



Course Descriptions for Summer 2023 Programs in Elmhurst, Lincolnshire, and Long Grove

Note: Following each description are the **location(s)** and **session(s)** in which the course is being offered. **Key:** **EL**=Elmhurst; **LS**=Lincolnshire; **LG**=Long Grove, and whether it is being offered in the morning (**AM**) or afternoon (**PM**).

Architectural Engineering: Let's Build a City!

Combine engineering and innovation to design and create your own city. Imagine how you would like yours to be, devise a plan and map it out. Will you have parks, shopping districts, skyscrapers, hotels? How about a sports arena or a zoo? You're in charge! **EL1/PM, LG9/PM**

Brain Benders: Bend your brain as you investigate logic-based problem solving. Tackle challenging puzzles and predicaments. Ponder riddles. Develop clever strategies and persevere to solve a variety of brainteasers and challenges. Create mind boggling of your own to boggle your buddies. **EL6/AM, LG6/AM**

Chocolate-Ology: Investigate the world's favorite culinary delight! How did it all happen? Explore its history through the centuries and around the globe, from the humble cocoa bean to international stardom. Discover its mysterious properties and some of its weirdest recipes (chocolate-covered *what?! (Not a nut-free or dairy-free class.)* **LG8/AM**

Chocolate-Ology and Candy Science:

Investigate the world's favorite culinary delight—its history, mystery and particular properties. Expand your culinary interests to other sugary sweets via colorful chemistry experiments and hands-on activities, all with delicious results! (*Not a nut-free or dairy-free class*). **EL3/AM**

Create and Design: Realize your own ideas. Build and test your own designs. Do you want to invent something? Lay out plans for your own theme park? Create an ingenious device to solve a common problem? Let your creativity run wild for this class. **EL2/AM, LG2/PM**

Crystals, Lemonade, and Dancing Raisins: Do you love chemistry? Use fun household items to learn all sorts of basic science concepts from chemical reactions, density, crystals and more. Just don't blow up the lab! **EL4/PM, LG3/PM**

Dry Ice Science: What is dry ice and how and why does it appear to disappear? Discover its amazing properties and uses. Explore its attributes using balloons, metals, water, soap, and more. Make dry ice bubbles you can hold. Investigate hands-on this endlessly useful substance. **LG5/AM**

Dynamic Dramatics: Enjoy an ensemble experience with your peers! Create skits and scenes or write a whole script. Cast characters, design a set and costumes. Explore character development, movement, staging, voice, improv, comedy, pantomime. Prepare a live performance for the last day for family and friends. **EL3/AM**

Electronics Lab: Learn basic circuitry as you construct various electronic gizmos. Assemble circuit boards, connect wiring, batteries, speakers, and LED's to bring your project to life. Soldering is required. No previous experience is

necessary, as basic skills will be taught. *(For students entering 3rd-5th only; for 1st-3rd grades, see "Lego WeDo" course)* **LG7/PM**

Forensic Science: Reconstruct the crime scene, sleuth the area for clues, analyze forensic evidence. Explore chromatography, secret inks and actual methods of criminal investigation. Piece your findings together, apply your powers of deduction, and solve the crime (maybe). **EL6/PM.**

Lego WeDo Robotics and More: Select a robot design, such as alligator, soccer player, airplane. Follow the construction plans using Legos, gears, motors and sensors. Connect to a laptop to program your robots' actions and sounds. Ready for a greater challenge? Apply your experience to designing as well as building, and experiment with different configurations. You will love the creative engineering possibilities! *(For students entering 1st-3rd grades; for 3rd-5th graders, see "Electronics Lab" course)* **LG7/PM**

Legos! Robotics, Design, Construction: Explore principles of engineering and programming. Employ gears, sensors, motors, various parts to create computerized robots. Program them to be faster, smarter, trickier, etc. Work in engineering teams to innovate and experiment. **EL8/AM, LG1/AM**

Math to Amuse and Confuse: Discover the fun and fluster of math as you tackle its perplexities, from codes to magic squares, number tricks to secret sequences. Play math games. Investigate intriguing puzzles. Create your own number tricks to perplex your peers. **EL5/AM, LG8/PM**

Mathematical Patterns and Games: Discover new problem-solving methods. Probe the puzzle-ment of patterns. Explore clever techniques with geo-boards and dice. Challenge your skills by playing games that mathematicians love to play. **EL8/PM, LG1/PM**

Monsters of the Microworld: Delve into the unseen world of those tiny organisms that can create huge challenges for mankind. Investigate fascinating microscopic life. Grow bacterial gardens and sleuth out fungi and algae. Exactly how disgusting are public drinking fountains? And how about your dirty socks? **LG6/PM**

Powders, Potions, and Polymers: Concoct creative scientific solutions with curious chemical combinations and properties in this hands-on chemistry discovery class. Create and scrutinize polymers and investigate their properties. How far can you stretch them? How thin can you make them? What makes them hold together (or not)? **EL1/AM, LG9/AM**

Science Experiments: Do you like to ask questions? Do you love many kinds of science? Apply your curiosity to disciplines such as physics, biology, chemistry, electricity, and volcanology. Discover through hands-on experiments. Learn how to use the scientific method to satisfy your desire for answers to just about anything. **LG7/AM**

Science Puzzlers: Puzzles, games, riddles. Apply various sciences to solve problems, mystery cases and crimes! Discover how honing your communication skills can enhance your problem-solving skills! **EL7/AM, LG4/AM**

Science Spectacular! This 17-day, in-depth lab experience delves into three exciting STEM topics and the singular challenges they offer:

Engineering Escapades: Hone your rapid prototyping skills and problem solving abilities as you design contraptions deliberately and ridiculously over-engineered to perform simple tasks in a complicated fashion; i.e., a tomato smasher or a balloon popper. Dream up your own brilliant feats of engineering with Rube-Goldberg-type ingenuity.

Crazy Chemical Concoctions: Conceive, create, and concoct strange and unique brews. Observe the chemical reactions they perform. Investigate

physical forces and chemical combinations that tend to flare, fizzle, spark, pop, and occasionally explode! (No blowing up the lab, please.)

Motor Mania: Employ various-sized motors and a wide array of mechanical and practical materials to create unusual machines, dragsters, hoppers, boats, even kinetic sculpture, art, and more! What's your pleasure? **LNC**

Shipwrecked!

How are your survival skills? Create a simulated deserted island and find out. How long can you sustain yourself and your crew? What are the odds of your rescue? Should you hunt for buried treasure? **EL7/PM, LG4/PM**

Slopes and Slides: Math and Engineering

Draw, build, and measure the slopes of slides and ramps. Investigate potential energy, kinetic energy, mass, gravity, and other physics.

Engineer your own ramps course with hills and turns as you investigate variables that affect how objects move up, down, and around on various slopes and slides. **EL5/PM, LG5/PM**

The Ultimate Bubble: Explore physics, air, density, gravity, surface tension, and liquid chemistry in a hands-on lab. Experiment with these variables as you seek to produce the biggest, strongest, longest-lasting, or craziest bubbles! **LG2/AM**

The Physics of the Cosmos: Investigate the physics of space via hands-on activities and simulations. Deep-dive into the unprecedented discoveries of the Hubble and our phenomenal new James Webb telescopes. Enjoy some cool space exploration! **EL2/PM**

Zoology: Discover the wonders of various species of animals—mammals, birds, reptiles, amphibians, etc. Investigate their shapes, sizes, habits, habitats, diets, personalities, and attitudes. Create a model habitat of your choice. **EL4/AM, LG3/AM**

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