

Summer Course Descriptions 2018

Summer@Stratford

PS/PK

Weekly themes come to life as our youngest of campers learn, explore and engage in imaginative camp-style activities that promote STEAM (science, technology, engineering, art and math) learning. We combine STEAM and Inquiry-Based instruction with learning-enriched activities that promote foundational phonics, literacy, math, fine and large motor skills, and music. Students will develop new school experiences and socialization skills. Campers can stay for morning or full-day programs and have the option of two, three or five day camps. Snack is provided in our morning and afternoon camps. Our full-day camp includes a morning snack, nap and afternoon snack.

Our Preschool campers need to be 3 years old by January 2nd, 2019.

PK Campers need to be 4 years old by December 2nd, 2018.

KG

Get campers ready for Kindergarten! Our Jr. Camper program is specifically designed for those campers entering Kindergarten in the fall. During the morning, Jr. Campers will work on the skills necessary for success in Kindergarten like phonics, fluency, math, printing and social skills. During the afternoon, Jr. Campers will participate in fun, hands-on activities that incorporate STEAM, art, science and music. Jr. Campers must turn 5 years-old by December 2nd. Campers have the option of morning or full-day.

Elementary (1-5)

For 1st – 5th grade we will offer a series of themed sessions. Students will collaborate to tackle real-world problems by utilizing cross-curricular academic principles and new concepts in a fun and engaging way. Camp sessions, tailored for each grade level, will be built around project-based learning themes which include Worldly Adventures, Innovation Design, Culinary Exploration, and Team Building Challenge.

These programs promote the reinforcement and retention of grade-level concepts.

- Worldly Adventures (June 18 – 29)
Students will broaden their horizons by exploring other cultures. They will develop a greater understanding of the world that lies outside our borders. The best part of this course....No passport needed!
 - 1st Grade: Each junior explorer will become a Head of Tourism. Campers will learn about different places around the world and create a travel brochure to educate their peers about a place they have never been.
 - 2nd & 3rd Grade: The goal in this course is to increase tourism in a country that is struggling to attract visitors. Students will develop a deep knowledge of a specific country, and will write a Travel Blog to promote the country to travelers.
 - 4th & 5th Grade: In this challenging course, students will create a colony and help it to flourish in a difficult environment. They will strive to make the colony so successful that inhabitants will choose to stay and make it their home.
- Innovation Design (July 2 – 13)
Campers will learn the fun side of design and engineering. Kids will be encouraged to expand their imaginations and creativity. They will be introduced to foundational engineering skills and use them to create ultimate spaces for amusement and play. Join us in creating the next great architectural play space. The sky's the limit!
 - 1st Grade: Children will design the ultimate play space.
 - 2nd & 3rd Grade: Campers will develop and build a model for a cutting-edge playground.

- 4th & 5th Grade: Students will invent the next world-class amusement park ride.
- Culinary Exploration (July 16 – 27)
Students will explore food and food service in this interactive course. What could be more fun and delicious than exploring cooking and culinary delights?
 - 1st Grade: Students will learn where food comes from by creating their own Farm Homestead. Campers will look at the process of raising animals, planting crops, and processing products.
 - 2nd & 3rd: Children will plan and develop their own cooking show and party. They will learn how to plan menus and food quantities. They will demonstrate cooking procedures, and dine together to enjoy their wonderful creations.
 - 4th & 5th: Our more advanced chefs will walk through the process of owning a food truck. Students will create their menus, calculate costs, and determine pricing.
- Team Building Challenge (July 30 – Aug. 10)
Jobs now and in the future are no longer isolated efforts of individuals, but rather collaborations among varying departments. This course will help enhance each camper's unique abilities by developing his or her team building skills and social relationships. Calling all future leaders!
 - 1st Grade: Our young campers will focus on developing communications skills through fun and exciting activities.
 - 2nd & 3rd Grade: Students will work together and actively participate in group dynamics. Children will learn how playing together can lead to excellent experiences working together and help them to develop meaningful social relationships.
 - 4th & 5th Grade: Working collaboratively helps to develop listening skills and leadership qualities. Campers will learn how to incorporate the talents of individual members to strengthen the overall team process and the outcome of assignments and activities.

Pre-Algebra Preview and English (6-7)

Incoming sixth and seventh grade students spend part of each morning refining and enriching their language arts and math skills. Students will hone their Language Arts skills through novel study, grammar practice, and paragraph/essay composition. Pre-Algebra will be covered with a diverse mix of word problems, properties, and written expressions.

Algebra 1 Preview and English (7-8)

Incoming seventh and eighth grade students spend part of each morning refining and enriching their language arts and math skills. Students will hone their Language Arts skills through novel study, grammar practice, and paragraph/essay composition. Algebra 1 concepts will be covered with a diverse mix of word problems, properties, and written expressions.

Geometry Preview (8-9)

This program is suited for incoming eighth and ninth graders. Students will spend the morning previewing geometry. Practice problems and proofs are used to reinforce concepts following lectures. Informal assessments will be administered to determine areas of strength, as well as areas for improvement. Homework is not assigned in this class

Algebra II/Trigonometry (8-9)

This intense, four-hour class is designed for incoming eighth and ninth graders and covers a year's worth of course material in seven weeks. Students are assigned mandatory daily homework. There is a quiz or test every day, and students take mid-term and final exams. Students will receive a grade at the end of the course. Successful completion of this course may exempt students from retaking Algebra 2 in high school, or may place them in Honors Algebra 2 during their freshman year of high school. Prerequisite: Successful completion of Algebra 1 with an A. Departmental approval required.

Due to the intensity of this program, students enrolling in this course will not be able to attend other courses during the summer.

Extended Day

Camp doesn't have to be over at 3:00! Summer@Stratford continues after the bell rings with engaging and creative activities to keep campers active until 6:00 pm. Students will enjoy group games and play, as well as a variety of projects and activities. This option can be added onto any afternoon or full-day camp.

Tutoring

Tutoring at Stratford provides academic enrichment in Language Arts and Math. Children will work in their chosen subject through a variety of learning activities and games. Language Arts students will work on reading comprehension, phonics/grammar, critical thinking, and writing. Math students will learn how to calculate, use mental math, and understand word problems. All learning will be done in a hands-on, engaging, and interactive environment.

Art

Art Introduction (1-2)

Presented by Hidden Talent Art Studio, this class will allow students to gain observation skills and fine art vocabulary while exploring their creative side and learning about the 7 elements of art (line, shape, form, color, space, texture, and value) using traditional techniques and methods. All needed supplies are included, and students will have several pieces of art to take home!

Art Essentials (3-5)

Presented by Hidden Talent Art Studio, this class will cover intermediate approaches to fine art, where students gain skills in shading, form, perspective, and composition. This class delves deeper into the seven elements of art and focuses on the 7 principles of design such as balance, unity, emphasis, and pattern. All needed supplies will be provided, and students will have several pieces of art to take home!

Speech and Debate (4 - 5)

Do you feel like your child is a budding attorney? If your student loves to debate, this is the perfect class! Speech and Debate instructors will guide students through the processes of research, writing, and performance that are required to be effective at public speaking. Students will learn how to articulate and support their ideas about current events. Through the process of carefully preparing statements, students will also learn confidence and patience skills.

Speech (MS)

If your student loves to be in the spotlight, this is the perfect class! Instructors will guide students through the process of creating interesting, informative, and entertaining speeches. Middle Schoolers will learn how to improve their public speaking skills while also developing confidence.

Debate (MS)

If your student loves to debate, this is the perfect class! Debate instructors will guide students through the processes of research, writing, and performance that are required to be effective at public speaking. Students will learn how to articulate and support their ideas about current events. Through the process of carefully preparing statements, students will also learn confidence and patience skills.

Language Arts

Mystery Reading Detective Adventure (1-2 & 3-5 & MS)

Uncover clues and solve mysteries in quality literature with this class focused on reading comprehension, critical thinking, logic, and vocabulary. Discover rich vocabulary and context clues used to solve daily mystery puzzles. Students will participate in a final mystery project in which literary clues and characters will inform solutions. Students will receive a Detective First Class certificate at the end of the session.

In the Newsroom (1-2 & 3-5 & MS)

Learn the basics of discovering, researching, and writing about current events. Determine how journalists verify sources, research facts, combine information, and communicate information in writing. Students will create a News Hour exhibition on the final day of class. A link to the student News Hour video will be provided to participants and parents.

Heroes, Myths, and Legends (1-2 & 3-5 & MS)

Use creativity and solid writing basics to create and develop hero and superhero characters in classic styles of literature. Students will learn how to create interesting writing and dialogue, and how to capture an audience's imagination within the folktale genre of literature. At the end of the session, students will create and publish storyboard cartoons to accompany their polished stories and books.

Math

Dollars & Sense – Budget Calculations (1-2 & 3-5)

Money and budgets form the foundation for commerce and business in daily life. Students will gain valuable insight into the nature of fiscal responsibility and how to understand and manipulate numbers in real-life scenarios. Through the use of fast and efficient mental math strategies, students will focus on calculations, building a budget, and the importance of saving dollars and tracking expenses.

Constructing the 8th Wonder of the World (1-2 & 3-5)

Explore the designs and mysteries behind the 7 wonders of the world. What makes them spectacular? Students will learn new math building skills and use them to design and build the next marvel of this century. The course will feature measurement, geometry, and foundational algebraic concepts used in realistic and useful designs.

The Great Mathcapades (1-2 & 3-5)

Unlock the mysteries of ancient locks, challenging codes and escape the classroom using word problems and logic. Students will learn critical thinking skills and word problem techniques to unravel and solve daily math challenges. The class will focus on understanding word problems, and how to set up and solve the associated math calculations effectively.

Science

DMA Options for MS – Registration by DMA

- **2D Animation & Digital Illustration**
Experience a comprehensive course offering students an in-depth look at the professional animation pipeline, focusing on illustration and pre-production. Students will utilize industry standards like Photoshop and Toon Boom Harmony to create a final animation from start to finish, starting a portfolio along the way.
- **3D Printing and Product Design**
Discover 3D printing and how 3D printing is changing our future. We'll follow the same processes an industrial designer goes through to create a product: Sketch your ideas out on paper, turn your sketch into a 3D model in CAD programs on the computer, and then bring your idea to life by 3D printing your 3D model. We'll also learn the "Design Thinking" process taught by Stanford University.
- **Advanced Filmmaking**
Learn advanced movie making, with the same production and post-production techniques used on Hollywood movie sets. Story development and screenwriting are explored in detail. Plus, you study advanced shooting, audio, and editing techniques, while developing your own cinematic style.
- **AI & Machine Learning**
Will computers take over the world? Probably not. Either way, computers are getting smarter everyday, and it's all thanks to great strides in Machine Learning algorithms. Using systems like neural nets and special algorithms, programmers can teach computers to do things like recognize faces and images, play games, or find complex patterns. In this course, we'll take a closer look at machine learning tools, and use them to do amazing things. Teach a computer to play your

favorite game, create interactive simulations, or train it to find patterns a human could not see. Using programming and mastery of algorithms, find uses for computers that you never thought possible!

- **Arduino Robotics**

Using a combination of mechanical, electrical and software engineering, learn how to design, assemble and program a robot using your own Arduino microcontroller, included in the Sparkfun RedBot kit. With RedBot, an electrical engineering prototyping platform, you'll learn about electronics and how circuits function. Plus, you will rapidly create and deploy your ideas as you bring your robotic creations to life! Use controllers to operate lights, motors and LEDs, and then test your engineering skills in a series of competitive challenges with your classmates using the robot you've designed. Showcase your robots at the end of the week and take home your Arduino kit to tinker with.

- **Electrical Engineering with Raspberry Pi**

Discover the basics of circuitry and the Python programming language using a Raspberry Pi. Students then apply what they learned by connecting ordinary objects to the internet, a concept known commonly as the Internet of Things. You'll create a variety of different projects, like a burglar alarm, Twitterbot, or clone of a handheld electronic game! Learn to control, automate, and program devices to do what you want from anywhere. Students bridge the gap between the physical world and the internet for endless project possibilities.

- **Game Design with Unity**

Learn the essentials of game design by harnessing the power of the Unity Game Engine. Master creating 2D or 3D environments and levels. Get an introduction to game design concepts such as user experience design and beta testing. Learn the basics of programming and object oriented design in the C# programming language.

- **Intro to Filmmaking**

Explore the art of digital filmmaking by shooting and editing your own unique video. Learn to write a script, operate a camera using manual functions and make edits using professional video editing software. This course combines hands-on project based learning using professional Canon® cameras with personalized in-class lessons and one-on-one instruction. Discover how to optimize your project for video sharing sites such as YouTube, and screen your project in front of an audience at the end of the week

- **Intro to Java Programming**

Java powers billions of devices worldwide and is now more accessible than ever. Experience an interactive, hands-on approach to learning Java, one of today's most widely used and powerful computer-programming languages. This course will use Java fundamentals like variables and algorithms to explore creativity in the form of making art, games, or desktop apps. Students will develop critical thinking skills and even prepare for the AP Computer Science exam while using Java concepts to open the world of programming and spark creativity!

- **Visual Effects Filmmaking with Adobe After Effects**

Learn how industry techniques like video compositing, motion tracking, 3D graphics and titles, color correction and green screens bring a movie to life using professional special-effects and editing software Adobe After Effects and Adobe Premiere Pro. Unlike Digital Filmmaking which covers the entire filmmaking process as a whole, this course focuses on visual effects and how to bring those effects into a film. You'll work in teams on several short projects early in the week to gain experience in both filmmaking and VFX editing, then put those skills to use on an individual, original final project.

I2 (MS)

- **CSI – Crime Scene Investigations**

Have you ever wondered how law enforcement uses science to catch criminals? Have you ever watched a crime show on television and questioned if the techniques they were using are real? If so, this is the course for you! Through this course you will become a member of a crime scene unit and learn how to act a crime scene, gather evidence and analyze data. You will learn about fingerprints, fibers, hair, dental impressions, tool marks, blood spatter and much more!

- **Combating Cancer**
Have you ever thought, “When will we ever find a cure for cancer?” In this course, you will understand how antibodies can revolutionize the treatment of cancer. You will explore the idea of antibody-cellular interactions and what it means to use a “targeted therapy” to stop cancer cells from dividing. You will model tumor growth, separate proteins using Size Exclusion Chromatography, administer a “chemotherapy”, run an ELISA, and discover a treatment for cancer using antibodies!

Destination Science (1-2 & 3-5)

- **Science Makers & Inventors Camp!**
Build Soccer-Bots & Rube Goldberg-like contraptions
Sports meets science with our Soccer-Robots & more! Become an engineer & invent your own science fun with moving motors, circuits & zip lines. Turn up the curiosity as you build your own Rube Goldberg inspired chain reactions using Newton's Laws, crazy chemistry, & electric circuits. The fun never ends because your inventions go home. The world needs inventors like you!
- **Transforming Robots Camp!**
Build & train 4 Robots & Engineer with techno toys
Discover today's real robot transformers while you build one of your very own. Will you design yours to be a skyscraping Megabot or a racing Autobot? Prepare your transformer to parade, race, battle, and join in on the robot tug-of-war. Use the Engineering Design Process to complete challenges with cool techno-toys & more. This camp includes 4 amazing robots all designed by you and trained to follow you home.
- **Rovers Rocketing to Space Camp! All New**
Build a Dinosaur RoverBot & launch a rocket to a fantastical planet
Calling all future astronauts, we're returning to space... Destination Dinoterra! A newly discovered planet inhabited with alien dinosaurs. Design & build your own Space Rover to gather & transmit information back to Earth. Become a rocket scientist as you build & blast-off your super-stellar H2O rocket. Astronomical fun & learning lasts all summer when you bring your robot, rocket, launch system & everything you made lands back home.
- **Amusement Park Science Camp! All New**
Roller Coasters, Carnivals & Marine Explorers
Have you ever designed an amusement park? Join us & build your own kid-powered roller coaster - The Great Gravity Dropper! This coaster employs the power of physics including velocity, acceleration, speed, gravity & inertia. Engineer & innovate a crazy fun backyard carnival including centripetal force, simple machines & catapulting games. Next create your own floating Ocean Explorer for our new Marineland Exhibit. Touch a real shark & other marine specimens. Invite your friends to experience backyard amusement park fun & carnival challenges when you bring this home to share.

Schmahl (1-2 & 3-5)

- **Mythbusters:** Modeled after the popular television series, students in this workshop will tackle some of the most common urban legends and bust up some of nature's biggest myths! Use tools and technology to investigate some of nature's most intriguing questions, then separate truths from legend by collecting data, clues, and information along the way. Decide what is fact or fiction at the end of each exciting day.
- **Inventions Lab:** For this summer camp, we're challenging students to learn more about a complex thing by taking it apart. Examining component pieces usually reveals insight into how the whole thing works. Students will break down ball point pens, key boards, locks, postal scales and VCRs. Then students are ready to invent! They will make soap, build solar ovens, clean water by making filters from old T-shirts and charcoal, make paper and ginger ale. These are just a few of the many inventions created in this fun summer workshop.
- **Smash Labs:** Hey Kids! Do you get in trouble for breaking things? Can you imagine a strange world where breaking things is not only accepted, but encouraged? Welcome to the alternate universe at Schmahl Science Smash Labs! Smash, bash and crash your way to learning about

gravity, momentum, inertia, friction, aerodynamics, and material and structural strengths! Observe materials as they undergo extreme temperature changes. Test and tweak, break and leak, poke and crack, bring it right back, and do it all over again. Have a smashing good time this summer!

- **Chemistry in Action:** Work with exciting reactions in chemistry and uncover the unseen world that makes things happen! Liquid Nitrogen, Swirling Colors, Oobleck, Slime and Gloop, Just Add Water, Yeast Fermentation, Countertop Chemistry, Strawberry DNA Extraction, Bandana Chromatography
- **Mechanics & Engineering:** Work with machines, understand the physics of motion and the ever-present forces that shape our world and what we can do. Learn to "use the force" to complete your challenge and avoid the destructive forces that get in your way. Motion: Marble Works, Roller Coasters, Simple Machines: Gears and Levers, Simple Machines: Pulleys, Balance and Motion: Triangle Arch and Pencil Trick, Trick Crayfish, Suspend, Giant Jenga, Paper Bridges, Earthquake Engineering, Soda Straw Rockets, Air Kites and Flight.
- **Science of Leonardo da Vinci:** Students become engineers in the tradition of Leonardo da Vinci. They build clocks, design submarines, build rockets, learn about lenses and light, construct trebuchets, drop parachutes, make pinhole cameras, and explore anamorphic art.
- **Shocking Science:** Students will learn all about magnetism and electricity in this shocking series of workshops. By building an electrical circuit, constructing their own loudspeaker designs, performing an experiment in electrolysis, and other exciting hands-on activities, students discover how current flows, positive and negative charges, electrons, and other scientific principles that contribute to and help control electrical power for everyday use.

Sports

Basketball (1-2 & 3-5)

Through the process of "positive coaching," Stratford's basketball coaches will make every athlete feel valuable, while also teaching fundamental skills like dribbling, shooting, and defense. Students will learn how to work with their team mates, and build their confidence and sportsmanship. All players will improve and have fun!

Challenger Sports Soccer (1-2 & 3-5)

Challenger Sports' British Soccer Camp has developed one of the most innovative approaches to coaching youth soccer. Challenger staff are adept at identifying and implementing the key techniques and skills players need to increase foot precision, technical drills, tactical practice, and scrimmage strategies. Coaches will also run side games each day, and celebrate a daily World Cup tournament.

Nothing but Nets (1-2 & 3-5)

In our Nothing but Nets program, Stratford instructors will provide an introduction to Basketball, Volleyball, Badminton, and Soccer. Players will learn the basics of each sport, participate in fun activities designed to provide a deeper appreciation for each game, and spend plenty of time performing drills and competing against their classmates.

Sports Medley (1-2 & 3-5)

This dynamic sports program leads kids through four different sports: kickball, whiffleball, soccer, and flag football. This sampler course will give campers an introduction and practice for each sport, and provide opportunities for further practice in their favorite choices. Children will learn teamwork, sportsmanship, and a wide variety of physical skills.

Tech & Engineering

Lego Robotics (1-2)

In our **Lego Robotics with WeDo** program, students will gain experience building various robots like an airplane, goal kicker and goal keeper, which involve engineering concepts in a fun, engaging and collaborative team environment. Under the guidance of an experienced teacher, students will learn to

build different types of robots like using motors, sensors and program them using Lego WeDo software. Students will also get introduced to various computer science concepts through the WeDo software.

Lego Robotics (3-5)

Using Lego Mindstorms EV3 education kit, students will learn to build various types of robots starting with a simple rover and moving on to complex ones like an elephant and robot arm etc. using different types of motors and sensors. They will go on to program their robots to complete numerous challenge activities using the EV3 software. Students will gain hands on experience in various engineering skills while building the robot and learn fundamental concepts in computer science like loops, control flow etc. when they program.

Coding with Tynker (1-2)

Under the guidance of an experienced teacher, students will be introduced to programming through game-like puzzles, tutorials, and projects. In a block-coding environment, students will learn how to apply coding skills to real-world problems and activities. Students will balance their time between coding independently and working together with classmates on assignments.

Programming with Tynker (3-5)

With Tynker's game programming course, students will work with an experienced teacher to learn concepts of game programming like creating an actor, adding animations, and setting background, along with advanced programming concepts like variables, loops, nested loops, conditionals, broadcasting, and math operators. Participants will have fun coding various game projects with detecting obstacles and adding score components. No previous programming experience required.

Engineering to Save Our Planet (1-2)

Come explore the many marvels of the engineering world! Campers will learn engineering design principles through open-ended innovations inspired by an interesting mix of materials. Working in teams, students will explore Engineering Adventures through interactive games and activities. Young scientists will learn about mechanical and package engineering, and participate in "Safe Removal of Invasive Species" and "Engineering Aid Drop Packages." Students will increase their project collaboration skills, and understand how to solve design problems and provide real-world engineering solutions.

Come Fly with Me – Aero Engineering (3-5)

Innovation is the name of the game in this interactive class designed to teach knowledge and application of engineering principles. Using a wide variety of materials for inspiration, students will work in teams to explore the engineering process and how it can be applied to real-life construction and problem solving. Young scientists will learn about aeronautical and aerospace engineering, including interesting adventures such as "Engineering Flying Technologies" and "Liftoff- Rockets and Rovers." Students will learn how to use engineering as a tool, and how to apply it to a variety of projects and activities in a dynamic and open-ended learning environment.

Test Prep

High School Entrance Test Prep (8)

This 4-week morning class is convenient, high quality, prep class for the HSPT, ISEE and SSAT exams. This course is for rising 8th graders who plan to attend private high schools. The course includes math, vocabulary, reading comprehension and writing review, extensive practice exams, test-taking skills and time management strategies.