

2018 Summer Wonders in Buffalo Grove

Session I: June 11-15

Artbotics: Kinetic Art, Robotics, and Ingenuity (3-8)
Bugs, Bees, and Butterflies (K-5)
Coding with Arduinos:
 Create Digital Devices and Interactive Objects (5-8)
Coding with Scratch (3-8)
Coding with Scratch without Boys (3-8)
Electricity and Play Dough Circuits (K-5)
Geometry, Art, and Architecture (3-8)
Graphic Novels (4-8)
Lego WeDo Robotics (K-4)
Magnificent Measurements (K-2)
Microbiology (2-8)
Motors, Mechanics, and Engineering (4-8)
Say Good-Bye to Civilization! (K-3)
Science Serendipity (K-3)
Studio Art (K-5)

For students entering PK-K

Morning: Ocean Explorers
Afternoon: Dynamic Dinosaurs!

Session III: June 25-29

Art Around the World (K-5)
Breaking Laws of Physics: Discrepant Events (3-8)
Coding:
 Create Puzzles and Quiz Games with Scratch! (3-8)
Coding:
 Java Bootcamp (5-8)
Crime and Puzzlement (4-8)
Get Arithmetickled! (K-3)
Global Worming (K-3)
Makerspace (4-8)
Monologues—Humorous and Dramatic Interpretations (3-8)
Musical Theater (K-8)
Physics of Light: Kaleidoscopes, Prisms, and Rainbows (K-3)
Princesses, Knights, and Dragons (K-5)
Put It in Writing! (3-8)
Slime, Flubber, and Other Fun Polymers (K-5)
Stock Market and Economics (3-8)

For students entering PK-K

Morning: Soaking Up Science
Afternoon: Winter Zoology

Session II: June 18-22

Architecture of Science Fiction (2-8)
Bibliomania: Create Your Own Book (K-2)
Coding with Arduinos: Tote Bags, Sewing, and Creativity (5-8)
Crazy Chemical Concoctions (K-5)
Creative Writing (3-8)
Fun with Improv! (K-8)
Hydraulic JudoBots (4-8)
Make with Makey Makey! (3-8)
Math Puzzles and Strategies (5-8)
Maze Game Design with PowerPoint (3-8)
Museum of Creature-Ology (1-6)
Musical Math (1-5)
Musical Theater (K-8)
Pirate Maps and Treasure Hunts (K-3)
Think/Create Art (K-8)
Tinker Space (K-3)

For students entering PK-K

Morning: Rainforest Adventures
Afternoon: When I Grow . . .

Session IV: July 2-3 and 5-6

Aquatic Biology (3-8)
Chess for Beginners (K-3)
Chess Games and Strategies (3-8)
Chocolate-Ology (K-5)
Coding: Create Action Games with Scratch! (3-8)
Fantastic Beasts: Create, Write, and Illustrate (3-8)
Incredible Inventions of Leonardo da Vinci (3-8)
Lego Mindstorms Robotics (3-8)
Lego WeDo Robotics (K-4)
Math and Science of Building (K-3)
May the Force Bewitch You! (K-2)
Solder and Build: Electronics Lab (5-8)
Stories and Art: Be an Author and Artist! (K-2)
Strawberry DNA, Double Helixes, and Genetics (3-8)

For students entering PK-K

Morning: Happy Birthday, America!
Afternoon: Mad Scientists Loose in the Kitchen

Unique summer challenges for advanced learners!

Course Descriptions

For students entering grades K-8

All courses below are offered both mornings and afternoons. Students enjoy two 80-minute classes each half day, selecting their favorites from among the course offerings. Note that for courses spanning several grade levels, students are scheduled with their age peers.

Aquatic Biology: Create aquatic ecosystems. Explore tide pools, ponds, and coral reefs. Investigate ocean life, from weird and wonderful creatures that lurk in its depths to playful sea otters that frolic on its surface. (3-8)

Architecture of Science Fiction: What would buildings and living spaces look like on distant planets, space stations, and spaceships? Use elements of earth architecture and adapt them for use in space and on moons. How would super-gravity or low-gravity affect your designs? What sorts of adaptations would aliens require? In micro-gravity, your designs could continue up walls and upside-down. Choose your planet, then explore and build! (2-8)

Art Around the World: Journey across the globe as you create artwork inspired by a wondrous diversity of countries, cultures, and peoples. Creative minds will be in force for this course! (K-5)

Artbotics: Kinetic Art, Robotics, and Ingenuity: An imaginative approach to robotics! Artbotics brings together art, robotics, and computer science to create interactive, kinetic sculptures. Explore robotics in a setting that encourages a creative approach to constructing and programming robots. (3-8; \$15 lab fee)

Bibliomania: Create Your Own Book! You're the author, illustrator, and publisher! Transform your creative ideas and vivid imagination into stories and illustrations for your own literary masterpieces. (K-2)

Breaking Laws of Physics: Discrepant Events: What just happened? How? Why? Be surprised by experiments with unexpected results that defy your understanding of the world. Investigate phenomena that venture beyond our world's so-called physical limits. (3-8)

Bugs, Bees, and Butterflies: Meet bugs up close and personal, learn about the lives of bees and other pollinators, and see the life stages of real butterflies. Amaze your friends with weird insect facts! Amaze yourself at a honey-tasting party on the final day, when you discover the vastly different types of honey made from different types of flowers. (K-5)

Chess for Beginners: Intrigued by the game of chess? Learn how to play! Explore basic openings and end games. Enjoy trying out different strategies! (K-3)

Chess Games and Strategies: Designed to challenge chess enthusiasts of all calibers, whether learning new strategies or scrutinizing highly sophisticated schemes and end-game tactics. (3-8)

Chocolate-Ology: Investigate the world's favorite culinary delight! Discover its beginnings as a humble cocoa bean and follow its path to stardom. Probe its mysterious properties. Explore the history and mystery of chocolate through the centuries and around the globe. (*Food allergies? Not a nut free or dairy free class.*) (K-5)

Coding: Create Action Games with Scratch: Learn how to program your characters to run, jump, and throw; gain and lose health and lives; and make use of power-ups and inventories. (*Prerequisite: Basic knowledge of Scratch programming.*) (3-8; \$10 lab fee)

Coding: Create Puzzles and Quiz Games with Scratch: Tired of running, jumping and shooting games? This class will focus on creating quiz and puzzle games. Learn how to program your game to ask questions and keep scores. Ask your players to solve puzzles before moving on to the next level. (*Prerequisite: Basic knowledge of Scratch programming.*) (3-8; \$10 lab fee)

Coding: Java Bootcamp: Java is the most popular programming language in use. It is a general-purpose programming language derived from C and C++ that is popular for its code's ability to run on multiple platforms without being rewritten. (5-8; \$10 lab fee)

Coding with Arduinos: Create Digital Devices and Interactive Objects: How do we use programming to make useful devices? Learn to use a microcontroller to control LED light displays, make simple musical instruments, respond to remote controls, measure and display temperature, and communicate by radio. (5-8; \$15 lab fee)

Coding with Arduinos: Tote Bags, Sewing, and Creativity: How would you like your own interactive, programmable tote bag? Create your design, then add pizzazz by incorporating an Arduino LilyPad and electrical components, such as LED lights, sewn into your tote bag and connected with conductive thread. Program your Arduino LilyPad to make your tote bag light up! Take your tote bag home with you, including the Arduino LilyPad and electrical components that are part of your design. (5-8; \$25 lab fee)

Coding with Scratch: Learn the basics of coding with Scratch, a free and easy-to-use coding language developed at MIT. Learn how to assemble lines of code and work towards creating your own project. (*Free Scratch account required. We will register accounts on the first day. Visit scratch.mit.edu for more information.*) (3-8; \$10 lab fee)

Coding with Scratch without Boys: Exactly the same as "Coding with Scratch" but for girls only. (3-8; \$10 lab fee)

Crazy Chemical Concoctions: Mix strange brews and observe their chemical reactions. Analyze mystery powders and discover secret ingredients. Experiment in a hands-on chemistry lab! (K-5)

Creative Writing: Do you like to originate ideas, create characters, design plots, and express yourself through writing stories and poems? Be inspired by various catalysts, such as posters, paintings, books, music, and discussions, to write and share your creativity. (3-8)

Crime and Puzzlement: Unravel mysteries! Employ your powers of deduction to gather evidence and clues. Will you convince your peers of your conclusions, or will the perplexities remain forever unsolved? (4-8)

Electricity and Play Dough Circuits: Create your own circuits using conductive and insulating play dough to light LED's, run motors, and play sound. Use meters and an oscilloscope to study electric current flow. Design and construct creatures incorporating LED's and sound. (K-5; \$15 lab fee)

Fantastic Beasts: Create, Write, and Illustrate: Imagine fabulous beasts, drawing inspiration from myths, ancient tales, and nature. What are their personalities? Where do they live? How do they interact with one another or with people? Create your own fantastic beasts and tell their stories through writing and art! (3-8)

Fun with Improv! Do you like to think on your feet? Do you delight in new possibilities? Learn how to act through improvisation! Learn the fundamentals of improvisation—the basic tools, rules, and philosophy—through theater games, drills, and simple scenes. Join this class and have a great time improvising with your classmates in a supportive and noncompetitive atmosphere! (K-8)

Geometry, Art, and Architecture: Explore 2D and 3D design using a variety of materials. Consider recent architectural achievements in Chicago. Study the work of such innovators as architect Frank Lloyd Wright and artist M. C. Escher. Develop an understanding of geometric principles underlying architectural structure and artistic design as you create your own 2D and 3D designs and structures. (3-8)

Get Arithmetickled! Giggle your way through music, movement, science experiments, and games all geared to tickle your funny math bones. Discover pizza slice fractions, M&M multiplication, and marshmallow geometry. Explore symmetry and measurement as you create works of art. Delight in a creative approach to math and get arithmetickled! (K-3)

Global Worming: Discover the amazing worm! Explore its chemical and biological impact on our soil. Construct a worm world to save the earth. What can the lowly worm accomplish? (K-3)

Graphic Novels: Do you like comic books, unique illustrations, creating unusual art, or writing stories? Graphic novels are one of the most popular and exciting ways to tell a story. This course offers a look at the fundamentals of this creative expression, including panel to panel, text to images, and page layout. Examine new and innovative ways to bring your ideas to life by developing an original story, creating the characters and dialogue, and plotting out the storyboard. (4-8)

Hydraulic JudoBots: 3, 2, 1, Go! Build your own water-powered robot and battle those of your classmates. Will your robot be victorious? Or is it back to the drawing board? (4-8)

Incredible Inventions of Leonardo da Vinci: From flying machines to scuba gear, from a self-propelled cart to a revolving bridge to a robotic knight, study the creative and scientific genius of Leonardo da Vinci, many of whose inventions were not understood until centuries after he imagined them. Build a model of one of his inventions or be inspired by his work to create your own! (3-8; \$20 lab fee)

Lego Mindstorms Robotics: Create and engineer computerized robots. Employ gears, sensors, motors and various parts to make them faster, smarter, trickier, etc. Work in engineering teams to innovate and experiment. (3-8; \$15 lab fee)

Lego WeDo Robotics: Build robots such as monkeys, alligators, and birds. Work from our building plans or create your own robots. Program actions and sounds. (K-4; \$15 lab fee)

Magnificent Measurements: Experiment with balance scales and spring scales, graduated cylinders and measuring cups. Discover the math, science, and fun of exploring weights and measures in the world around you! (K-2)

Make with Makey Makey! Use cardboard, wire and other household materials to make game controllers, instruments and other fun projects using Scratch and Makey Makey Boards. *(Free Scratch account required. We will register accounts on the first day. Visit scratch.mit.edu and makeymakey.com for more information.)* (3-8; \$15 lab fee)

Makerspace: Let your imagination come to life in a space where trans-disciplinary learning, inquiry, risk-taking, thinking, crafting, tinkering, and wondering blossom. (4-8; \$15 lab fee)

Math and Science of Building: Tackle construction projects using various materials, ideas, and skills to engineer and build skyscrapers, houses, and bridges. (K-3)

Math Puzzles and Strategies: Investigate logic-based problem solving. Tackle challenging problems and intriguing puzzles from math competitions. Equip yourself with useful strategies that will come in handy far beyond the classroom! (5-8)

May the Force Bewitch You! Hands-on physics experiments with “mysterious” forces such as centrifugal and centripetal, magnetism and gravity. (K-2)

Maze Game Design in PowerPoint: Use interactive animation and hyperlinks coupled with slide transitions, effects, and timing to create mazes in PowerPoint. Design trick walls to baffle friends and family. Can they make it out of your maze? (3-8; \$10 lab fee)

Microbiology: Delve into the unseen world! Investigate microscopic life, grow bacterial gardens, and study fungi and algae. Just how disgusting are drinking fountains? Or your dirty socks? Swab them and find out! (2-8)

Monologues—Humorous and Dramatic Interpretations: You can love monologues! Discover how to use your voice and body to create a character in a monologue, to be funny or to be dramatic. Have fun playing theater games with your classmates! (3-8)

Motors, Mechanics, and Engineering: Tackle rapid prototyping design challenges. Experiment with forces and motion as you design, build, and test your project. How well does your prototype work? Are you satisfied? Or would you like to tweak it . . . then experiment again . . . then tweak it some more . . . ? (4-8; \$15 lab fee)

Museum of Creature-Ology: From before the dinosaurs to the present, investigate the strangest animals you’ve never heard of. Invent animals of your own that you wish had existed. Discover odd facts about animals, the unusual relatives on their family trees, and amazing chapters in evolution! Learn about behind-the-scenes preparations in museums and design your own exhibit. (1-6)

Musical Math: Discover how music connects to math through rhythm, scales, patterns, and symbols. Construct percussion and wood instruments. Become a conductor and learn how to keep a steady beat. Use your musical knowledge to write a song! (1-5)

Musical Theater: Do you love to sing and perform? Or are musicals new to you? Sing funny songs or dramatic songs and have a great time with your classmates as you act, sing, and even dance, if you want to! Work on group songs and solo material, learning songs and understanding their meaning. Perform for family and friends on the last day of class! (K-8)

Physics of Light: Kaleidoscopes, Prisms and Rainbows: Explore the magic, beauty and science of color via hands on projects and experiments with light, reflection, shadows, mirrors, and more. (K-3)

Pirate Maps and Treasure Hunts: Crack the clues to find the markers that reveal the trails that lead to the X that marks the spot! (K-3)

Princesses, Knights, and Dragons: Choose your own destiny! Design your own castle. Discover the character traits of courageous princesses, brave knights, and magical creatures. Imagine your own fairy tales with unique characters, then share them with your classmates, if you like! (K-5)

Put It in Writing! Taught by an attorney, hone your persuasive writing skills by learning the best ways to write convincingly. Persuade your friends, parents, siblings, teachers, and future bosses! What do you think is the best game, food, and car? How should we solve current problems? Apply for jobs such as mad scientist assistant, shark repellent tester, Mars astronaut, and more! (3-8)

Say Good-Bye to Civilization! Where will you explore? Design, create, and inhabit a simulated rainforest with flora and fauna, monkeys on vines, parrots on treetops, and boas in the river. (K-3)

Science Serendipity: Do you ask a lot of questions? Do you love all kinds of science? Bring your curiosity to such disciplines as physics, biology, chemistry, electricity, and volcanology! Learn through hands-on experiments. Discover how to use the scientific method to find answers to your perplexing questions. (K-3)

Slime, Flubber, and Other Fun Polymers: Experiment with different ways of making slime. Create other slippery, stretchy polymers in the slime family. How far can you stretch a polymer? How thin can it become? Explore the possibilities as you play with your polymers! (K-5)

Solder and Build: Electronics Lab: Construct a variety of electronic projects and robots, from photophobic micro-bugs to water alarms. (5-8; \$30 lab fee)

Stock Market and Economics: Do you like money? Do you know how the stock market works? How to make your money grow? How companies make money? Follow the stock market and investigate how and why businesses are successful. (3-8)

Stories and Art: Be an Author and Artist! How does a story inspire art? Or art inspire a story? Explore a rich diversity of styles and genres. Express your own creative ideas through both writing and art. (K-2)

Strawberry DNA, Double Helixes, and Genetics: Extract DNA from strawberries! Build a model of a double helix. Explore genetics and mutations. Ever wonder why your hair is curly, your sister is tall, and everyone says you look like grandma? (3-8)

Studio Art: Unleash your artistic energies. Explore a vast range of media, methods and muses! Pursue unique avenues of expression by employing your own combinations of materials and methods to create masterpieces. (K-5)

Think/Create Art: Open your mind to the use of imagination, memory, observation, research, and stories to create art. Your art is a personal response to what you are thinking, whether it takes the form of a drawing, painting, clay sculpture, or collage. (K-8)

Tinker Space: Do you like to try new activities? Challenge yourself? Create? Explore? Choose your own ideas and materials and tinker away to build robots, microbots, inventions, machines, and anything you like. (K-3; \$15 lab fee)

For students entering PK-K

Students enjoy a 160-minute interdisciplinary classroom experience each half day.

Dynamic Dinosaurs! How did dinosaurs live? What was their world like? Through creative, interdisciplinary activities, step back in time to explore the lives of dinosaurs, from the large brachiosaurus to the small compsognathus, from the swift ornithomimus to the slow stegosaurus. (Afternoon only)

Happy Birthday, America! Why is the Fourth of July a holiday? What is the Declaration of Independence? Investigate the history behind the festivities. Celebrate the 242nd birthday of America with all things red, white, and blue! (Morning only)

Mad Scientists Loose in the Kitchen: Discover amazing chemical phenomena happening in your pantries and refrigerators. Explore sundry science through hands-on experiments. (Afternoon only)

Ocean Explorers: Sail the ocean blue! Visit islands around the globe, investigate tidal pools, scuba dive around coral reefs, and discover the briny deep through imaginative interdisciplinary activities. (Morning Only)

Rainforest Adventures: Transform the classroom into a rainforest with monkeys on vines, parrots in treetops, and pink dolphins in the Amazon River! (Morning only)

Soaking Up Science: Swish, squish, and splash as you experiment with everyday items and explore the world around you. Science is everywhere and always! In your backyard and on the playground, during a thunderstorm and at the beach—the possibilities are endless! (Morning only)

When I Grow Up . . . : Do you wonder how early a baker gets to work? How a fire fighter stays safe when putting out a fire? How a librarian keeps track of all the books? Explore diverse careers through creative, interdisciplinary activities. Bring your curiosity, questions, and imagination! (Afternoon only)

Winter Zoology: How do our furry, feathered, and scaly friends prepare for winter? How do they survive cold winters? What is winter like in different parts of the world? Would you rather hibernate like a bear, migrate like a goose, or grow an extra thick, fuzzy coat like a bunny? (Afternoon only)



Location

Prairie Elementary School
1530 Brandywyn Lane, Buffalo Grove

Hours

Full Day: 9:00-3:00
Morning: 9:00-11:40
Afternoon: 12:20-3:00
Extended Care: 7:00-9:00 and 3:00-6:00

Tuition and Fees

Full Day tuition per week (Sessions I, II, III): \$430
Half Day tuition per week (Sessions I, II, III): \$215
Full Day tuition per week (Session IV): \$344
Half Day tuition per week (Sessions IV): \$172

Processing fee per program: \$4
Extended Care: \$9 per hour
Lab fees: As indicated in course descriptions

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