Center for Talent Development

Enrichment Programs
Advanced and Unique Courses for Gifted Students

Course Catalog
Age 3 through Grade 8

Saturday & Sunday Courses
Accelerated Weekend Experience
Tadpole Academy
Online Family Program

SPRING 2018

Northwestern | CTD
Welcome to CTD’s Spring Enrichment Programs

The Center for Talent Development (CTD) Enrichment Programs offer challenging and engaging opportunities for bright students to focus on specific areas of study face-to-face and online. Our research-driven courses, outstanding instruction and the camaraderie of learning with like-minded peers make our programs the place to be!

Why enrichment when you’re already in school?

Because CTD enrichment:

• Offers a community of like-minded peers.
• Provides challenging courses backed by one of the world’s most respected universities.
• Presents opportunities to delve deeper into a single topic and to develop further one’s area of strength.
• Encourages sustained, whole-family engagement, offering parent education workshops as well as online parent education, both of which address social-emotional development of gifted learners.
CTD Enrichment Programs

What you will find in this catalog

• Tuition, locations and times of Saturday & Sunday courses (p. 2)
• Saturday & Sunday course descriptions (p. 3)
• Information on the Accelerated Weekend Experience (p. 7)
• Information and course descriptions for Tadpole Academy for 3 year olds and their care-givers (p. 7)
• Information on Parent/Child Online programs (p. 7)
• Additional CTD offerings (p. 8-9)

What you will find online

• Go to ctd.northwestern.edu/wep and click on the individual programs to see:
  • Eligibility criteria
  • Application process, including a direct link to the online application
  • Financial aid opportunities
• Parent Seminar Schedule (free and open to the public!):
  www.ctd.northwestern.edu/parent-seminars
• How to schedule testing for your child age 5 through grade 3:
  www.ctd.northwestern.edu/prek-grade-3-testing
• Refund and withdrawal policies:
  www.ctd.northwestern.edu/refund-withdrawal-policies

Center for Talent Development has been accredited as a nonpublic supplementary school by the North Central Association Commission on Accreditation and School Improvement (NCA CASI) since April 1, 1994. NCA CASI is recognized by the U.S. Department of Education and has more than 100 years of experience in improving educational quality.
# Spring 2018
## Saturday & Sunday Courses at a Glance

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### Tuition:
$340

### Application Deadline:
April 10, 2018

### When & Where:
**Saturday:**
April 14 – May 19, 2018

**Sunday (Evanston only):**
April 15 – May 20, 2018

**A.M. Classes:** 9:00 a.m.–11:30 a.m.
**P.M. Classes:** 12:00 p.m.–2:30 p.m.

**Evanston, IL (EV)**
- Saturday AM & PM (EV Sat)
- **Sunday AM (EV Sun)**
  - Northwestern University

**Naperville, IL (NP)**
- Saturday AM
  - North Central College
  - 31 N. Loomis St.

**Palatine, IL (PA)**
- Saturday AM
  - Quest Academy
  - 500 N. Benton St.

**Chicago, IL (CH)**
- Saturday AM & PM
  - *The Frances Xavier Warde School*
  - Holy Name Campus
  - 751 N. State St.
Saturday & Sunday Courses

Age 4–Grade 8

Saturday and Sunday courses at Center for Talent Development (CTD) are challenging and enriching opportunities for academically talented students. Our courses in English & language arts, arts & humanities, mathematics, science, design & engineering, and computer science & technology engage students for six consecutive Saturdays OR six consecutive Sundays in spring. Students with demonstrated strengths in verbal/reading and/or math, depending on course, may apply. See ctd.northwestern.edu/sep for eligibility details.

PreK-K
Students age 4 or 5 may enroll for PreK/K courses without test scores. See ctd.northwestern.edu/sep for details. Only courses listed as “PreK-K” apply.

Purposeful Probability: The Likely and the Impossible
*How can we use the language of math to describe probability?*
Through fun, hands-on games and experiments, students make connections between math and real life to develop a basic understanding of chance and likelihood, learning mathematical terms along the way. Together, students collect, organize and analyze data, building crucial skills in systematic thinking and logic and exploring the idea that certain results are mathematically more likely to occur.

**SUBJECT:** Math

All About Birds: Ornithology 101
*Where do birds sleep in the winter?*
Young ornithologists swoop into this branch of science devoted to the study of birds. Birds have always impressed humans by their ability to fly, the songs they sing, and their wide variety of colors, sizes, and shapes. Through research and hands-on experiences, students investigate bird migration and flight patterns, identify similarities in physical appearances, and listen to the sounds and songs of a multitude of species.

**SUBJECT:** Science

Grades K-1

Making Sets: Exploring Multiplication
*How can we use mathematical patterns to count?*
Boots, mittens, twins, eyebrows, chopsticks—in math, a set is a collection of things that share a common element. By brainstorming items that come in groups, young mathematicians start their venture into multiplication while building upon their knowledge of addition. Using hundreds charts, arrays, skip counting, and stories, learn to identify patterns and create simple equations.

**SUBJECT:** Math

Young Author’s Theater
*How does a great storyteller hold the reader’s interest?*
Budding storytellers develop original narratives and performances in this active class. By experiencing award-winning children’s books, and analyzing images and videos of storytellers and actors, students create their own unique works. Independent and collaborative exercises focus on dramatic play, creative writing, storytelling and performance. Join other aspiring young authors to produce creative stories and share them for an audience.

**SUBJECT:** English & Language Arts; Arts & Humanities

*NOTE: WEP does not recommend that children grade 1 and under take both morning and afternoon sessions.*
Earth Explorers: Lessons from the Habitable Planet
*Why is Earth so different from all the other planets in our solar system?*
Have you ever wondered why nothing lives on Mars? Young geologists study Earth history, geological formations and fossils to observe how our planet has changed in the last 4.6 billion years. Through observations, hands-on activities and critical thinking, students discover why our planet is truly special.

**SUBJECT:** Science

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**Grades 1-2**

The Magic of Biology
*How does a chameleon’s body know to change colors?*
Animals can disguise themselves by blending effortlessly into their environment. Plants change color with the seasons. Why and how do these adaptations occur? How does the environment impact these changes, and in what way does the internal structure of these organisms impact that change? Young biologists conduct research and participate in hands-on explorations to study life and the relationships organisms have to their environment.

**SUBJECT:** Science

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Introduction to Biorobotics
*How does a robotic sensor work? What purposes does it serve?*
Engineers in the field of robotics now create machines with many of the same characteristics as living creatures – robots that can slither, crawl, jump, swim, and even fly. In this course, aspiring roboticists study the fields of bio-robotics and bio-inspired robotics and learn about the computer science and engineering concepts involved in making robots that simulate and emulate actual living biological organisms.

**SUBJECT:** Computer Science & Technology, Design & Engineering

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**Start-Up Challenge: Building a Business**
*What are the characteristics of a successful business?*
How does a business make money? Young entrepreneurs are introduced to the fundamentals of designing and running a business. Discover what skills a successful businessperson needs and create an original prototype of a new product or service. Join a simulation where supply and demand, products, services and taxes are all key components.

**SUBJECT:** English & Language Arts, Computer Science & Technology

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Advanced Scratch: Leveling Up Your Games and Animations
*How can we write Scratch programs that are complicated enough to challenge the user?*
Using your prior knowledge of Scratch, create complex digital stories and sophisticated games and animations while developing new proficiencies in the process. Workshop your ideas with other accomplished Scratch programmers to take your skills to the next level. Understand the similarities between Scratch and common text-based programming languages such as Python. Previous experience with Scratch required.

**SUBJECT:** Computer Science & Technology

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Programming & Engineering with WeDo Robotics
*How does the intended function of a robot change how it is designed?*
Gain an introduction to robotics using LEGO® software along with the LEGO® WeDo building blocks, sensors and motors. Program a simple machine of your original design to follow a sequence, interact with its environment or act out a story. Develop programming knowledge while utilizing geometric skills, logical reasoning, design technique and creative thinking.

**NOTE:** Additional $25 materials fee required.

**SUBJECT:** Computer Science & Technology, Design & Engineering, English & Language Arts

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**Grades 2-3**

Math for Explorers: Geometry, Maps & GPS
*How do we use geometry to navigate the world?*
Explorers and treasure hunters wanted! World travelers-in-the-making use geometry to navigate the globe. Students examine how shape and space influence mapmaking and experiment with compasses and scales to create their own maps. While fine-tuning their spatial thinking skills, students develop an understanding of the technology that makes GPS possible.

**SUBJECT:** Math, Computer Science & Technology
Grades 3-4

Zoological Zones: Ecosystems & Habitats Around the World

How does an ecosystem maintain a balance of organisms?

From diverse ecosystems to the distinct features of animal populations, our Earth depends on the harmony of living things to survive. Discover the complex interrelationship of organisms and how particular habitats support this interaction. While conducting hands-on experiments and fieldwork, this course will identify, compare, and contrast key features used in classifying ecosystems and habitats into major groups.

SUBJECT: Science

Digital Architects

How do architects use math, physics and art to design buildings?

Explore the architectural design process using math, physics, storytelling, and visual-spatial reasoning skills. Through hands-on building projects, blueprint sketching, storytelling, and digital modeling software such as SketchUp-Make® 3D, novice architects investigate how buildings come to be and how people interact with the built environment. Using literature as the inspiration, students experience how math and art come together as they design and create their own model buildings.

SUBJECT: Design & Engineering, Computer Science & Technology, Math

Grades 4-5

Pre-Algebra: Data, Statistics & Probability

How can you apply an understanding of statistics to the real world?

Linked to the Common Core State Standards, this pre-algebra series incorporates three courses offered sequentially in the fall, winter and spring. Students may participate in any or all of these courses beginning in any session. Through exploration, practice and application, students develop skills to deepen their understanding of mathematical ideas and apply them to real world settings.

FALL: Numbers & Algebraic Thinking
WINTER: Geometry & Measurement
SPRING: Data, Statistics & Probability

SUBJECT: Math

Graphic Novels: Storytelling with Art & Literature

How do art and words work together in comics?

Explore action, adventure and humor through the creation of your own comics. Engage in the creative process to hone skills in drawing, storytelling, drafting and page design, while also examining notable graphic novels of the past and present. Workshop your ideas with fellow storytellers and comic book fans to develop believable characters, unique worlds, and exciting plots. This course concludes with the class’s very own “Comic Con!”

SUBJECT: English & Language Arts

Electronics: Deconstruct & Reinvent

What is the relationship between form and function in electronic design?

Discover your “inner hacker” and learn the principles of electronics by taking apart a variety of devices and exploring how components connect to make complete circuits. Investigate circuits and manipulate sound, lights, and motion using a variety of hardware components like littleBits or MaKey MaKey. Use both traditional tools to solder and wire projects, and innovative tools to build projects that “snap” together. Develop critical thinking skills as you brainstorm solutions to real-world design problems using re-constructed parts for original projects.

NOTE: Additional $20 lab fee required.

SUBJECT: Computer Science & Technology, Design & Engineering
Grades 5-7

Big Data: Math, Computers & Analysis
How can you make better predictions with limited data?
Corporations, non-profits, governmental agencies, and other analysts use “big data” to better understand everything from politics to sports, creating descriptive and predictive models to make sense of events and trends. This course explores the newly articulated world of data science through a range of applications and expressions. Surveying theories of probability, students will learn how to turn data into descriptive trends and to use algorithms to make better decisions. Through case studies and individual research, identify, collect and interpret data to generate proposals for action.

SUBJECT: Math, Computer Science & Technology

Sustainability & Environmental Engineering
How can science and engineering be used to solve society’s challenges?
Based on the Next Generation Science Standards, this course engages students in engineering practices across the various disciplines. Plan and carry out investigations, analyze and interpret data, construct explanations and design solutions for society’s challenges. Develop and use models, support explanations through evidence, and practice communicating scientific information. Apply real-world research and scientific inquiry to gain the skills necessary to be successful in advanced high school science courses. Example projects may include cleaning up an oil spill, testing landfill designs, and environment-friendly construction.

SUBJECT: Science, Design & Engineering

Programming Complex Games with Python
How do you build your own unique games using simple code?
Python is a powerful, flexible object-oriented programming language used for different real-world purposes in a variety of fields. Apply core programming concepts previously learned as you further explore and develop tools and skills necessary to develop more complex games. In a pair programming environment, collaborate with peers to workshop your creations. Build original fully functional games, animations, and more!

NOTE: This course is intended for students who have completed prior programming courses with CTD. Eligibility must be confirmed before enrolling.

SUBJECT: Computer Science & Technology

Grades 6-8

Mock Trial
What skills are necessary to be successful in resolving a dispute in a court of law?
May the record reflect that this course will explore key roles and responsibilities associated with the United States court system. Through hands-on simulation of a court setting gain awareness of the importance of processes and procedures in a court of law. Engage in interactive experiences designed to resolve disputes and to define and measure the level of justice in court decisions.

SUBJECT: English & Language Arts and Arts & Humanities

Biotechnology: The Helpful and the Controversial
What are some ways that advances in biotechnology could affect society for the better? For the worse?
Genetic engineering, transgenic organisms, cloning, stem cell research and DNA fingerprinting — biotechnology is changing the world as we know it. Through labs, activities, debate, and discussions, students examine the relationships among these topics, as well as their economic, social and medical impacts, and learn how this field is helping improve everyday life.

SUBJECT: Science

FUSE: Design Studio and Maker Space
How do you apply the design process to both physical and 2-dimensional products?
Select design challenges from a variety of fields, such as electronics, robotics, biotechnology, architecture, sound mixing, or fashion design to create products that use STEAM-based practices (science, technology, engineering, arts/design and mathematics) and develop problem solving, creativity, and persistence. The challenges, developed by researchers and educators in the School of Education & Social Policy at Northwestern University, are open-ended and student-driven, encouraging independent and collaborative problem solving. With the help of an expert facilitator, you’ll produce and present your digital media artifacts for peer review, remixing, and expert feedback.

NOTE: Additional $25 materials fee required.

SUBJECT: Computer Science & Technology, Design & Engineering, Science
Other enrichment programs offered this spring

**Accelerated Weekend Experience (AWE)**

The Accelerated Weekend Experience (AWE) provides academically talented students a full, single weekend to explore an area of study in depth with an expert in the field.

- Gain insight into careers in math, science or technology.
- Engage with like-minded peers and motivating instructors.

AWE runs on a single weekend (both Saturday and Sunday) from 9 a.m. to 2:30 p.m. Courses are offered in partnership with host sites, most often a school or community organization.

**Tuition:** $265

Check website to view the science, engineering and technology courses that are taking place in Evanston on March 24 and 25, in addition to other dates and locations near you.

Learn more at
www.ctd.northwestern.edu/awe

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**Tadpole Academy**

Tadpole Academy is a series of three parent-child classes on Saturday mornings in Evanston. No test scores are required for your child to participate. Children must be three years old (at time of program) and accompanied in each class by a parent or caregiver.

**Tuition:** $120

(per session — families can register for one or both sessions)

Northwestern University, Evanston

Session I: Pockets and Lockets, April 14; Roller Derby, April 21; Special Delivery, April 28

Session II: The Fix It Shop, May 5; Bubble Bath, May 12; Climb Every Mountain, May 19

Learn more at
www.ctd.northwestern.edu/tadpole-academy

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**Online Family Program**

Bright, busy and inquisitive students, kindergarten through grade 3, engage in 9-week, flexible online modules with their parents to experience exciting science, technology, English/language arts and math classes in the comfort of their own homes. Conceived by gifted experts, taught by gifted educators, these online classes provide parents with the playful, engaging curriculum and experienced teacher interactions to help them develop their child’s critical learning skills, and to instill a love of learning in your child.

**Tuition:** $310

Spring classes include:
- Bricks & Blueprints: Math with Lego, grades K-1
- Comic Book Creators: Storytelling & Design, grades K-1
- Coding Workshop with Hopscotch, grades 2-3
- Invention Design Lab: Mechanics & Physics, grades 2-3

Courses begin April 15

Learn more at
www.ctd.northwestern.edu/online-family
Other enrichment programs offered this spring

**Gifted LearningLinks Online Enrichment and Core Essentials Courses**

**Grades 3-8**

CTD’s online Enrichment and Core Essentials courses allow advanced students to explore topics beyond the core curriculum and at a higher cognitive level. Instructors have flexibility to differentiate instruction based on students’ goals, experiences, and desire to learn.

**Nine-week courses**

NEW COURSE SESSIONS BEGIN QUARTERLY:
September 15, January 15, April 1, June 15

CTD also offers online courses for credit for grades 6 through 12 throughout the year.

Learn more at www.ctd.northwestern.edu/online

**Opportunities for parents**

**Parent Seminars**

CTD provides parents with the opportunity to hear from experts in the field of gifted education and child development. These free, 90-minute seminars, which are open to the public, are held on Saturdays and evenings throughout the Chicagoland area. See the schedule of seminars on our website. No registration required.

**Backpack for Parents**

Backpack is a robust online community for parents of academically advanced and gifted students who want to learn more about the talent development process and support their children’s growth. Members can access podcasts and articles and participate in discussions. Membership is free with enrollment in a CTD program, or may be purchased separately online at www.ctd.northwestern.edu/ctdbackpack.

**Opportunities for the Future**

An inspirational afternoon of learning and exploration for advanced students and their families on June 30, 2018, from 1-5 pm. For more information and to register, visit www.ctd.northwestern.edu/family-conference.
Northwestern University’s Midwest Academic Talent Search (NUMATS)

Advanced assessment that identifies your child’s talents and provides the resources you need to develop them.

You know your child is curious and smart. But do you know . . .

• the full extent of your child’s ability?
• your child’s specific academic strengths?
• the level of instruction your child needs to be challenged and ensure academic growth?
• the range of programs and services available to your family?

Through NUMATS, students and families . . .

• receive valuable information to help you plan your child’s academic journey through high school graduation
• gain insight into academic strengths and benchmarks for measuring growth
• get practice on the high-stakes test(s) used for high school placement, scholarships, and college admissions
• learn about gifted programs for which your child might qualify
• get connected to an active, online community of gifted learners and their families

Your child may be doing well in school and participating in enrichment programs on weekends or in the summer. Still, you may not know the full extent of your child’s abilities and academic needs. NUMATS can help!

Understanding your child’s level of achievement is an important first step. Grade-level state exams do not measure knowledge and skills beyond the current grade. And, computer-adaptive tests do not have the quantity of higher-level questions needed to identify what advanced students are ready to learn. NUMATS solves the problem by using assessments designed for older students that measure college and career readiness. Students in grades 3-6 take the PSAT™8/9, typically administered in grades 8-9. Students in grades 7-9 take the SAT® and/or ACT®. These challenging tests provide a more accurate measure of your advanced learner’s knowledge and skills and can provide insight into what level of instruction is appropriate.

Assessment dates are available throughout the year.

See the NUMATS website, www.ctd.northwestern.edu/numats, for registration deadlines, test dates, fees, and a short video about the NUMATS experience.
Weekend Enrichment Programs
Advanced and Unique Courses for Gifted Students

Spring 2018 Dates
Saturdays: April 14 – May 19, 2018
Sundays (Evanston only): April 15 – May 20, 2018

APPLICATION NOW OPEN!

Mark Your Calendar for 2018-2019 Dates

Fall Dates
Saturdays: September 29-November 17, 2018
Sundays (Evanston only): September 30-November 18, 2018

Winter Dates
Saturdays: January 19-March 9, 2018
Sundays (Evanston only): January 20-March 10, 2018

Spring Dates
Saturdays: April 13-May 18, 2018
Sundays (Evanston only): April 14-May 19, 2018

Contact Information
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