

2019 Summer Course Descriptions

Age 4 - Grade 5, One Week Courses Leapfrog - Spark Program Half-day morning, Half-day afternoon, and All-day courses available

Apply early! Application period begins January 2, 2019.

Leapfrog - Spark courses at Center for Talent Development (CTD) are challenging and enriching opportunities for academically talented students. Innovative, hands-on activities challenge students to learn new concepts in the areas of science, technology, engineering, English & language arts, social science and math. Each 1-week course is designed to accommodate either Age 4 only or two grade levels: PreK-K, K-1, 1-2, 2-3, 3-4, and 4-5. Students with demonstrated strengths in verbal / reading and/or math, depending on the course, may apply. Please see the CTD [Leapfrog - Spark](#) homepage for eligibility details.

Open Enrollment Opportunities

Age 4, Tadpole Academy and Challenge Lab do not require documentation of eligibility. Age 4 courses are one-week morning courses offered at each location. Tadpole Academy is offered to Age 3 children and their parent or caregiver three mornings per week at the Naperville and Skokie locations. See the [Tadpole Academy homepage](#) for more details. Challenge Lab is available in the afternoons only at the Evanston / Skokie area location during July sessions. See the last page for more information about Challenge Lab.

Dates:

June 24 – 28 (*Favorites Week*)
July 8 – 12
July 15 – 19
July 22 – 26

Times*

A.M. 9 a.m. – 12 noon
P.M. 1 p.m. – 4 p.m.
All-Day: 9 a.m. – 4 p.m.

Locations: For specific locations, please see the Leapfrog - Spark Course Charts on the Summer [Leapfrog - Spark](#) website to see which courses are offered near you. Courses are offered in Chicago, Skokie, Lake Forest, Naperville, and Palatine, Illinois.

Tuition

Half-day: \$345 for the first course, \$310 for each additional course
All-day: \$670 for each course;

Application: Visit My.CTD.Northwestern.edu to begin your application.

**For students who are enrolled in both a morning and afternoon course in the same week, students bring their own lunch and will be supervised by CTD staff from 12 p.m. to 1 p.m. At 1 p.m., students will be escorted to their afternoon class.*

NEW! 2019 [Before Care available at Leapfrog - Spark sites, Registration begins in early May](#)

Each Leapfrog – Spark site will be offering early drop off for students. For Skokie, Naperville, Palatine, and Lake Forest, CTD will supervise Before Care. In Chicago, GEMS World Academy will be offering early drop off and after care to all families attending summer programming at their site.

- There is no extra fee for CTD Before Care. There is a fee for GEMS Before Care, although we don't have information on the fee just yet. *Students at all sites must be registered in order to participate.*
- Parents must walk their child to the Before Care location for drop-off.
- Students may be dropped off at Before Care at any time between 8:00 am and 8:45 am. After 8:45 am, parents must wait for drop off to the classroom.
- Students may bring a peanut / tree nut free snack to eat during Before Care.
- During Before Care, students can read, play cards, draw, or play board games.
- At 9am, students will be escorted to their class by a teaching assistant.

For more information, please visit the Leapfrog - Spark website or contact CTD-admissions@northwestern.edu

Age 4 to Grade 3 / Half Day Courses

(grade level on January 1, 2019)

Half-Day Morning and Afternoon Courses

A.M. 9 a.m. – 12 noon

P.M. 1 p.m. – 4 p.m.

Age 4 (Half Day)

(open enrollment)

SCIENCE

Swirl, Soak and Spray: How Water Works (Age 4)

On this adventure, students have a soakin' good time exploring the concepts behind density, flow, whirling, and displacement while controlling water at their command. Students experience the different phases of water and discover how water behaves in a variety of conditions. Through creative and critical thinking, problem solving, and scientific inquiry, students "dive into" the amazing world of water.

SUBJECT AREA: Science

Science Spies: Snooping for Answers (Age 4)

In this course, students put on their lab coats and explore like scientists. They use observation skills, dramatic play, and their curiosity to learn about the physical and natural world. They explore concepts such as how magnets work, what plants need to live, and how animals protect themselves. By asking questions, making predictions, and identifying characteristics of things in their world, who can predict where their investigations will take them?

SUBJECT AREA: Science

Matter Minds: Solids, Liquids and Gases (Age 4)

Matter is all around us in the form of solids, liquids, and gases. Students take on the role of young scientists who are ready to investigate the world around them. These young scientists get messy in multi-sensory explorations, ask questions, and engage in dramatic play to discover the states of matter and the role matter plays in their everyday lives.

SUBJECT AREA: Science

PreK – Kindergarten (Half Day)

ENGLISH & LANGUAGE ARTS

Students with strong verbal / reading ability may enroll in an English & Language Arts course. Courses correspond with the student's grade level as of January 1, 2019.

Ocean Explorers (PreK- K) (Favorites Week Only)

As oceanographers, students learn about marine life and biodiversity. They learn how and why scientists study ocean life, and investigate ways to help preserve ocean habitats. Students imagine, draw, and write about life under the waves.

SUBJECT AREA: English & Language Arts

Pirates & Treasures (PreK- K) (Favorites Week Only)

Through fiction and nonfiction, students discover pirates and treasures, use maps, and hunt for clues. Students study the historical and cultural forces that surrounded pirating in different parts of the world at different time periods. To develop writing skills, students write, draw, and dictate journal entries and stories.

SUBJECT AREA: English & Language Arts

If I Ran the Zoo (PreK- K)

Students take on the roles of zookeepers and veterinarians to make important decisions about which animals to keep in their zoo and how to care for them. Young zoo workers conduct research and design animal habitats, create signs and other zoo literature, and discuss ethical issues related to zoo life and endangered animals. Early literacy skills are developed through drawing, dictation, and emergent writing.

SUBJECT AREA: English & Language Arts

Puppet Productions (PreK – K)

Puppets help us become better storytellers. Young storytellers learn about character, story sequence, and the structure of puppet plays. Through storytelling, role-playing, and vocabulary activities, students extend their storytelling and literacy skills as they create and share stories.

SUBJECT AREA: English & Language Arts

Cover to Cover: Make Your Own Book (PreK – K)

Have you ever wanted to see your name on the cover of a book? Here's a chance for young authors to create their own illustrated story and learn about parts of a book. Students publish their own library of original stories.
SUBJECT AREA: English & Language Arts

MATH

Students with strong math ability may enroll in a Math course. Courses correspond with the student's grade level as of January 1, 2019.

Top Secret Numbers (PreK – K) (Favorites Week Only)

How many different ways can a mathematician write or show the concept of "three?" A numeral is just one symbol that represents a certain quantity. Amazing secrets are revealed as students practice identifying and using symbol systems to create math problems, patterns and codes.
SUBJECT AREA: Math

Geometry on the Playground (PreK – K)

How many rectangles can be found in a set of monkey bars? How do you measure the angle of a slide and how does the angle of incline help you go down faster (or slower)? Students are introduced to a variety of tools and geometric concepts for hands-on exploration of everyone's favorite play space: The playground!
SUBJECT AREA: Math

Kitchen Math (PreK – K)

Measuring, timing, comparing, and computing are on the menu as students do the work of cooks and bakers. Students use mathematical thinking along with kitchen tools to follow recipes and use equations.
SUBJECT AREA: Math

Mini Mathletes (PreK – K)

Mathematical thinking involves recognizing patterns, identifying sequences and deductive reasoning. Through playful, group problem-solving challenges, students apply these skills as they employ new strategies and tools such as number lines and functions.
SUBJECT AREA: Math

SCIENCE

Students with strong verbal / reading or math ability may enroll in a Science course. Courses correspond with the student's grade level as of January 1, 2019.

Building Bridges (PreK – K) (Favorites Week Only)

Truss, arch, suspension, and more — young engineers learn about bridge structures and study famous examples from around the world. Students create their own bridge models based on the principles of physics. Using the process of scientific inquiry, they consider the factors that

other bridge builders have addressed and imagine building bridges in the future.
SUBJECT AREA: Science

Surprising Spills & Messes (PreK – K) (Favorites Week Only)

Pour, stir, and spill! Students create their own crazy concoctions, observe the amazing (sometimes messy) results, and document their discoveries and conclusions. Aspiring scientists explore the properties of liquids and solids, as well as the benefits of unexpected and intriguing outcomes.
SUBJECT AREA: Science

NEW! Bees and Hives (PreK – K)

Why do bees build hives out of hexagon-shaped cells? How do bees communicate to other bees about nectar? Students discover the fascinating science behind the lives of bees, including the structure of a bee hive and the roles within a bee community. Through picture books, projects, and dramatic play, students learn about the queen bee, how bees make honey, and how bees communicate certain information through a special "dance." Projects include building a model of a hive to deepen their understanding of how the shape and design of the hive make honey storage more efficient.
SUBJECT AREA: Science

Magnets & Mirrors: Magical Experiments (PreK – K)

Magnets have the power to make objects move as if by magic. Mirrors can play tricks with how we view the world. Hands-on science experiments teach children core concepts of physical science, such as magnetism, gravity, polarity, reflection, and magnification.
SUBJECT AREA: Science

NEW! Doctors & Dentists (PreK – K)

Stick out your tongue and say, "aaah!" Doctors and dentists have special jobs because they help us stay healthy. Through role-play and hands-on activities, students learn the kinds of information doctors and dentists gather during regular check-ups. Students learn about healthy choices, such as eating well, getting enough sleep, exercising, and regularly brushing one's teeth. As young dentists and doctors, they explain to their "patients" how these healthy choices can improve overall-health. Students also discuss other reasons they visit the doctor or dentist, including a common cold, a sore throat, or a toothache.
SUBJECT AREA: Science

TECHNOLOGY, COMPUTER SCIENCE & ENGINEERING

Students with strong verbal / reading or math ability may enroll in a Technology course. Courses correspond with the student's grade level as of January 1, 2019.

Robot Road Trip (PreK – K)

Anyone can make a robot move, but programming a device to travel from point A to point B takes spatial reasoning, mapping, and coding skills. In this course, students learn to program tangible tech devices like Bee-Bot robots to perform increasingly complex challenges as they dash from one destination to another.

SUBJECT AREA: Technology, Computer Science & Engineering

Coding Pattern Power (PreK – K)

Students create patterns using tangible tools (such as beads on a string), audio tools (such as notes in a song), and virtual tools (such as coding apps on a touchscreen). Pattern play leads to a deeper understanding of both coding concepts and computational thinking.

SUBJECT AREA: Technology, Computer Science & Engineering

Kindergarten - Grade 1 (Half Day)

ENGLISH & LANGUAGE ARTS

Students with strong verbal / reading ability may enroll in an English & Language Arts course. Courses correspond with the student's grade level as of January 1, 2019.

Fantastical Creatures in Fact & Fiction (K – 1) (Favorites Week Only)

Students expand their reading, researching and listening skills through the exploration of fantastic tales about mysterious creatures, such as the Loch Ness monster and dragons. Students use a variety of sources to craft their own accounts of these eye-popping creatures in formats such as news reports and short stories.

SUBJECT AREA: English & Language Arts

African Safari (K – 1)

As wildlife photographers on a safari trip to Kenya, students learn about African topography and the animals that are found in Kenyan game reserves. Students imagine and create their own fictional game reserve, map it, research the local Maasai culture, and create a safari guidebook. Along the way, the wildlife photographers encounter a variety of challenges that they discuss, research, and solve together.

SUBJECT AREA: English & Language Arts

Heroes and Villains (K – 1)

Is the Big Bad Wolf really a villain? What traits make one character a hero and another a villain? Students read stories and focus on the portrayal of characters they enjoyed most. By analyzing character development, readers and writers identify plot devices and the importance of well-developed characters. Using a variety of resources, including familiar fairy tales and comic books, students evaluate common traits of a hero and villain. Through role-play, writing, illustration, and dictation, students create character profiles or a story of their own hero or villain.

SUBJECT AREA: English & Language Arts

Click! Telling Stories with Photos (K – 1)

A photograph doesn't just capture a moment, it tells a story. Photographs serve as both inspiration and illustration as students create original stories and poems. Students snap their own photos in class, and they may also collect photos from families, magazines, and other sources. Students learn how to identify important elements of visuals, such as mood and framing. They discuss the importance of descriptive language and word choice as they write their own photo essays.

SUBJECT AREA: English & Language Arts

MATH

Students with strong math ability may enroll in a Math course. Courses correspond with the student's grade level as of January 1, 2019.

Extreme Code Breaking (K – 1) (Favorites Week Only)

Breaking a code often involves identifying a pattern. Morse code, for example, is a pattern of dots and dashes. Students identify patterns of numbers, words, letters and symbols and apply what they have learned to create and crack increasingly complex secret codes.

SUBJECT AREA: Math

Geometry of Building: Blocks & Blueprints (K – 1)

A blueprint is a drawing that shows the design or area of a building or an outdoor space. Using blocks and other construction materials, students create models of buildings and spaces, then use geometry tools and concepts to draw blueprints and scaled diagrams of their creations. As they build and draw, students explore two- and three- dimensionality and apply spatial-relational thinking.

SUBJECT AREA: Math

Math for Sports (K – 1)

What's the score? Math can tell us about scores and so much more about athletic performance. Students run, kick, shoot, and score, then measure calculate, analyze, and estimate to demonstrate how math and sports are on the same team.

SUBJECT AREA: Math

Measurement: Math Problem Solvers (K – 1)

Measurement is a dependable partner to mathematical and scientific problem solvers. Whether it's measuring how long until lunchtime, how deep the pool is, or how cold it has to be to freeze a popsicle, students determine the best measurement units for the task. Using a variety of tools and units of measurement, students solve problems involving estimation, distance, volume, time and temperature, increasing their critical and computational skills.

SUBJECT AREA: Math

SCIENCE

Students with strong verbal / reading or math ability may enroll in a Science course. Courses correspond with the student's grade level as of January 1, 2019.

Blood & Bones: The Human Body (K – 1)

(Favorites Week Only)

Young biologists investigate the systems of cells circulating within humans. With this systems approach as a lens, students take a closer look at how the human body functions through hands-on activities such as creating models of cells and organs and using inquiry skills to explore the effects of exercise on circulation.

SUBJECT AREA: Science

Awesome Explosions & Collisions (K – 1)

(Favorites Week Only)

Physicists learn about matter by deliberately crashing particles into each other. What else can be learned from collisions and explosions? Hands-on science experiments allow students to bump, crash and jolt a wide variety of materials. Students learn how explosive phenomena such as impact craters, plate tectonics and particle acceleration reveal a wealth of scientific knowledge about our world.

SUBJECT AREA: Science

Dinosaur Discovery: Paleontology Unearthed (K – 1)

Aspiring paleontologists learn about the many species of these "terrible lizards" from the famous T-Rex to the recently identified *Savannasaurus elliottorum*. Students unravel the mysteries of how these animals lived, looked, and died as they literally and figuratively "dig deep" into the fossil record.

SUBJECT AREA: Science

Fast & Faster: Speed & Motion (K – 1)

Do you have the need for speed? Engineers use physics and technology to design machines that go incredibly fast. In this active course, students put their pedals to the metal, learning the science behind what propels cars, planes, and other machines to move at extraordinary speeds. Through collaborative building projects and other hands-on activities, students learn basic physics principles around motion and velocity.

SUBJECT AREA: Science

NEW! Headcase: Ear, Nose, & Throat (K – 1)

When you get the sniffles, why does your throat sometimes hurt, too? An ear, nose and throat doctor, or ENT, can explain that the anatomy of the ear, nose and throat are connected. Students learn about the vestibular system, nasal cavities, and mucous membranes, like a doctor whose specialty is keeping our ears, nose and throat healthy. Through research and hands-on activities, including making models, students find out how a sinus infection can cause an earache or how a common cold can make you lose your voice.

SUBJECT AREA: Science

TECHNOLOGY, COMPUTER SCIENCE & ENGINEERING

Students with strong verbal / reading or math ability may enroll in a Technology course. Courses correspond with the student's grade level as of January 1, 2019.

Robots on the Grid (K – 1)

How do driverless cars know where to go? The cars are programmed to navigate a map that has been divided into evenly-spaced parallel lines that form a grid. In this course, students develop both coding and spatial reasoning skills as they program friendly robots like Primo Cubetto to navigate maps and grids.

SUBJECT AREA: Technology, Computer Science & Engineering

Coding Super Sequence (K – 1)

Every day we create sequences with our words and gestures. Computer programmers create sequences with code. In this course, students learn to code using apps such as Lightbot, Cargobot, and Spritebox, then extend their learning beyond the screen with sequencing games that reveal the structure of codes.

SUBJECT AREA: Technology, Computer Science & Engineering

Grades 1 – 2 (Half Day)

ENGLISH & LANGUAGE ARTS

Students with strong verbal / reading ability may enroll in an English & Language Arts course. Courses correspond with the student's grade level as of January 1, 2019.

Go! Go! Super Powers (1 – 2)

If you could have a super-human ability, would it be to stretch like an Incredible, control the atmosphere like Storm, or fly like Superman? Students dive into books, comics and movie clips to explore the strengths and struggles that come with having a super power. Students reflect on and discuss the ways super powers are obtained in popular stories and the effects they have on the character's life. Through writing and drawing, students reimagine or create a new super power to use in their very own superhero story.

SUBJECT AREA: English & Language Arts

Comic Book Storytelling (1 – 2)

"Drawing is a form of writing." –Art Spiegelman
Graphic novels and comic books cover topics from superheroes to historical events, capturing complex ideas through a unique combination of text and illustrations. As students learn the elements of graphic novels and comics, they focus on character and plot to create an original story or recount an historical event.

SUBJECT AREA: English & Language Arts

MATH

Students with strong math ability may enroll in a Math course. Courses correspond with the student's grade level as of January 1, 2019.

Business Start Up (1 – 2) (Favorites Week Only)

What does it take to turn a profit? To answer that question, students create a kid business and set up a budget for their new enterprise. They will consider supply and demand and calculate their costs. As business owners, students will need to be creative problem-solvers, learning business vocabulary and concepts and applying computation skills to build a business budget.

SUBJECT AREA: Math

Math for Spies (1 – 2) (Favorites Week Only)

A good spy should be sneaky and an expert mathematician. In this course, aspiring spies use math to create secret codes, plot the coordinates of enemy hideouts, and discover, through logical reasoning, the identities of other spies.

SUBJECT AREA: Math

Geometry of Treasure Maps (1 – 2)

Making maps, or cartography, involves many different geometry skills. Adding the mystery of buried treasure makes the process even more fun! Students apply principles of geometry and concepts of cartography to create their own treasure maps and use classmates' maps to find their treasure.

SUBJECT AREA: Math

Math in the Animal World (1 – 2)

Could a sprinting cheetah beat a speeding porpoise in a race? How far do geese migrate each year? Animals do amazing things, and learning about their fantastic feats is a great way to apply data comparisons, single-digit multiplication and algebraic equations. Young mathematicians use numbers to tackle story problems, carry out simple experiments and describe behavior in the fascinating world of animals.

SUBJECT AREA: Math

Probability: the Math of Prediction (1 – 2)

Predicting the outcome of an event may seem magical, but it's something more powerful, it's mathematical! Students learn to use the language and numerical expression of probability, the math behind making predictions. They predict the outcomes of events and test their own predictions through games of chance and other fun challenges. Who needs prestidigitation when you can predict using calculation?

SUBJECT AREA: Math

SCIENCE

Students with strong verbal / reading or math ability may enroll in a Science course. Courses correspond with the student's grade level as of January 1, 2019.

Designing & Building Skyscrapers (1 – 2) (Favorites Week Only)

How do you build a 200-story building so it won't topple? How does wind influence an architect's design? Student architects explore these challenges and others as they uncover the engineering and physics behind tall towers and stupendous skyscrapers.

SUBJECT AREA: Science

Grossology: Fascinating Systems of the Human Body (1 – 2) (Favorites Week Only)

Gross, grosser and grossest... The human body conducts fascinating and sometimes seemingly repulsive functions but all serve a valuable purpose! From spit and vomit to sweat and snot, curious students engage in experiments and activities to study the various systems of the human body, the functions they serve, and the outcomes they produce. Discussions, research and collaborative projects

further challenge students to think critically and synthesize information.

SUBJECT AREA: Science

NEW! Creatures of the Deep: The Challenge to Survive (1 – 2)

Some of the creepiest and most amazing creatures live in the ocean. A giant Pacific octopus can weigh about 110 pounds and can measure 16 feet in length. Its eight arms are very powerful, and it has three hearts and nine brains. How do these arms, hearts, and brains help the octopus survive in the depths of the ocean? Students make connections among fascinating facts to help them understand ecosystems and survival in the oceans. Students conduct research and engage in hands-on explorations to deepen their understanding of how marine animals have adapted to their habitat.

SUBJECT AREA: Science

Take Apart: Deconstructing Science (1 – 2)

Taking apart a clock or a wind-up toy reveals fascinating secrets about how simple machines work and function. Students learn about mechanical engineering and introductory physics by deconstructing and analyzing a variety of devices. They study and observe concepts such as levers and pulleys, screws and springs, power and motion, and the structure and function of batteries.

SUBJECT AREA: Science

NEW! Sports Medicine (1 – 2)

Excellent coaching and a competitive spirit aren't always enough to keep athletes on their game. They also team up with doctors who specialize in helping them play their best. Sports medicine involves the prevention and treatment of injuries, nutrition and hydration for performance and training techniques that prepare bodies and minds to be at their healthiest. Along with learning about the field of sports medicine, students learn about musculoskeletal anatomy by exploring illustrations, creating models *and using it!* They also get a heads-up about how to stay safe and strong in the gym and on the field.

SUBJECT AREA: Science

TECHNOLOGY, COMPUTER SCIENCE & ENGINEERING

Students with strong verbal / reading or math ability may enroll in a Technology course. Courses correspond with the student's grade level as of January 1, 2019.

Robots in Sync (1 – 2)

Programming one robot is fun, but programming a fleet of robots to perform in synchronized motion takes coding to a whole new level. Students collaborate to create

synchronized patterns, stories, and choreography using pairs, triads, and small groups of robot mice and other devices.

SUBJECT AREA: Technology, Computer Science & Engineering

Coding Algorithm Adventure (1 – 2)

An algorithm is a step-by-step process to complete a task. Students use coding apps like Scratch, Jr. and Cato's Hike to program their own algorithms. Away from the screen, collaborative projects, such as pitching a tent, challenge students to create algorithms using many different symbolic languages.

SUBJECT AREA: Technology, Computer Science & Engineering

Grades 2 – 3 (Half Day)

ENGLISH & LANGUAGE ARTS

Students with strong verbal / reading ability may enroll in an English & Language Arts course. Courses correspond with the student's grade level as of January 1, 2019.

Life on Mars (2 – 3)

Projects like NASA's Mars Atmospheric and Volatile Evolution (MAVEN) have brought us closer to the day we inhabit Mars. Students take on the roles of astronauts preparing to build and live in a space colony on Mars. What will they need to bring? How will they prepare for their journey? Students work together to research and write their ideas and plans about planets, space travel, and creating a colony in a strange new world.

SUBJECT AREA: English & Language Arts

Scene Writing Workshop (2 – 3)

When you think about your favorite movie or play, what comes to mind? It's probably the scenes you just couldn't look away from. Screenwriters and playwrights use techniques for dramatic writing to achieve those riveting results. From dialogue to stage direction, students sharpen their writing skills for effective scene writing and playwriting. Students study inspiring scenes from movies or plays to write and revise their own pieces to be recorded or performed live.

SUBJECT AREA: English & Language Arts

NEW! Mini-Memoirs: Nonfiction & Perspective (2 – 3)

A mini-memoir is a "small" part of a person's life – a slice of time that tells about an afternoon in the park, an hour during a plane ride, or even just a few seconds, when you saw your pet for the first time. In this course, students capture small but important nonfiction stories by using strategies such as interview questions, plot development, and descriptive language. They present their work in

formats such as writing, illustrations, and video. Students identify and verify the parts of their story that are nonfiction, and recognize the powerful role that perspective has on stories we read and tell.

SUBJECT AREA: English & Language Arts

MATH

Students with strong math ability may enroll in a Math course. Courses correspond with the student's grade level as of January 1, 2019.

Ins & Outs of the Stock Market (2 – 3) **(Favorites Week Only)**

What is the stock market? What exactly are people buying and selling in that market? Students explore these questions and more as they learn about stock shares, dividends, stockbrokers, stockholders and stock exchanges. Students invest their computational and critical-thinking skills as they “play the market.”

SUBJECT AREA: Math

Brain Twisters: Multiplication & Fractions (2 – 3) **(Favorites Week Only)**

Sometimes solving a math problem is like untangling a knot. You may need to try more than one approach to achieve success. In this class, students unravel multifaceted problems using fractions and multiplication to arrive at solutions.

SUBJECT AREA: Math

NEW! Geometry in Planes & Patterns (2 – 3)

The artist, mathematician M.C. Escher showed us that our world is made more beautiful by shifting shapes and repeating patterns, both in nature and in the structures and art we create. Students use geometry concepts to describe and create visible mathematics. They explore the various kinds of transformations of shapes and lines on the coordinate plane and learn how to describe them using algebraic expressions. Through collaborative work with their classmates, students create tessellating patterns and fractals as they build their understanding and appreciation for geometry that surrounds us.

SUBJECT AREA: Math

Math in Space (2 – 3)

How long does it take to travel to Mars, and how much fuel is needed? Students apply math concepts such as rates, ratios, and velocity to answer questions about outer space, using exponents and other scientific conventions to represent the large numbers necessary to describe distances in space.

SUBJECT AREA: Math

Multiplication, Fractions & Decimals: Take Apart Math (2 – 3)

Complex number problems may seem unmanageable at first, but math provides rules and techniques that help to break down big problems into manageable parts. Students use numerical operations to solve problems involving multiplication and fractions. Using games and visual representations, they build mental math skills using estimation and add new math vocabulary and forms of expressions, including decimals and mixed numbers.

SUBJECT AREA: Math

SCIENCE

Students with strong verbal / reading or math ability may enroll in a Science course. Courses correspond with the student's grade level as of January 1, 2019.

Brain Surgery (2 – 3) (Favorites Week Only)

Young neurologists go inside the brain to analyze its systems and understand its connection to the rest of the body. Among other activities, students map the brain, experiment with senses and the brain, and use interactive web tools to investigate this amazing and complex organ.

SUBJECT AREA: Science

Rocket Science: Blast Off with Newton

How do rockets blast off? Why do balloons fly in circles if you let the air out? Junior rocket scientists investigate Newton's laws of motion through demonstrations, online simulations and conducting experiments. In small, collaborative groups, students will apply what they learn by building and launching their own simple rockets

SUBJECT AREA: Science

NEW! Biomimicry: Nature's Innovations Inspire Human Design (2 – 3)

Biomimicry occurs when people use ideas found in nature to create solutions. Scientists at CalTech noticed the way schools of fish forcefully moved water with their fins. Based on the movements of the water, these scientists created a system of air flow to build better wind farms. Student scientists, engineers, and designers identify an everyday problem and then take cues from nature to design a solution. Through research, low-tech prototyping, and a group-based review process, students learn to solve problems creatively while incorporating the design engineering process.

SUBJECT AREA: Science

NEW! Immunology & Allergies (2 – 3)

Are you allergic? If not, then you probably know someone who is. In the U.S., over fifty million people suffer from all types of allergies. Allergic reactions might be caused by food, medicine, plants, or even our favorite pets. That's

why there are scientists and doctors who study how our bodies work to stay healthy, even if we're allergic. Through research and hands-on activities such as games and building models, students learn about the immune system and how doctors help to diagnose, prevent and treat allergic reactions.

SUBJECT AREA: Science

TECHNOLOGY, COMPUTER SCIENCE & ENGINEERING

Students with strong verbal / reading or math ability may enroll in a Technology course. Courses correspond with the student's grade level as of January 1, 2019.

Robot Navigation (2 – 3)

This course combines a variety of navigational challenges including programming on a grid, synchronization of movements, avoiding obstacles, and predicting traffic patterns. Students work with tech tools such as Hexbugs, Ozobots, and Sphero robots to create programming projects and detailed maps.

SUBJECT AREA: Technology, Computer Science & Engineering

Coding Build it, Break it (2 – 3)

Computational thinking requires decomposition, the ability to take an idea and break it down into smaller parts for deeper understanding and analysis. In this course, students create coding projects using the Hopscotch app and then explain their thinking to other young programmers by taking apart their code. Tangible materials like 3D puzzles challenge students to demonstrate their learning using novel tools.

SUBJECT AREA: Technology, Computer Science & Engineering

All-Day Courses, Grade 1 to Grade 5

Students with strong verbal / reading ability may enroll in an English & Language Arts course.

Students with strong math ability may enroll in a Math course. Courses correspond with the student's grade level as of January 1, 2019.

Students with strong verbal / reading or math ability may enroll in a Science course..

Students with strong verbal / reading or math ability may enroll in a Technology course.

Courses correspond with the student's grade level as of January 1, 2019.

All-Day

9 a.m. – 4 p.m.

Grades 1 – 2 (All Day)

NEW! Music, Math & Composition (1 – 2)

Math and music are connected, from how notes are organized in measures and beats to the use of fractions, patterns and ratios. Students explore how wavelengths of exact ratios, played together, make harmonies like octaves, fifths and thirds. Students create their own instruments and observe how the resonating chambers affect sound. Working independently and collaboratively in small groups, students increase their mathematical skills while they compose their own music and create a musical notation system.

SUBJECT AREA: Math

NEW! Incredible Animal Adaptations: From Camouflage to Chemical Features (1 – 2)

A walking leaf is an insect that looks just like a leaf. A bird may settle nearby and not even know this insect is there! This insect's physical features allow it to "hide in plain sight" from birds and other predators. In this course, young zoologists investigate amazing animals from around the world, each with astounding physical traits and behaviors that help them survive in their environments. Through research and hands-on activities, students learn about animal classification, a variety of habitats, and the astounding survival methods of animals that live in them.

SUBJECT AREA: Science

NEW! Coding Robots:

Speaking their Languages (1 – 2)

Robots can carry out amazing and complex tasks, but only with instructions they can "understand." Students in this course are introduced to computer science and learn to "speak" to Finch robots in the visual programming languages Snap and Scratch. Coding challenges with sensors, lights, sound and motion call on computational thinking as new programming skills take flight.

SUBJECT AREA: Technology, Computer Science and Engineering

NOTE: Additional \$25 lab fee is required.

Grades 2 – 3 (All Day)

LEGO® Metropolis:

Urban Design & Architecture (2 – 3)

Imagine a whole city made out of LEGO® bricks! Introductory urban design and architecture concepts come to life when students collaborate to plan and create buildings, roads, and city infrastructures using LEGO®s

created specially to allow for architecturally accurate construction. Course activities engage students' spatial-relational thinking skills with activities such as producing blueprints and maps. Students consider how to meet a community's needs by applying principles of urban planning, and brainstorming solutions to design and engineering challenges.

SUBJECT AREA: Science

Wilderness Challenge:

Math and Science Outdoors (2 – 3)

Basic needs like water, shelter, and food are opportunities for turning math and science concepts into practical know-how. Students evaluate, analyze, and estimate what is necessary for survival and are put to work building a structure, purifying water, and cooking food with basic supplies and what they can find outdoors. This hands-on course combines classroom time and outdoor learning. Please wear sturdy shoes and clothes that can get dirty.

SUBJECT AREA: Science

Digital Game Design (2 – 3)

Students become creators instead of just consumers of digital games when they design and create their own video game. They develop programming skills and design-thinking as they use digital tools to design, test, and play their own digital games. They also beta test and provide feedback for the games of the other aspiring game designers in their class.

SUBJECT AREA: Technology, Computer Science and Engineering

Robotics Challenges with LEGO® WeDo 2.0 (2 – 3)

Through a variety of robotics challenges, students use icon-based programming and LEGO® WeDo kits to manipulate the movements of their robot models. They'll be ready for EV3 kits and other robotics systems after completing this course.

SUBJECT AREA: Technology, Computer Science and Engineering

My Robot Arm: Adaptive Technology with LEGO® WeDo (2 – 3)

At the age of 14, Easton LaChappelle invented a prosthetic arm using LEGO® parts, fishing wire, and a 3D printer, significantly improving on existing technologies. In this course, students construct and program robotic arms using LEGO® WeDo kits and engage in open-ended projects inspired by the maker movement and young inventors. Students with previous WeDo experience will be challenged to develop their own projects.

SUBJECT AREA: Technology, Computer Science and Engineering

Grades 3 – 4 (All Day)

Pen to Podium: Expert Speaking & Writing (3 – 4)

Would you express your ideas in the same way for both a movie review and a political discussion? A well-constructed essay doesn't always translate to great oratory. Each must be carefully crafted to have the greatest impact. Students will explore rhetorical techniques for producing effective written pieces and delivering excellent speeches, including selecting language for its appeal to the ear, heart, and mind.

SUBJECT AREA: English and Language Arts

Survivor Math (3 – 4)

Math skills are the key to survival in this creative problem-solving course. Students role-play a variety of exciting scenarios, such as being marooned on a desert island, trapped in a space station, cornered by an enemy army, or stranded in a deadly snowstorm. Geometry, algebraic thinking, probability, and measurement are just a few of the mathematics concepts used to save the day.

SUBJECT AREA: Math

3D Cell Biology (3 – 4)

Cells are often described as "the building blocks of life." In this introductory biology course, students use LEGO® bricks and other 3D construction tools to learn about the structure of various living cells and of DNA molecules. Students examine cell structures, observe virtual cell reproduction, and discuss the laws of genetic inheritance.

SUBJECT AREA: Science

How Things Work: Electronics (3 – 4)

In this inquiry-based course, students learn the fundamentals of electronics by toggling between making basic devices and taking apart more sophisticated consumer electronics such as televisions, computers, and cell phones. Through research, experimentation, and discussion, students examine the development and use of electronic items, including how they might be improved in the future.

SUBJECT AREA: Science

Design Engineering: Chicago (3 – 4)

Chicago was settled on marshy, mushy land. How did urban planners and engineers solve this building problem for the "City by the Lake?" Students learn how Chicago has engineered solutions throughout its history and consider how to engineer solutions to today's problems. Students use a wide variety of materials to create models of Chicago landmarks, such as buildings, tunnels, canals, bridges, and highways.

SUBJECT AREA: Science

Web Design (3 – 4)

Assemble a web design tool kit while planning and designing for the screen. Learn about the role of HTML and CSS and create webpages using fun and powerful software, which may include Photoshop, Flash, Adobe Dreamweaver, and Notepad++.

SUBJECT AREA: Technology, Computer Science and Engineering

Robotics Lab: Recording & Sharing EV3 Experiments (3 – 4)

By building and programming robots using LEGO® EV3 robotics kits, students develop engineering and computer science knowledge and skills. Recording and documenting robotics projects with words and images develops introductory scientific research skills. This course is the whole package: hands-on experience with technology and preparation for scientific research and traditional lab experiments.

SUBJECT AREA: Technology, Computer Science and Engineering

Introduction to A.I.: EV3 Sensors & More (3 – 4)

By building and programming LEGO® Mindstorms EV3 robots, students develop engineering and computer science knowledge. This course focuses on the EV3 sensors and the ways the robots respond to their environment. Hands-on experience with sensors leads to a discussion of artificial intelligence (A.I.) and the traits of “intelligent machines.” Students with previous EV3 experience are challenged to apply their existing engineering and coding skills to new ideas and projects.

SUBJECT AREA: Technology, Computer Science and Engineering

Grades 4 – 5 (All Day)

NEW! Stories That Bend Time: The Science and Fiction of Time Travel (4 – 5)

Stories of traveling through time using an ingenious apparatus have fascinated readers since the Industrial Revolution unfolded. What makes the idea of time travel so intriguing? Students in this course embark on treks through classic and modern time travel fiction, such as H. G. Wells' *The Time Machine*, Madeleine L'Engle's *A Wrinkle in Time* and J.K. Rowling's *Harry Potter and the Prisoner of Azkaban*. In order to devise their own fictional journeys through time, they learn and practice the techniques and skills of science fiction short story writing.

SUBJECT AREA: English & Language Arts

Rollercoaster Physics (4 – 5)

Whether it's the Kingda-ka's 456-foot climb or its ability to travel at 128mph in 3.5 seconds that excites riders,

students learn how favorite amusement park rides make riders feel light in the air one moment and then pushed down into their seat the next. Students buckle up for a fast-paced adventure in the laws of physics as they investigate topics such as the law of inertia and centripetal acceleration, designing and building a variety of amusement park thrills.

SUBJECT AREA: Science

NEW! Making Machines Move: Robotics with Microcontrollers (4 – 5)

A working robot is the result of programming expertise and an effective design engineering process. Microcontrollers' input/output ports are an integral part of this process. For example, they allow special motors to move robot arms with precision. Students in this course get hands-on experience working on a robotics team to design, build and program robots using Hummingbird microcontrollers and more than one visual programming language.

SUBJECT AREA: Technology, Computer Science and Engineering

NOTE: Additional \$25 lab fee is required.

NEW! Structural Engineering: The Physics and Design of Sturdiness (4 – 5)

Look around you — anywhere that you see human communities, you'll see structural engineering. Bridges, houses, skyscrapers, and concert stages all rely on the sturdiness of the materials and design of the structure. A skyscraper has to support the forces or loads that it's likely to experience, including its own weight, and all the furniture and people inside. It also has to stand strong against the forces of wind, snow, and maybe even an earthquake. Students investigate how different materials and designs affect the strength of a structure. Using physics and design concepts, research, and small-scale modeling, students solve a variety of engineering challenges.

SUBJECT AREA: Science

NEW! Business Behavior: Intro to Behavioral Economics (4 – 5)

How can getting something for free cost you? Why do people always want to pay later, even when it means they will pay more? Behavioral economics reveals these and many other ways our choices as consumers are not always the result of rational calculations of dollars and cents. Students learn principles of behavioral economics, including those put forth by Nobel Prize winning thinkers, and apply them to business scenarios to find out how our “predictable irrationality” affects the way we choose to spend our money.

SUBJECT AREA: Arts, Social Sciences & Humanities

CHALLENGE LAB (Evanston/Skokie Area Site Only)

Challenge Lab, a CTD Makerspace for Grades 1 – 5

No test scores or portfolio are required for Challenge Lab enrollment. Sessions are offered Monday through Friday afternoons, 1 p.m. to 4 p.m. at our Evanston / Skokie area site. Enrollments are for one-week sessions only.

Challenge Lab will be running during the following weeks:

- July 8-12
- July 15-19
- July 22-26

Challenge Lab Description

A makerspace is a learning workshop equipped with a variety of materials and tools for making things. Students explore and experiment as they acquire design, engineering, and problem-solving skills. Each unique project reflects the interests and ideas of each maker.

In the CTD Challenge Lab, instructors offer questions, choices, and challenges that inspire projects and encourage students to reflect on their process and extend their ideas. The Challenge Lab space is divided into work stations such as a woodworking station, a “loose parts” station with plastic and metal materials, and a research and inspiration station. Challenge Lab students will not receive a course evaluation.

Challenge Lab Themes

Mondays: Build with Wood; **Tuesdays:** Tools & Hardware
Wednesdays: Things that Move; **Thursdays:** Form & Function; **Fridays:** Teamwork & Collaboration

CHICAGO • SUMMER 2019 • Age 4 – Gr. 5

Leapfrog | Spark Half-Day and All-Day Course Reference Chart

KEY

A.M. 9a.m. – 12 noon

P.M. 1p.m. – 4p.m.

All Day 9a.m. – 4p.m.

Favorites Courses, June 24-28

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM |
|-------------|-----------------------------------|------------------------------|----|
| PreK/K | Building Bridges | Science | • |
| PreK/K | Pirates and Treasures | English & Language Arts | • |
| PreK/K | Robot Road Trip | Tech, Comp Sci & Engineering | • |
| K/1 | Blood & Bones: The Human Body | Science | • |
| K/1 | Extreme Code Breaking | Mathematics | • |
| K/1 | Awesome Explosions and Collisions | Science | • |
| 1/2 | Math for Spies | Mathematics | • |
| 1/2 | Designing & Building Skyscrapers | Science | • |
| 2/3 | Brain Surgery | Science | • |
| 2/3 | Robot Navigation | Tech, Comp Sci & Engineering | • |

July 8-12

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|---|-------------------------|----|----|-----|
| Age 4 | Matter Minds: Solids, Liquids and Gases | Science | • | | |
| PreK/K | Bees & Hives | Science | • | • | |
| PreK/K | Geometry on the Playground | Mathematics | • | • | |
| PreK/K | If I Ran the Zoo | English & Language Arts | • | | |

| | | | | | |
|-----|--|------------------------------|---|---|---|
| K/1 | African Safari | English & Language Arts | • | | |
| K/1 | Dinosaur Discovery: Paleontology Unearthed | Science | • | • | |
| K/1 | Geometry of Building: Blocks & Blueprints | Mathematics | • | • | |
| 1/2 | Coding Algorithm Adventures | Tech, Comp Sci & Engineering | | • | |
| 1/2 | Creatures of the Deep: The Challenge to Survive | Science | • | | |
| 1/2 | Geometry of Treasure Maps | Mathematics | • | | |
| 1/2 | Music, Math & Composition | Mathematics | | | • |
| 2/3 | Biomimicry: Nature's Innovations Inspire Human Design | Science | • | • | |
| 2/3 | Geometry in Planes & Patterns | Mathematics | | • | |
| 2/3 | Life on Mars | English & Language Arts | • | | |
| 3/4 | 3D Cell Biology | Science | | | • |
| 3/4 | Robotics Lab: EV3 Experiments | Tech, Comp Sci & Engineering | | | • |
| 4/5 | Structural Engineering: The Physics & Math of Sturdiness | Science | | | • |
| 4/5 | Stories that Bend Time: The Science & Fiction of Time Travel | English and Writing | | | • |

July 15-19

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|--|--------------|----|----|-----|
| Age 4 | Science Spies: Snooping for Answers | Science | • | | |
| PreK/K | Kitchen Math | Mathematics | • | • | |
| PreK/K | Magnets & Mirrors: Magical Experiments | Science | • | • | |

| | | | | | |
|--------|--|------------------------------|---|---|---|
| PreK/K | Puppet Productions | English & Language Arts | • | | |
| K/1 | Coding Super Sequence | Tech, Comp Sci & Engineering | • | • | |
| K/1 | Fast & Faster: Speed & Motion | Science | | • | |
| K/1 | Math for Sports | Mathematics | • | | |
| K/1 | Heroes & Villains | English & Language Arts | • | | |
| 1/2 | Go! Go! Super Powers | English & Language Arts | • | | |
| 1/2 | Incredible Animal Adaptations | Science | | | • |
| 1/2 | Robots in Sync | Tech, Comp Sci & Engineering | | • | |
| 1/2 | Take Apart: Deconstructing Science | Science | • | | |
| 2/3 | LEGO Metropolis: Urban Design & Architecture | Science | | | • |
| 2/3 | Math in Space | Mathematics | • | | |
| 2/3 | Rocket Science | Science | | • | |
| 2/3 | Scene Writing Workshop | English & Language Arts | • | | |
| 3/4 | Design Engineering Chicago | Science | | | • |
| 3/4 | Web Design | Tech, Comp Sci & Engineering | | | • |
| 4/5 | Rollercoaster Physics | Science | | | • |

July 22-26

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|--|-------------------------|----|----|-----|
| Age 4 | Swirl, Soak and Spray: How Water Works | Science | • | | |
| PreK/K | Cover to Cover: Make Your Own Book | English & Language Arts | • | | |
| PreK/K | Doctors & Dentists | Science | • | • | |
| PreK/K | Mini Mathletes | Mathematics | • | • | |

| | | | | | |
|-----|---|-----------------------------------|---|---|---|
| K/1 | Click! Telling Stories with Photos | English & Language Arts | • | | |
| K/1 | Headcase: Ear, Nose & Throat | Science | • | • | |
| K/1 | Measurement: Math Problem Solvers | Mathematics | • | • | |
| 1/2 | Coding Robots: Speaking Their Language | Tech, Comp Sci & Engineering | | | • |
| 1/2 | Comic Book Storytelling | English & Language Arts | • | | |
| 1/2 | Probability: The Math of Prediction | Mathematics | • | | |
| 1/2 | Sports Medicine | Science | | • | |
| 2/3 | Digital Game Design | Tech, Comp Sci & Engineering | | | • |
| 2/3 | Immunology & Allergies | Science | | • | |
| 2/3 | Mini-Memoirs: Nonfiction & Perspective | English & Language Arts | • | | |
| 2/3 | Multiplication, Fractions & Decimals: Take Apart Math | Mathematics | • | | |
| 3/4 | Pen to Podium: Expert Writing & Speaking | English & Language Arts | | | • |
| 3/4 | Survivor Math | Mathematics | | | • |
| 4/5 | Business Behavior: Intro to Behavioral Economics | Humanities, Social Science & Arts | | | • |

SKOKIE • SUMMER 2019 • Age 4 – Gr.5

Leapfrog | Spark Half-Day and All-Day Course Reference Chart

KEY

A.M. 9a.m. – 12 noon

P.M. 1p.m. – 4 p.m.

All Day 9a.m. – 4 p.m.

Favorite Courses, June 24-28

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM |
|-------------|---|------------------------------|----|
| PreK/K | Ocean Explorers | Science | • |
| PreK/K | Surprising Spills and Messes | Science | • |
| PreK/K | Top Secret Numbers | Mathematics | • |
| K/1 | Coding Super Sequence | Tech, Comp Sci & Engineering | • |
| K/1 | Extreme Code Breaking | Mathematics | • |
| K/1 | Awesome Explosions and Collisions | Science | • |
| 1/2 | Business Start Up | Mathematics | • |
| 1/2 | Grossology: Fascinating Systems of the Human Body | Science | • |
| 2/3 | Brain Surgery | Science | • |
| 2/3 | Brain Twisters | Mathematics | • |

July 8-12

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|--|-------------------------|----|----|-----|
| Age 4 | Science Spies: Snooping for Answers | Science | • | | |
| PreK/K | Bees & Hives | Science | • | • | |
| PreK/K | Geometry on the Playground | Mathematics | • | • | |
| PreK/K | If I Ran the Zoo | English & Language Arts | • | • | |
| K/1 | African Safari | English & Language Arts | • | | |
| K/1 | Dinosaur Discovery: Paleontology Unearthed | Science | | • | |

| | | | | | |
|-----|---|------------------------------|---|---|---|
| K/1 | Geometry of Building: Blocks & Blueprints | Mathematics | • | | |
| K/1 | Robots on the Grid | Tech, Comp Sci & Engineering | • | • | |
| 1/2 | Creatures of the Deep: The Challenge to Survive | Science | • | | |
| 1/2 | Geometry of Treasure Maps | Mathematics | • | | |
| 1/2 | Music, Math & Composition | Mathematics | | | • |
| 1/2 | Robots in Sync | Tech, Comp Sci & Engineering | | • | |
| 2/3 | Biomimicry: Nature's Innovations Inspire Human Design | Science | | • | |
| 2/3 | Geometry in Planes and Patterns | Mathematics | • | | |
| 2/3 | LEGO Metropolis: Urban Design & Architecture | Science | | | • |
| 2/3 | Life on Mars | English & Language Arts | • | | |
| 3/4 | Survivor Math | Mathematics | | | • |
| 3/4 | How Things Work: Electronics | Science | | | • |
| 1-5 | Challenge Lab Makerspace | Science | | • | |
| 4/5 | Making Machines Move: Robotics with Microcontrollers | Tech, Comp Sci & Engineering | | | • |

July 15-19

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|--------------|--------------|----|----|-----|
|-------------|--------------|--------------|----|----|-----|

| | | | | | |
|------------------|---|------------------------------|---|---|---|
| 3YO Parent-Child | Tadpole Academy-Summer 1 | Interdisciplinary | • | | |
| Age 4 | Swirl, Soak and Spray: How Water Works | Science | • | | |
| PreK/K | Kitchen Math | Mathematics | • | • | |
| PreK/K | Puppet Productions | English & Language Arts | • | | |
| PreK/K | Robot Road Trip | Tech, Comp Sci & Engineering | • | • | |
| K/1 | Fast & Faster: Speed & Motion | Science | • | • | |
| K/1 | Heroes and Villains | English & Language Arts | • | | |
| K/1 | Math for Sports | Mathematics | • | • | |
| 1/2 | Coding Robots: Speaking their Languages | Tech, Comp Sci & Engineering | | | • |
| 1/2 | Go! Go! Super Powers | English & Language Arts | • | | |
| 1/2 | Math in the Animal World | Mathematics | • | | |
| 1/2 | Take Apart: Deconstructing Science | Science | | • | |
| 2/3 | Digital Game Design | Tech, Comp Sci & Engineering | | | • |
| 2/3 | Math in Space | Mathematics | • | | |
| 2/3 | Rocket Science: Blast off with Newton | Science | • | • | |
| 3/4 | Pen to Podium: Expert Writing & Speaking | English & Language Arts | | | • |
| 3/4 | Robotics Lab: Recording & Sharing EV3 Experiments | Tech, Comp Sci & Engineering | | | • |
| 1-5 | Challenge Lab Makerspace | Science | | • | |
| 4/5 | Rollercoaster Physics | Science | | | • |

July 22-26

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|------------------|---|-----------------------------------|----|----|-----|
| 3YO Parent-Child | Tadpole Academy-Summer 2 | Interdisciplinary | • | | |
| Age 4 | Matter Minds: Solids, Liquids & Gases | Science | • | | |
| PreK/K | Coding Pattern Power | Tech, Comp Sci & Engineering | • | • | |
| PreK/K | Cover to Cover: Make Your Own Book | English & Language Arts | • | | |
| PreK/K | Doctors & Dentists | Science | • | • | |
| K/1 | Click! Telling Stories with Photos | English & Language Arts | • | | |
| K/1 | Headcase: Ear, Nose & Throat | Science | • | • | |
| K/1 | Measurement: Math Problem Solvers | Mathematics | • | • | |
| 1/2 | Comic Book Storytelling | English & Language Arts | • | | |
| 1/2 | Incredible Animal Adaptations | Science | | | • |
| 1/2 | Probability: The Math of Prediction | Mathematics | • | | |
| 1/2 | Sports & Medicine | Science | | • | |
| 2/3 | Immunology & Allergies | Science | | • | |
| 2/3 | Mini-Memoirs: Nonfiction & Perspective | English & Language Arts | • | | |
| 2/3 | Multiplication, Fractions & Decimals: Take Apart Math | Mathematics | • | | |
| 2/3 | Robotics Challenges with LEGO We Do | Tech, Comp Sci & Engineering | | | • |
| 3/4 | 3D Cell Biology | Science | | | • |
| 3/4 | Intro to AI: EV3 Sensors and More | Tech, Comp Sci & Engineering | | | • |
| 1-5 | Challenge Lab Makerspace | Science | | • | |
| 4/5 | Business Behavior: Intro to Behavioral Economics | Humanities, Social Science & Arts | | | • |

NAPERVILLE • SUMMER 2019 • Age 4 – Gr. 5

Leapfrog | Spark Half-Day and All-Day Course Reference Chart

KEY

A.M. 9a.m. – 12 noon

P.M. 1p.m. – 4p.m.

All Day 9a.m. – 4p.m.

June 24-28

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|------------------|--|------------------------------|----|----|-----|
| 3YO Parent-Child | Tadpole Academy – Summer 1 | Interdisciplinary | • | | |
| Age 4 | Swirl, Soak & Spray: How Water Works | Science | • | | |
| PreK/K | Building Bridges | Science | | • | |
| PreK/K | Robot Road Trip | Tech, Comp Sci & Engineering | • | | |
| K/1 | Fantastical Creatures in Fact & Fiction | English & Language Arts | • | | |
| K/1 | Blood & Bones: The Human Body | Science | | • | |
| K/1 | Robots on the Grid | Tech, Comp Sci & Engineering | • | | |
| 1/2 | Business Start Up | Mathematics | • | | |
| 1/2 | Designing & Building Skyscrapers | Science | | • | |
| 1/2 | Robots In Sync | Tech, Comp Sci & Engineering | • | | |
| 2/3 | Stock Market | Mathematics | • | | |
| 2/3 | Robot Navigation | Tech, Comp Sci & Engineering | • | | |
| 2/3 | LEGO Metropolis: Urban Design & Architecture | Science | | | • |
| 3/4 | 3D Cell Bio | Science | | | • |
| 4/5 | Rollercoaster Physics | Science | | | • |

July 8-12

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|--------------|--------------|----|----|-----|
|-------------|--------------|--------------|----|----|-----|

| | | | | | |
|------------------|---|-----------------------------------|---|---|---|
| 3YO Parent-Child | Tadpole Academy – Summer 2 | Interdisciplinary | • | | |
| Age 4 | Matter Minds: Solids, Liquids and Gases | Science | • | | |
| PreK/K | Bees & Hives | Science | • | | |
| PreK/K | Coding Pattern Power | Tech, Comp Sci & Engineering | | • | |
| K/1 | African Safari | English & Language Arts | • | | |
| K/1 | Geometry of Building: Blocks & Blueprints | Mathematics | | • | |
| K/1 | Dinosaur Discovery: Paleontology Unearthed | Science | • | | |
| 1/2 | Geometry of Treasure Maps | Mathematics | • | | |
| 1/2 | Coding Algorithm Adventures | Tech, Comp Sci & Engineering | | • | |
| 1/2 | Incredible Animal Adaptations | Science | | | • |
| 2/3 | Biomimicry: Nature’s Innovations Inspire Human Design | Science | • | | |
| 2/3 | Digital Game Design | Tech, Comp Sci & Engineering | | | • |
| 3/4 | Pen to Podium: Expert Speaking & Writing | English & Language Arts | | | • |
| 4/5 | Business Behavior: Intro to Behavioral Economics | Humanities, Social Science & Arts | | | • |

July 15-19

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|-------------------------------------|--------------|----|----|-----|
| Age 4 | Science Spies: Snooping for Answers | Science | • | | |

| | | | | | |
|--------|--|------------------------------|---|---|---|
| PreK/K | Kitchen Math | Mathematics | • | | |
| PreK/K | If I Ran the Zoo | English & Language Arts | | • | |
| K/1 | Heroes & Villains | English & Language Arts | • | | |
| K/1 | Coding Super Sequence | Tech, Comp Sci & Engineering | | • | |
| 1/2 | Math in the Animal World | Mathematics | • | | |
| 1/2 | Creatures of the Deep | Science | • | | |
| 2/3 | Scene Writing Workshop | English & Language Arts | • | | |
| 2/3 | Coding Build It, Break It | Tech, Comp Sci & Engineering | | • | |
| 2/3 | Robotics Challenge with LEGO WeDo | Tech, Comp Sci & Engineering | | | • |
| 3/4 | Survivor Math | Mathematics | | | • |
| 4/5 | Making Machines Move: Robotics with Microcontrollers | Tech, Comp Sci & Engineering | | | • |

July 22-26

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|---|-------------------------|----|----|-----|
| PreK/K | Mini Mathletes | Mathematics | • | | |
| PreK/K | Doctors & Dentists | Science | | • | |
| K/1 | Headcase: Ear, Nose & Throat | Science | • | | |
| 1/2 | Go! Go! Super Power | English & Language Arts | • | | |
| 1/2 | Sports Medicine | Science | | • | |
| 2/3 | Mini Memoirs: Nonfiction & Perspective | English & Language Arts | • | | |
| 2/3 | Multiplication, Fractions & Decimals: Take Apart Math | Mathematics | • | | |
| 2/3 | Immunology & Allergies | Science | | • | |

| | | | | | |
|-----|--|------------------------------|--|--|---|
| 1/2 | Music, Math & Composition | Mathematics | | | • |
| 2/3 | My Robot Arm: Adaptive Technology with LEGO WeDo | Tech, Comp Sci & Engineering | | | • |
| 3/4 | Robotics Lab: EV3 Experiments | Tech, Comp Sci & Engineering | | | • |
| 4/5 | Stories that Bend Time: The Science & Fiction of Time Travel | English & Language Arts | | | • |

PALATINE • SUMMER 2019 • Age 4 – Gr. 5

Leapfrog | Spark Half-Day and All-Day Course Reference Chart

KEY

A.M. 9a.m. – 12 noon

P.M. 1p.m. – 4p.m.

All Day 9a.m. – 4p.m.

July 8-12

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|--|-----------------------------------|----|----|-----|
| Age 4 | Science Spies: Snooping for Answers | Science | • | | |
| PreK/K | If I Ran the Zoo | English & Language Arts | • | | |
| PreK/K | Bees and Hives | Science | | • | |
| K/1 | Heroes and Villains | English & Language Arts | • | | |
| K/1 | Measurement: Math Problem Solvers | Mathematics | • | | |
| K/1 | Robots on the Grid | Tech, Comp Sci & Engineering | | • | |
| 1/2 | Take Apart: Deconstructing Science | Science | • | | |
| 1/2 | Coding Robots: Speaking their Languages | Tech, Comp Sci & Engineering | | | • |
| 2/3 | Geometry in Planes & Patterns | Mathematics | • | | |
| 2/3 | Robot Navigation | Tech, Comp Sci & Engineering | | • | |
| 3/4 | Intro to AI: EV3 Sensors & More | Tech, Comp Sci & Engineering | | | • |
| 4/5 | Business Behavior: Intro to Behavioral Economics | Humanities, Social Science & Arts | | | • |

July 15-19

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|---------------------------------------|-------------------------|----|----|-----|
| Age 4 | Swirl, Soak, & Spray: How Water Works | Science | • | | |
| PreK/K | Kitchen Math | Mathematics | • | | |
| PreK/K | Magnets & Mirrors | Science | | • | |
| K/1 | Fast & Faster: Speed & Motion | Science | • | | |
| 1/2 | Go! Go! Super Powers | English & Language Arts | • | | |
| 1/2 | Creatures of the Deep | Science | | • | |

| | | | | | |
|-----|--|------------------------------|---|--|---|
| 2/3 | Math in Space | Mathematics | • | | |
| 2/3 | Digital Game Design | Tech, Comp Sci & Engineering | | | • |
| 3/4 | Pen to Podium: Expert Speaking & Writing | English & Language Arts | | | • |

July 22-26

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|---|------------------------------|----|----|-----|
| Age 4 | Matter Minds: Solids, Liquids and Gases | Science | • | | |
| PreK/K | Doctors & Dentists | Science | • | | |
| PreK/K | Robot Road Trip | Tech, Comp Sci & Engineering | | • | |
| K/1 | Coding Super Sequence | Tech, Comp Sci & Engineering | • | | |
| 1/2 | Math, Music & Composition | Mathematics | | | • |
| 1/2 | Sports Medicine | Science | • | | |
| 1/2 | Robots in Sync | Tech, Comp Sci & Engineering | | • | |
| 2/3 | Mini Memoirs: Nonfiction & Perspective | English & Language Arts | • | | |
| 2/3 | Immunology & Allergies | Science | | • | |
| 3/4 | Web Design | Tech, Comp Sci & Engineering | | | • |
| 4/5 | Rollercoaster Physics | Science | | | • |

LAKE FOREST • SUMMER 2019 • Age 4 – Gr. 5

Leapfrog | Spark Half-Day and All-Day Course Reference Chart

KEY

A.M. 9a.m. – 12 noon

P.M. 1p.m. – 4p.m.

All Day 9a.m. – 4p.m.

July 8-12

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|---------------------------------------|------------------------------|----|----|-----|
| Age 4 | Swirl, Soak, & Spray: How Water Works | Science | • | | |
| PreK/K | Bees and Hives | Science | • | | |
| PreK/K | Robot Road Trip | Tech, Comp Sci & Engineering | | • | |
| K/1 | African Safari | English & Language Arts | • | | |
| K/1 | Dinosaur Discovery | Science | | • | |
| 1/2 | Geometry of Treasure Maps | Mathematics | • | | |
| 1/2 | Incredible Animal Adaptations | Science | | | • |
| 2/3 | Math in Space | Mathematics | • | | |
| 2/3 | Wilderness Challenge | Science | | | • |
| 2/3 | Coding: Build It, Break It | Tech, Comp Sci & Engineering | | • | |
| 4/5 | Rollercoaster Physics | Science | | | • |

July 15-19

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|---|------------------------------|----|----|-----|
| Age 4 | Matter Minds: Solids, Liquids and Gases | Science | • | | |
| PreK/K | Kitchen Math | Mathematics | • | | |
| PreK/K | Coding Pattern Power | Tech, Comp Sci & Engineering | | • | |
| K/1 | Heroes & Villains | English & Language Arts | • | | |
| 1/2 | Go! Go! Super Powers | English & Language Arts | • | | |
| 1/2 | Math in the Animal World | Mathematics | • | | |
| 1/2 | Math, Music & Composition | Mathematics | | | • |
| 1/2 | Coding Algorithm Adventures | Tech, Comp Sci & Engineering | | • | |

| | | | | | |
|-----|--|-----------------------------------|---|--|---|
| 2/3 | Rocket Science | Science | • | | |
| 3/4 | 3D Cell Biology | Science | | | • |
| 4/5 | Business Behavior: Intro to Behavioral Economics | Humanities, Social Science & Arts | | | • |

July 22-26

| GRADE LEVEL | COURSE TITLE | SUBJECT AREA | AM | PM | ALL |
|-------------|--|------------------------------|----|----|-----|
| Age 4 | Science Spies: Snooping for Answers | Science | • | | |
| PreK/K | Cover to Cover | English & Language Arts | | • | |
| PreK/K | Mini Mathletes | Mathematics | • | | |
| K/1 | Headcase: Ear, Nose & Throat | Science | • | | |
| K/1 | Robots on the Grid | Tech, Comp Sci & Engineering | | • | |
| 1/2 | Sports Medicine | Science | • | | |
| 2/3 | Immunology & Allergies | Science | • | | |
| 2/3 | Robot Navigation | Tech, Comp Sci & Engineering | | • | |
| 2/3 | LEGO Metropolis: Urban Design & Architecture | Science | | | • |
| 4/5 | Making Machines Move: Robotics with Microcontrollers | Tech, Comp Sci & Engineering | | | • |