Midwest Torrance Center for Creativity
The Center for Gifted

Course Descriptions for Summer 2022 Programs
in Elmhurst, Lincolnshire, and Long Grove

Note: Following each description are the location and session in which the course is being offered. **Key: EL**=Elmhurst; **LS**=Lincolnshire; **LG**=Long Grove

3D Printing: Using open-source CAD software, design your own printable items and control the machines. Learn how to calibrate, align, and troubleshoot the machines for common issues. EL-II, EL-V

Aerodynamics: Explore the science of flight! Investigate and challenge laws of physics and aerodynamics. Design and construct your own models to test your theories. Investigate why some flights are faster, higher, or longer, then make a few changes and try again! LG-II, EL-III

Ancient Egypt: Pharaohs! Mummies! Pyramids! Create microcosmic simulations as you explore and discover the people, places, architecture, archaeology, and art of ancient Egypt. Debate its philosophy and politics. Probe the wisdom and mystery of the pyramids! LG-III, EL-II

Artistry in Paper: Explore the fascinating and challenging world of paper manipulation. Test your skills at origami, modular origami, kirigami, paper airplane design, and deconstructed books. EL-VI

Astronomy: Big bang, star shows, moon rings! Explore the universe, plan a space trip, and invent a solar system in this hands-on astronomy lab. LG-IV

Axis and Allies: Play the classic strategic board game of World War II, taking on the role of Axis (Germany or Japan) or Allies (United States, United Kingdom, or Soviet Union). Employ and develop your knowledge of history and your strategic thinking skills. EL-IX

Build and Code with Arduino: Learn micro-controller programming and electronic circuits. Build, program, and keep! LG-II, LG-X

Chemical Concoctions: Create, mix, swish, and shake your own strange brews. Observe their sundry crazy chemical reactions and seek to understand them. Experiment, explore, and discover hands-on, elbow-deep chemistry. EL-X

Chemistry Lab: Explore chemical properties through hands-on experiments. Investigate molecular structure. Experiment with solutions, solvents, and reactants that pop, fizz, crackle, and snap. EL-X

Chemistry Lab and Biological Explorations: An in-depth, innovative, "immersion" lab experience! Check out the topics that will be covered! For chemistry lab: chemical reactions, combustion and pyrotechnics, polymers, chromatography, dry ice; for Biological Explorations: Build an Eco-Column, extract DNA, dissect owl pellets, grow microbial gardens, and explore the brain and nervous system. A truly unique opportunity! LS

Chess Club and Simple Machines: Two classes in one! Learn to play chess or build upon your knowledge with winning strategies, from opening moves to end-game tactics. Design and construct simple machines, exploring laws of physics through hands-on experiments. LG-IX, EL-VII

Computer Graphic Design: Blend technology and art while exploring the field of graphic design with a professional graphic artist and web designer. Design and create projects, such as comic strips, posters, logos, book covers, and cards. EL-XI

Create and Play Carnival Games: Make a new carnival themed game every day, such as your own cup toss or Plinko, and then try out the games you and your classmates create. Build skills of craftsmanship as well as strategy. EL-IX

Create and Play Musical Instruments: Have you ever wanted to create your own music? Construct your own instruments, such as bongos and maracas, out of everyday items. Individually and as a class, learn songs on your instruments and perform for one another. (A great class for developing musicians to work on rhythm in the most creative way possible.) EL-IX

Creative Reading and Writing: Do you like reading and writing? Compose stories and poems inspired by diverse, creative exciting literature and other catalysts. EL-VI

Creative Writing: Which is your favorite genre? Is it science fiction, short stories, biographies, mysteries, rhyming poetry, free verse, scripts, screenplays, or something else? Work among your literary peers with plenty of artistic catalysts to inspire and refine your output. Master the art of editing and improving your own writing; and have it published in our creative writing magazine. LG-I, EL-VII

Detective Science: Become a master mystery solver. Whet your sleuthing skills and begin an investigation. Analyze the crime scene, gather the evidence, decipher the clues, piece the puzzlements together. Will you solve the case, or file it away in the unsolved archives and tackle a new one? LG-V, EL-II

Eclectic Science: Explore different fields of science! Investigate such diverse subjects as physics, biology, chemistry, meteorology, and geology through hands-on experiments and activities. LG-VII, EL-IV

Engineer and Build: Combine circuits, motors, and creativity with a variety of building materials and resources, to create your own, one-of-a-kind moto-pets, dragsters, or rare moving contraptions of your own imagination and design. LG-X, EL-VII

Fantastic Beasts: Study the fantastic beasts found in fiction, including the Harry Potter books. Explore their connections with mythological creatures as well as the weird and amazing animals found on our planet. Dream up and create your own fantastic beasts. EL-IV, EL-VIII

Furry, Fuzzy, Slimy: Discover the wonder and wisdom of mammals, birds, reptiles, and amphibians of various species, shapes, sizes, habits, personalities, and attitudes. LG-VI

Game Makers: Investigate games that are old or new, inside or outdoor, quiet or loud, intellectual or pure luck. Then create games with new twists, whether modernizations of existing games, or innovative new games implementing fresh ideas of your own. LG-X

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 Frank Lloyd Wright and 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. LG-VII

Graphic Novels: Do you like comic books, unique illustrations, creating unusual art, or writing stories? The graphic novel is one of the most popular and exciting ways to tell a story. Investigate the fundamentals of this creative expression, including panel to panel, text to images, and page layout, then use this singular art form to express your own literary ideas. Develop an original story, create the characters and dialogue, and plot out the storyboard. EL-VII

Harry Potter-Ology: Enter a wizarding world. Be sorted into a house, create (or bring) your own wand, formulate spells, and play Quidditch. Test your knowledge of Harry Potter trivia and compete for the House Cup. Sample butter beer and wizard candy. Enjoy an End-of-Term Feast! EL-III

Innovation Creation Lab: Thrive in the freedom to discover, explore, and experiment! Your imagination will relish in the abundance of materials and resources and the ideas and possibilities they inspire. Explore a variety of activities, builds, and creations under the tutelage and practical guidance of an expert, creative teacher in a student-centered classroom. LG-V, EL-IV

Invention Convention: Got any ideas for new inventions? Bring them along! Investigate great inventors, from Alexander Graham Bell to Ferdinand von Zeppelin. Imagine, tinker, design and create your own innovations to present at your class Invention Convention. Who wants to be the next Galileo? LG-V, EL-IV

Java Script: All coding journeys have to start somewhere, and Java is a wonderful place to start. A robust language combined with easy-to-learn syntax, Java is the perfect launch for any brave coding explorer. LG-IX, EL-VIII

Kinetic Art Sculpture: Discover art that moves—or kinetic art—through whirligigs, wind socks, spinners, pendulum painting, mobiles, and more. EL-VI

Lego and Lego Robotics: Your choice! Tackle new challenges every day through various builds. Work with our massive amounts of loose Lego's, or follow builds with Lego Robotics and program them to move, dance, flip, etc. (Choice of activities is dependent on individual student input.) LG-I, LG-II, EL-X

Lego WeDo Robotics and More: Explore principles of engineering and programming. Select from a variety of plans to build robots, such as alligators, birds, or soccer players, with Legos, motors, gears, and sensors. Connect your robots to a computer to program their actions and sounds. If you think you're ready, try your hand at designing your own robots. LG-VIII, EL-X

Let's Build a *Green!* City: What would your ideal green city look like? Design innovative houses, neighborhoods, parks, and more. Develop your problem-solving strategies as you explore environmental trials and triumphs. EL-VII

Lights, Jitterbugs, Action! Discover electric circuits with lights, switches, motors, and buzzers. Build your own motorized vibro bugs. Add lights and new features. Create your own designs, all powered with safe, low-power coin-cell batteries. LG-VIII

Makey Makey: Create game controllers, instruments, and other fun projects using Scratch and Makey Makey boards, with cardboard, wire, and other household materials, and Play-Doh. EL-I, EL-VI

Math Mania: Tackle logic puzzles, ponder math riddles, solve sequencing secrets. Create your own numerical trickery and baffle your peers! LG-VII, EL-II

Math, Science, and Architecture: Discover how math, science, and architecture work together as you design, scale, engineer, and build your own models with a wide variety of supplies and materials. LG-X

Microbiology: Explore microbes. Discover which are helpful and which are harmful, and why. What are their roles in the history of medicine? Master the microscope! Investigate myriad weird, tiny things; see what they do and look like up close. Grow petri dishes showing what lurks on surfaces you thought were clean. EL-VIII

Mixed Media Artistry: Create new and exciting art using traditional and/or non-traditional materials. Deconstruct, manipulate, and reimagine your work with a variety of media and non-art materials. Collage, drawing, painting, sculpting, and assemblage are just a few of the ways you can create your masterpieces. EL-III

Mysterious Math: Unravel the mysteries of math, solve ancient puzzles, construct 3D wonders, transform shapes, and delve into dynamic explorations. LG-VI

Optical and Other Illusions: Explore cool ways our brains are tricked and the science behind it. Learn how to create op art, optical illusions, and tessellations. Delve into Escher's world and create a clever illusion, zoetrope, or spinner of your own. EL-IV

Physics Olympics: Design and construct a variety of contraptions, such as hovercrafts, catapults, and electromagnetic pickup toys. Manipulate matter, energy, and the principles of power and force to make them lift, race, run, spin, sputter, flip, and fly. Will you create the fastest? longest-lasting? highest? strongest? or the one that fizzles out? LG-VI, EL-III

Princesses, Knights, and Dragons: Discover the bravest princesses, noblest knights, and their adventures with dreadful dragons. Imagine life in a castle—moats, ball rooms, dungeons, and all. Create your own medieval adventures and stories and role-play with your peers. LG-IX

Prisms, Kaleidoscopes, and Rainbows: Discover the science of color! Explore light, reflection, chromatography, and optical illusion. Experiment hands-on with mirrors, shadows, prisms, bubbles, rainbows, and kaleidoscopes. LG-III

Python: Python is known primarily for its accessibility. Not only does coding in it require a Google account, but the language itself is almost as simple as writing a sentence. You can nail it in one week, for sure! LG-V

Rube Goldberg Adventures: Hone your out-of-the-box problem solving instincts by developing complicated solutions to simple tasks. Engineer and construct contraptions electrical and mechanical that defy logic, evade reason, and stretch your creativity beyond known limits. LG-VIII, EL-VIII

Scratch Animation Design: Explore animation techniques. Create animated scenes, drawing your own computer graphics and combining them with text and sound. EL-I

Scratch Game Design: Master the basics of coding with Scratch, a free and easy-to-use coding language developed at MIT. Design, program, play, and share your own computer games. EL-XI

Solar Power and Wind Energy: Explore these two renewable energy sources. Study conductors and insulators. Tackle solar and wind STEM challenges. Build a solar-powered car. EL-IV

STEAM Days: Same course description as "STEAM Week!" except it is not a one-week program. Students may enroll for one, two, or three days (see program flyers) and adapt their activity choices accordingly. LG-XII, EL-XII

STEAM Week! Science, technology, engineering, art math: What inspires your enthusiasm and curiosity? Explore your interests in fun, exciting ways under the tutelage and guidance of our excellent faculty. Choose a new activity or several every day, or map out a complex project that will motivate you for the whole week. Work on your own, or form a peer group and discover together. LG-I, LG-XI, EL-I, EL-XI

Strategic Board Games: Play a variety of different board games that teach logic, cooperation, and strategic decision making. Whether competing for resources and building up settlements in *Catan*, or working together to find treasure and escape a flood in *Forbidden Island*, these games are great ways to inspire you to think quickly on your feet while making strategic decisions. EL-IX

Textile Arts: Create one-of-a-kind, on-trend art, fashion, or cosplay designs using a variety of techniques, including hand and machine sewing , embroidery, appliqué, felting, and fashion upcycling. EL-VII

Tinker-a-Thon: Interested in hands-on, creative fun? Enjoy activities, builds, and creations that are student led in a student-centered classroom, under the guidance and tutelage of our excellent faculty. Choose from a variety of activities offered each day, or pursue a topic in depth over several days if you prefer. Thrive in the freedom to discover, explore, and experiment! LG-IV, EL-V

Writing and Art: Do you like to tell stories? Express your imaginative tales, dreams, ideas, opinions, through your favorite literary genre(s), such as short stories, free verse, haiku, imagery, rhymes . . . you choose! Then, discover how to enhance and enrich your literary creations with your own one-of-a-kind visual art, with a plethora of art media, supplies and tools on hand. LG-XI