$9 Trillion with almost 31 Billion IoT devices. Get your feet wet with the exciting and growing field of IoT. In this course, we will use a general purpose single-board computer, Raspberry Pi, to create simple examples of home automation. You will learn how sensors, microprocessors with connectivity and processes form the foundation of IoT. In this action-packed course, you will learn about Pi's anatomy, coding using Python programming language and circuit designing as you build simple home automation projects.

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Marine Biology: Explore and Create	Marine Biology Engineering and Virtual Reality	Explore the fascinating world of marine animals and the incredible ecosystems they spend their time creating and thriving in. Discover just how humans can learn from the intricate interdependent relationships the marine animals have with both their environment and fellow marine habitants. Have a blast with hands on activities and travel into the world of a marine biologist. 5th-8th also includes Virtual Reality!
Minecraft Advanced Aquanauts	Minecraft.edu	Minecraft has entered the underwater worlds! Campers will start with creating their own aquarium, move into building an observatory for Aquanauts, and finish up with an ocean habitat! The amazing world of Aquanauts will be brought right to their screens. Minecrafters will work collaboratively to build unique and inspiring underwater worlds! Advanced classes will learn to code their creations and add more complex builds.
Minecraft Engineering Challenges	Minecraft.edu	Participants will work together to bring their imaginations to engineering challenges. Campers will learn how to use code to make a Minecraft Agent work for them. Collaborative engineering should result in pretty amazing island community by the end of the week! Advanced classes will have greater challenges to meet.

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Minecraft for Masters	Minecraft.edu	Experienced Minecrafters wanted! Step up your game with this collaborative format. Participants will work together to build and code an amazing world of their own. Crafters will start from the ground up to imagine, plan, build, and code the most extraordinary world they can imagine.
Minecraft Redstone	Minecraft- Redstone	POWER UP your imagination! Minecraft Redstone allows crafters to add electricity to their builds. What will the make and electrify? Carnival rides? Cities? Secret Room? Lights? Power Piston? Simple Machines? You are only limited by your imagination and ingenuity!
Python Programming Party	Python Computer Programming	Python is an in-demand computer programming language, used by companies like Google and YouTube. It is being used successfully in various applications including internet and web developments, general purpose applications, software and scientific development, and data analysis. Learn this versatile language and experience the power of computer programming in your hands! Our budding coders will learn the fundamentals of coding using the Python language and apply it to create simple games and applications. Creations include: Rock, Paper, Scissors!, Digital Fortune Teller, a store and an ATM machine

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Robotics Challenges	WeDo 2.0	Advanced Robots and challenges have been created for older children. Take your love for robotics and engage in STEM challenges. Use your know-how of Legos, gears, and coding and watch what you can do with some critical thinking, creativity, and collaboration. Each day of camp, roboteers will be given some advanced robots to build and then a challenge to make them even more astounding with both modifications and code.
Server up a piece of PI!	Internet of Things	This more advanced class will learn how to turn a Raspberry PI into a server with unlimited potential for storing games and applications that you will create. Experience with Raspberry PI recommended.
Sustainability Mission	Sustainability Engineering	In this program, participants will explore sustainability in the city as they design a futuristic city. They will discover how water, electricity, and trash are taken to and from city buildings. Children will figure out how to fix broken water lines, discover where trash and waste go, and find out why cities have living spaces on top of skyscrapers. Be the future engineers that make a more sustainable world. Why not start thinking now!?

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Taste of STEM	Multiple STEM Curricula	<p>Choosing one STEM topic too hard? Choose a camp that touches on multiple disciplines of STEM. Participants will have a chance to imagine, plan, build, and test engineering challenges, create a game with computer programming, build a robot, and discover the way STEM work together to solve problems.</p>
Virtual Reality	Virtual Reality	<p>Virtual reality (VR) is taking arts, gaming, movies and technology to a whole new frontier. VR involves creating 3D computer generated immersive environments that allow the player / viewer to manipulate objects or perform a series of actions. Instead of just playing a VR game or watching a VR movie, make one! In this program, students will design and create their VR games and/or animations.</p>
Virtual Reality 2: Animation	Virtual Reality and Computer Programming	<p>Create a virtual zoo for all to attend! You choose which animals will be in your zoo, you build the habitat and give your precious animal's fun personalities! Virtual Reality Animation brings together virtual reality, coding and the awe inspiring world of zoologists!</p>

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Website Design	Word Press Web Design	Have an idea for a cool website? Want to share your passion with the world? Work on your own website while also learning about cyber security and protecting yourself and ideas! Use your passion to fuel a one-of-a-kind website! Expect to be fascinated by the behind the scenes coding to create the most attractive and effective websites!
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