SuperSTEM Camps

Summer 2019

INNOVATION CENTER
of ST. VRAIN VALLEY SCHOOLS

ST. VRAIN VALLEY SCHOOLS
academic excellence by design

Innovation Center SuperStem Camps

The Innovation Center of St. Vrain Valley Schools' SuperSTEM Camps offer innovative, hands-on learning experiences that engage and challenge students and incorporate human-centered design thinking. Camps are taught primarily by student designers and teachers from the Innovation Center, and offer a wide-range of fun STEAM (science, technology, engineering, art, and mathematics) activities.

All camps take place at the Innovation Center. Free lunch supervision is provided for campers attending morning and afternoon sessions on the same day. Limited scholarships are available - contact the Innovation Center for details.

Innovation Center of St. Vrain Valley Schools
33 Quail Rd., Longmont, CO 80501
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303-702-8200

		6/3 - 6/7	6/10 - 6/14	6/17 - 6/21	6/24 - 6/28
Ages 7 -9	AM	Chuck Glider Design Challenge (M) Stop Motion (W, F)	Chuck Glider Design Challenge (M) Ozobot & Sphero Dance Off (W)	Chuck Glider Design Challenge (M) Light Up Sewing Art (W) Keva Planks (F)	Keva Planks (M)
	PM	Stop Motion (M) Light Up Sewing Art (W, F)	Ozobot & Dance Off (M, W)	Stop Motion (M) Keva Planks (W) Ozobot & Sphero Dance Off (F)	Ocean Adventure! (M)
Ages 9 - 11	AM	Simple UAV Build (T - Th)	Simple UAV Build (T - Th)	Geometry through Coding (W) Sphero Light Show (F)	Geometry through Coding (T) Mission to Mars (W - F)
	PM	Inventing and Innovating with Makey Makey and Scratch (W - F)	3D Design and Printing with Sketch-Up: Mechanics and Motion (W - F)	Sphero Light Show (W)	Ocean Adventure! (T)
Ages 11 - 14	AM	Introduction to 3D Design and Printing with Sketch-Up (W - F)	Engineering and Innovation Projects with Makey Makey and Scratch (W - F)	That Fish! (W) Humanoid Robotics with NAO (F)	Humanoid Robotics with NAO (F)
	PM			That Fish! (W)	

Inventing and Innovating with Makey Makey and Scratch

Ages 9 - 11 June 5 - 7 (W - F) 1 - 4 p.m. $160

Session taught by Eric Carpenter, Rocky Mountain Education Design

Registration

This electronics and coding-centered summer camp will focus on using Scratch-based coding, Makey Makey Innovation Kits, and our electronics makerspace, to provide opportunities for learners to work individually or in teams to design, create and test their own tech-centered innovations, inventions and creations. Blending drag and drop coding, circuits, electrical engineering, and 21st century materials, this engaging summer ca.m.p will give participants the skills and abilities needed to engineer, create and innovate with technologies that bridge the gap between computers, apps and the real world.

3D Design and Printing with Sketch-Up: Mechanics and Motion

Ages 9 - 11 June 12 - 14 (W - F) 1 - 4 p.m. $160

Session taught by Eric Carpenter, Rocky Mountain Education Design

Registration

In this skills-focused summer camp, learners will develop both introductory and advanced 3D design skills with Sketch-Up and have opportunities to engineer, prototype and perfect their own 3D printed projects and innovations. This exciting and engaging camp explores engineering and printing axels, fasteners, moving parts, multi-part or multi-material prints, as well as how to incorporate motors, gears and makerspace materials into 3D design and innovation projects.

Introduction to 3D Design and Printing with Sketch-Up

Ages 11 - 14 June 5 - 7 (W - F) 9 a.m. - 12 p.m. $160

Session taught by Eric Carpenter, Rocky Mountain Education Design

Registration

This innovation-centered summer ca.m.p progra.m. will provide participants with the skills and abilities needed to design, draw and print their own 3D objects and innovations with Sketch-Up design software and Lulzbot 3D printers. This enriching introductory experience will provide 3D design, drawing and engineering skills, explore 3D printing and prototyping principles, and provide opportunities for learners to create and take home their own inventions and creations using 21st century tools and materials.

Engineering and Innovation Projects with Makey Makey and Scratch

Ages 11 - 14 June 12 - 14 (W - F) 9 a.m. - 12 p.m. $160

Session taught by Eric Carpenter, Rocky Mountain Education Design

Registration

This design thinking workshop blends Scratch-based coding and the engineering, arts and invention potential of Makey Makey devices. Combined with our makerspace and 21st century materials, these technologies let learners explore coding, circuits, switches and design thinking, while engineering their own inventions and projects connecting technology to real world applications like invention literacy, electrical engineering, service learning and community-based projects.

Chuck Glider Design Challenge

Ages 7 - 9 June 3, 10, or 17 (M) 9 a.m. - 12 p.m. $60/session

Registration: June 3, June 10, June 17

Calling All Young Pilots! Campers will be charged by creating DIY chuck glider aircraft, learning basic fundamentals to flight, control surface effects, Aviation Discovery, and basic build techniques. Campers will have a chance to engineering and design their own glider aircraft to test on our UAS Aero Runway.

Simple UAV Build

Ages 9 - 11 June 4 - 6 & June 11 - 13 (T - Th) 9 a.m. - 12 p.m. $160

Registration: June 4 - 6, June 11 - 13

Take Flight through the build and testing of your own DIY UAV aircraft. Campers will learn UAV Aviation Discovery, fundamentals of flight, basic UAV build techniques, equipment applications, basic flight, and general FAA requirements of our National airspace.

That Fish!

Ages 11 - 14 June 19 (W) 9 a.m. - 12 p.m. or 1 - 4 p.m. $60/session

Session taught by Cathy Christopher, Ocean First Education

Registration: June 19 Morning, June 19 Afternoon

Are you interested in learning more about the fish that inhabit the coral reefs of the world. Campers will complete their own Fish ID booklet, learn how to make observations underwater, where color & size can be deceptive, and participate in a "show what you know" fish ID game. You will learn how to observe and describe reef fish so no matter where your summer plans take you, your child will ask, "What kind of fish was that?"

Ocean Adventure!

Ages 7 - 9 June 24 (M) 1 - 4 p.m. $60

Ages 9 - 11 June 25 (T) 1 - 4 p.m. $60

Sessions taught by Lauren Riegler, Ocean First Institute

Registration: June 24, June 25

Join us as we discover the world of sharks, sea turtles, and corals in the ocean. This session will showcase iconic marine wildlife and involves interactive, engaging activities that allow campers to explore the marine world, while demonstrating how we are all connected to the ocean, no matter where we live!

Stop Motion

Ages 7 - 9 $60

June 3 (M) 1 - 4 p.m., June 5 (W) 9 a.m. - 12 p.m., June 7 (F) 9 a.m. - 12 p.m., or June 17 (M) 1- 4 p.m.

Registration: June 3, June 5, June 7, June 17

Do you like movie-making?! Join us for a class in Stop Motion. Create your story, characters and setting and make them come alive using this animated film making technique.

Ozobot & Sphero Dance Off

Ages 7 - 9 $60

June 10 (M) 1 - 4 p.m., June 12 (W) 9 a.m. - 12 p.m. & 1 - 4 p.m., or June 21 (F) 1 - 4 p.m.

Registration: June 10, June 12 Morning, June 12 Afternoon, June 21

Robots are cool, especially when you can make them dance! Learn how to use Ozobot and Sphero. Then, choose a song and teach your robot to dance to the beat!

Keva Planks

Ages 7 - 9 $60

June 19 (W) 1 - 4 p.m., June 21 (F) 9 a.m. - 12 p.m., or June 24 (M) 9 a.m. - 12 p.m.

Registration: June 19, June 21, June 24

Do you want to 3-D create original works of art or cleverly designed contraptions using wooden planks? Using specially engineered Keva Planks, construct artistic designs, huge towers and everything in between! Record knocking it down and watch it fall in slow motion!

Light Up Sewing Art

Ages 7 - 9 $60

June 5 (W) 1 - 4 p.m., June 7 (F) 1 - 4 p.m., or June 19 (W) 9 a.m. - 12 p.m.

Registration: June 5, June 7, June 19

Enjoy sewing and crafting? From felt creations, sewing and embroidery, you can light up your artwork. Create your own personalized craft or sewing project with a rainbow of a light! (lights, battery and link to project)

Humanoid Robotics with NAO

Ages 11-14 June 21 (F) 9 a.m. - 12 p.m. and June 28 (F) 9 a.m. - 12 p.m. $60 each session

Registration: June 21, June 28

Students will learn all about robotics and programming while getting hands on experience with the NAO humanoid robot. At the end of the course each student will create a custom dance or interactive game with the NAO robot.

Geometry through Coding

Ages 9-11 June 19 (W) 9 a.m. - 12 p.m. and June 25 (T) 9 a.m. - 12 p.m. $60 each session

Registration: June 19, June 25

Students will learn the basics of programming logic and geometry using a block based system programming system called Questbotics and developed by an SVVSD graduate. During the course students will develop important logical and mathematical skills in a fun and engaging way and program a robot to create unique and interesting shapes based on geometrical design.

Sphero Light Show

Ages 9 - 11 June 19 (W) 1 - 4 p.m and June 21 (F) 9 a.m. - 12 p.m. $60/session

Registration: June 19, June 21

Are you interested in photography? Robots? Take this class to learn about both! Students will have the opportunity to create a light show by programming Spheros and using long-exposure photography. At the end of the course students will be able to take home their own unique art time-lapse Sphero light show.

Mission to Mars

Ages 9-11 June 26 - 28 (W - F) 9 a.m. - 12 p.m. $160

Registration

Learn about how we use robots to explore space as well as how humans plan to colonize Mars! You'll use the VEX IQ robotic system to create your own Mars Lander to explore the Martian terrain. Students will learn how to design, build and program their very own robot to complete a Mars themed mission.

July STEM opportunities offered by Northrop-Grumman, University of Colorado, and St. Vrain SuperSTEM

Fundamentals of Cybersecurity

July 22 - 26 (Sat - W) 9 a.m. - 3:30 p.m. $100

Open to middle and high school students from any Colorado school

Registration

According to a study into computer security challenges by the Center for Strategic and International Studies (CSIS), "we not only have a shortage of the highly technically skilled people required to operate and support systems already deployed, but also an even more desperate shortage of people who can design secure systems, write safe computer code, and create the ever more sophisticated tools needed to prevent, detect, mitigate, and reconstitute from damage due to system failures and malicious acts."

Experienced cyber instructors will teach Computer Forensics and CyberSecurity fundamentals. The week-long program will culminate with a CyberSecurity Grand Challenge Competition. The program encourages both students who are beginners and students who have an intermediate knowledge of CyberSecurity.

Participants should have no or little prior experience with Cybersecurity and/or Cyberpatriots. Includes a field trip to the University of Colorado-Boulder campus.

Advanced Cybersecurity

July 22 - 26 (Sat - W) 9 a.m. - 3:30 p.m. $100

Open to middle and high school students from any Colorado school

Registration

Are you ready to take your Cybersecurity skills to the next level? This course is intended for students who have a solid foundation in the fundamentals of Cybersecurity, and will include extensive hands-on lab time. Cyber experts will lead this course and help students improve their skills and prepare them for the CyberPatriot competitions this fall. Enrollment priority will be given to students who have participated in at least one CyberPatriot season and intend to compete in the 2016-2017 season. This curriculum is intended for students who have had previous exposure to Cybersecurity concepts.

Participants should have no or little prior experience with Cybersecurity and/or Cyberpatriots. Includes a field trip to the University of Colorado-Boulder campus.

Introduction to Machine Learning

July 22 - 26 (Sat - W) 9 a.m. - 3:30 p.m. $100

Open to middle and high school students from any Colorado school

Registration

This introduction to machine learning is an innovative introduction to core concepts of computer programming and statistics and their application in real-world data analysis. Machine Learning is built on three interrelated perspectives: inferential thinking, co mputational thinking, and real-world relevance. Inferential thinking refers to an ability to connect data to underlying phenomena and to the ability to think critically about the conclusions that are drawn from data analysis. Computational thinking refers to the ability to conceive of the abstractions and processes that allow inferential procedures to be embodied in computer programs. In addition to exposure to computer programming and statistical inference in the context of data analysis, the week will involve hands-on analysis of a variety of real-world datasets. This class concludes with the

development of a 20 Questions Game. Curriculum is geared toward advanced STEM students. This curriculum is intended for students who have had previous exposure to computer programming.

Participants should have prior experience with computer programming. Includes a field trip to the University of Colorado-Boulder campus.

Embedded Systems with Raspberry Pi

July 22 - 26 (Sat - W) 9 a.m. - 3:30 p.m. $100

Optional $100 Materials Fee (if students wish to keep equipment from the class, Raspberry Pi with case, power adapter, mini-SD card, and electronics)

Open to middle and high school students from any Colorado school

Registration

Our world is increasingly connected through all kinds of devices that connect and communicate with each other. This is called the Internet of Things (IoT). Participants will not only learn more about IoT, they will develop their own network of connected devices using the Raspberry Pi and Python coding. They will use various sensors and actuators to create a dynamic robotic project that interacts with its environment and other devices. Come be a creative problem solver with technology!

This class is geared towards students with some basic experience with either coding or robotics, but no expertise in either is required. Includes a field trip to the University of Colorado-Boulder campus.

Robotics and Space Exploration

July 22 - 26 (Sat - W) 9 a.m. - 3:30 p.m. $100

Open to middle and high school students from any Colorado school

Registration

50 years ago this year, humans first walked on the surface of the moon. It has been a while since the last lunar landing, but there is growing interest both in returning to the moon as well as colonizing Mars. Come learn about the science of planetary exploration through robotics by designing and building robots for a Mars or lunar mission.

This class is geared towards middle school and early high school students with some basic experience with either coding or robotics, but no expertise in either is required. Includes a field trip to the University of Colorado-Boulder campus.