



## Course Descriptions for Summer 2021 Programs

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

### 3D Art and Math

Discover how these two disciplines intersect through builds, drawings, modeling, and structures. EL-Aug I, LG-Jun IV, LG-Aug I

### 3D Printing

Use open-source CAD software to design your own printable items and control the machines. Learn how to calibrate, align, and troubleshoot the machines for common issues. (\$12 lab fee) EL-Jun II, EL-Jun V, EL-Jul II, EL-Jul III, EL-Aug I, LG-Aug I

### Amusement Park Physics

Why do you feel a butterfly sensation when a roller coaster plunges you downward? It's all in the way Newton's laws of motion collide with your adrenaline. Physics plays an essential role in the exhilarating rides at amusement parks. How do they slow down after nose-diving at high speed? Discover how inertia, kinetic and potential energy, mass, and centripetal and centrifugal forces influence your carnival experiences. Experiment with time, distance, and speed. Design and build your own ride to discover the feats and thrills you can create by strategically employing laws of physics. EL-Jun III, LG-Jun III

### Animals, Stories, and Art

Do you like animal stories, especially with wonderful illustrations? Explore a rich diversity of stories--from Peter Rabbit to the Pigeon--and their artistic styles. Express your creativity and love of animals by writing and illustrating animal stories of your own. EL-Jul III, LG-Jul III

### Art Unlimited

Create multi-dimensional masterpieces of mixed media, methods and muses, such as collage, printmaking, sculpture, drawing, pastels and watercolor. EL-Jul I, EL-Aug I, LG-Jul I, LG-Aug I

### Blender

Blender is a powerful 3D computer graphics software toolset used to create animated films, physics simulations, video games and much more. With it, you can create impossible scenes by controlling and animating physics. For example, quickly build a tower just to knock it down, and watch how it falls from any angle; pour water into a glass cup and get the perfect, photo-realistic picture as it splashes back out; write your name in big 3D letters, then hit it with a wrecking ball, smashing it into a million pieces. Computer creativity and imagination are all you need to produce endless animated possibilities. EL-Jun V, LG, Jun II

### Brain Benders

Bend your brain as you investigate puzzling problems. Develop strategies and persevere to solve a variety of brainteasers and challenges. EL-Jun V, LG-Jun V

### Build and Code with Arduino

Learn micro-controller programming and electronic circuits. Build, program, and keep. LG-Jun III, LG-Jul IV

### Chemical Concoctions and Math

How do math and chemistry work together? Measurements, conversions, proportions, and

weight are important factors in chemistry. Study the two disciplines together and separately. Mix strange brews and observe their chemical reactions. Analyze mystery powders and discover secret ingredients. Experiment in a hands-on chemistry lab. [EL-Jun IV](#), [LG-Jun IV](#)

### **Chemistry Lab**

Explore chemical properties through hands-on experiments. Investigate molecular structure. Experiment with solutions, solvents, and reactants, but don't blow up the lab!

[EL-Jun II](#), [LG-Jun III](#)

### **Cosplay Creations**

Bring your favorite characters or unique creations to life through fabric, foam, hot glue, and more! What everyday items can you transform into horns, costumes, props, or personages? [EL-Jul I](#)

### **Creating Games from Scratch**

Learn the basics of coding with Scratch, a free and easy-to-use coding language developed at MIT. Assemble lines of code and work toward creating your own projects. (A free Scratch account is required; we will register accounts on the first day. Visit [scratch.mit.edu](http://scratch.mit.edu) for more information.) [EL-Jul IV](#), [LG-Jul III](#)

### **Creative Space**

Are you inventive? Do you have your own ideas that you would like to try? Come flex your building and engineering skills to create new designs and products of your own inspiration.

[EL-Jun III](#), [LG-Jun III](#)

### **Creative Writing**

Express your unique imagination and creativity by writing in your favorite genre. Which do you enjoy most—science fiction, short stories, rhyming or non-rhyming poetry, scripts, screen plays, biography, mystery, or something else?

Work among like-minded authors, poets, playwrights, etc., with plenty of story prompts, art, music and discussion to inspire and refine your output. [EL-Jul III](#), [LG-Jul II](#), [LG-Jul III](#)

### **Critter-Ology and Magical Creatures**

It's time to follow the spiders! Learn about some of the fantastic beasts found in your favorite book series, like Aragog the Acromantula and the Basilisk, plus a few more never-before-seen magical creatures given to us by Newt Scamander himself. [EL-Jun IV](#), [LG-Jun V](#)

### **D&D**

Welcome to Dungeons and Dragons, where the fantasy setting is up to the Dungeon Master and almost anything is possible! Join a party of adventurers in fighting monsters, visiting towns, and more! What will be your party's area of specialty? How will it contribute to the whole?

[EL-Jul I](#), [EL-Jul IV](#)

### **Deconstruction Zone: A Techie Take-Apart Event**

Explore the inner workings of things and investigate how they were built by taking them apart—without breaking them. Choose from our collection of used electronic devices. Open it up and dive in. Detach, remove, and examine parts and pieces as far as you can go. Discover firsthand what makes each device "tick" as you gain a new perspective of complex engineering.

[EL-Jun IV](#)

### **Dry Ice Science**

When science (especially chemistry) is depicted in movies or on TV, we usually see a block of dry ice bubbling away in a colorful liquid. Delve into this endlessly and wonderfully useful substance. Discover for yourself its many principles, attributes, and uses. [EL-Jun IV](#), [LG-Jun IV](#)

### **Eclectic Science**

Explore a different area of science each day through hands-on experiments and building projects. [EL-Jul III](#), [LG-Jul III](#)

### **Games, Games, Games!**

Discover games that are old or new, inside or outside, loud or quiet, running or sitting, intellectual or pure luck. Create new games; modernize old ones. Come, get in the game!

[EL-Jul II](#)

## **Grossology of Biology**

Embark on an in-depth investigation of the unmentionable yet fascinating bodily functions that keep us going. Gain an understanding of the science behind the human body systems. Investigate the roles of blood, phlegm, sweat, gas, mucus, pus, and other things gross but indispensable. [EL-Jun V](#), [LG-Jun IV](#)

## **Historic Games of Strategy and Diplomacy**

Re-enact history through games of strategy! Choose from games covering a variety of time periods and locations. Expand empires through 4000 years of History of the World, smite thine enemies in Ancient Conquest, invade Britannia, crown your pretender in Kingmaker, colonize exotic lands during the Age of Imperialism, lay iron track across the prairie in Empire Builder, make the world safe for democracy in Diplomacy, or fight World War II in Axis and Allies. [EL-Jun III](#), [EL-Jul I](#), [EL-Jul III](#), [LG-Jun III](#), [LG-Jul I](#), [LG-Jul 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. [EL-Jun II](#), [LG-Jun II](#)

## **Intro to Law**

Explore the U.S. court system with a real attorney as you practice courtroom debate and take part in mock trials in which you play the parts of judge, jury, attorneys, or witnesses. [LG-Jul III](#)

## **Introductory Economics**

Economics has been professionally studied since the 1700s. Investigate its roots, how it has evolved over time, and how economies all over the world work together today. [EL-Jul II](#)

## **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 way to start your journey. [EL-Jun II](#), [LG-Jun V](#)

## **Lego's or Lego Robotics: Your Choice**

Be challenged each day through various builds! Some days we will be working with our massive amounts of loose Lego's. Other days we will be following builds with Lego Robotics and programming our robots to move. Choice of activities is heavily dependent on student input. [EL-Jun III](#), [EL-Jul III](#), [LG-Jun II](#), [LG-Jul III](#)

## **Let's Build a City**

What would your ideal city look like? Map it out and create a model. Design parks, shopping districts, skyscrapers, and more. How about a zoo? Or a sports arena? You're in charge! [EL-Jul I](#), [LG-Jul I](#)

## **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 design, of course. All powered with safe, low-power coin-cell batteries. [LG-Jun III](#)

## **Maker Mania**

Explore your interests. Collaborate with your peers and share ideas or work alone as you create and bring your ideas to fruition. [EL-Jun III](#), [LG-Jun III](#)

## **Maker Week**

Let your imagination come to life in a space where trans-disciplinary learning, inquiry, risk-taking, thinking, crafting, tinkering, and wonder just naturally blossom. [EL-Aug III](#), [LG-Aug III](#)

## **Microbiology**

Learn about helpful and harmful microbes, microscopes, and their roles in the history of medicine. Grow petri dishes showing what lurks on apparently clean surfaces, and discover what

myriad tiny things really look like up close.

EL-Jun Tuesdays, EL-Aug I, LG-Aug I

### **Motors, Mechanics, and Engineering**

Explore forces, motion, and engineering through a series of rapid prototyping design challenges and building projects. All projects can be brought home for further revision and experimentation.

EL-Jun V, LG-Jun V

### **Optical Illusions and Other Ways to Trick Your Brain**

Is it possible to not notice a gorilla walking right in front of you? Can something be both hot and cold at the same time? Learn how to fool your brain, and create some fun optical illusions.

LG-Jul II, LG-Jul IV

### **Organic Chemistry: Molecular Models**

The first steps in understanding the science and art of organic chemistry are to know how to name compounds from their structures, and how to draw or build compounds from their names.

Using molecular models, build a variety of organic compounds and learn to name them according to IUPAC rules. (\$20 lab fee) EL-Jul II

### **Patterns in Nature**

Discover natural patterns and use mathematical concepts to describe them. See what designs and products you can create using patterns.

EL-Jun IV, LG-Jun IV

### **Physics Lab**

Study the principles and properties of matter, energy, motion, and force through builds and experimentation. EL-Jul IV, LG-Jul IV

### **Platform 9¾**

Calling all witches and wizards! You have been accepted into the Hogwarts School of Witchcraft and Wizardry. Before you take your O.W.L.'s, join us to learn a few more potions, compete in Harry Potter trivia, and create your own wands.

EL-Jun Mon/Wed

### **Polymers, Potions, and Powders**

Concoct creative scientific solutions, cause weird chemical reactions, and create slippery slimy substances. EL-Jul II, LG-Jul IV

### **Put on a Play: Write, Design, Create!**

Love to design sets, make costumes, write scripts, or develop characters? Create a play from your own imagination with a small group of live-theater enthusiasts. Perform your play for parents and friends at the end of the week.

EL-Jul II, LG-Jul II

### **Python**

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

EL-Jun IV, LG-Jul I

### **Roller Coaster Physics**

Potential energy, kinetic energy, mass, gravity, hills, and turns. What properties go into the making of a coaster? How do we manipulate them to make them work together so prodigiously? LG-Jul IV

### **Sewing 101**

Explore a variety of sewing projects, from stuffed animals to clothes to home décor. What will you create? EL-Jul III

### **Sewing and Art**

Make your designs and ideas a reality through fabric. Combine colors, patterns, textures, and sewing notions into one-of-a-kind creations like bags, pillows, and wearables. EL-Jun Mon/Wed

### **Slime and Other Slippery Science**

Experiment with weird and varied recipes for slime. Create and scrutinize other slippery, stretchy polymers in the slime family. Investigate the properties of polymers. How far can you stretch them? How thin can you make them? What makes them hold together (or not)? Play slime games with your peers as you ponder these perplexities of polymers. EL-Jul I, LG-Jul I

## **STEAM Week**

Science, technology, engineering, art, math: What inspires your enthusiasm? Come explore your interests. Choose your own, or join in learning about some of ours.

EL-Jun I, EL-Aug II, LG-Jun I, LG-Aug II

## **Stock Market and Economics**

Play the stock market game as you learn about money, stocks, interest rates, and economics. Learn the history of the stock market crash, housing bubble, and recessions, as well as the true value of a dollar. LG-Jul I

## **Stop-Motion Movie Studio**

Discover all that goes into making a stop-motion movie. Begin with storyboarding; create characters using figures, models, or even humans for comedic effect; design backgrounds and props. Using a digital camera and movie software, turn photographs into your own unique movie, complete with sound and special effects. EL-Jul IV, LG-Jul II

## **Superhero Science**

The Avengers, DC and Marvel heroes have battled to save Earth from countless villains, human and alien. They do this, of course, with the help of superpowers, such as Iron Man's suit, super-healing powers, Captain America's indestructible shield, super speed, and many others, plus innovative technology. How scientifically sound are these powers? Do any of them hold up under the laws of chemistry and physics? Could Ultron be accidentally created in real life? Search for the science behind these supernatural abilities and technologies and discover how engineers are actually replicating these today. EL-Aug I, LG-Aug I

## **Tabletop One-Shots**

Explore the world of tabletop Role-Playing Games through various short stories. Commit heists as a bear, drag race in LA as raccoons, and lots more! EL-Jun V

## **The Art of the Argument**

Learn from a real attorney how to address an audience effectively, whether you are presenting in class, arguing with friends, or trying to convince your parents of something. Find out how to give prepared and impromptu speeches, incorporate props and Powerpoint slides, and use humor and quotations. Discover the power of body language and principles of debate. Learn what to do and what not to do when speaking to an audience, whether the audience is one person or a crowd of thousands. Participate in a tongue twister contest, speech charades, and many other fun activities. LG-Jul II

## **The Science of Art**

Traditionally, art and science have been treated as two separate disciplines, but when studied together it is clear to see the impact each has on the other—and ultimately on the artist. Create your own works inspired by your study of this indestructible relationship. EL-Aug I, LG-Aug I

## **The Science of Star Wars**

Learn from many of the technical secrets and principles behind, for example, invisible cloaking, light sabers (build one!), tractor beams, light speed, ships (like Millennium Falcon), droids, fusion, lasers, weightlessness (zero gravity), then try reconstructing them. Simulate beaming someone or something to a planet. Investigate how many of these ideas are currently being researched in the real world. EL-Aug I, LG-Aug I

## **The Wonderful Realm of Exotics**

Geckos and spiders and snakes, oh my! Get a close-up look (and touch) of these and other amazing and largely misunderstood creatures. Learn about their habitats, lives in the wild, and all of their crazy patterns and personalities. EL-Jul I, LG-Jun V

## **Wildlife Conservation**

What is a keystone species? Why are polar bears white? How do whales communicate? Explore Earth's various ecosystems and species and how

they affect and interact with one another—and with us. [EL-Jul IV](#), [LG-Jul IV](#)

### **Wizards, Spells, and Potions**

Explore wand lore, formulate spells, create strange potions, write about your favorite characters, beasts, and ghosts, and take part in a Wizard's Duel! [EL-Jun IV](#), [LG-Jun III](#)

### **Wonders and Blunders of Science**

Invent a concoction that's actually good for something. Explore famous scientific bloopers that eventually worked out. [EL-Jun V](#), [LG-Jun V](#)

### **Writing and Art**

Express your ideas through your favorite genres, like short stories, free verse, haiku, imagery, rhymes . . . you choose! Then discover how to enhance and enrich your writing with your own one-of-a-kind art. [EL-Jul I](#), [LG-Jul I](#)

### **Zombies, Zombies, Zombies!**

Learn what to do and how to be prepared for many types of disasters and emergencies, including zombies! Do you know what to do if trapped in a car underwater, stranded without heat in the winter, or bitten by a wild animal? Where is the safest place to be in an earthquake? Can you escape from duct tape? How many types of zombies are there? [LG-Jul I](#)

## **The Center for Gifted and Midwest Torrance Center for Creativity**

*Joan Franklin Smutny, Director* • 847-901-0173 • Fax 847-901-0179 • [info@centerforgifted.org](mailto:info@centerforgifted.org) • [www.thecenterforgifted.org](http://www.thecenterforgifted.org)

Mailing address: Box 364, Wilmette, IL 60091 • Physical address: 1926 Waukegan Road, Glenview

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