

S.T.E.M. opportunities k - 12

Aspire

K-12 Outreach

Society of Women Engineers (SWE)

<http://aspire.swe.org/>

This site is inspiring! It focuses on interesting girls in Engineering (and STEM fields); They provide resources to hold an event, all it would take are volunteers.

Girl Scouts of America

http://www.girlscouts.org/program/program_opportunities/science/

They have some interesting STEM opportunities. Again, focused on girls. There is a local office right down the street from where

National Girl's Collaborative Project

<http://www.ngcproject.org/index.cfm>

The vision of the NGCP is to bring together organizations throughout the United States that are committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM).

This site identified events/resources by location. I found some interesting events and opportunities.

GEMS – Girls engaged in Math and Science

University of Illinois, Champaign-Urbana

Had some interesting opportunities.

<http://gems.ncsa.illinois.edu/>

“Change the Equation”

<http://www.changetheequation.org/>

Broad, national initiative with the mission to “Change the Equation” pledges to create widespread literacy in science, technology, engineering and math (STEM) as an investment in our nation that empowers us all”.

NIU STEM Outreach

Northern Illinois University, DeKalb

<http://www.outreach.niu.edu/stem/audience/k12students.shtml>

NIU offers a wide variety of activities and events that center around the STEM fields. There are many places at NIU where you can explore.

- **STEM Camps at NIU** <http://www.outreach.niu.edu/stem/camps/index.shtml>
 - **SciCamp Discovery and SciCamp Explorations** are residential camps held each summer at our Lorado Taft Campus along the Rock River near Oregon, IL. Middle school campers explore geology, biology, chemistry, and physics through activities in forensics, electricity, paleontology, astronomy and more. Top science educators from the region instruct the sessions, and science and education students provide counseling support. NIU's SciCamp leadership collaborates with NIU faculty in adolescent development to provide an environment that nourishes the development of every camper, regardless of gender, ethnicity, or learning differences.
 - **SciCamp Investigations** is a residential camp held each summer on NIU's main campus in DeKalb. High school campers spend the week in more serious investigations in science fields of their choice and come together as a group for competitions and science fun. Campers experience dorm life and work in NIU's science labs. NIU faculty and graduate students supervise the investigations. Camp information is available shortly after the first of each year.
 - Pati Sievert, Science Camp Director for the seventh year and STEM Outreach Coordinator, holds a Master's Degree in Physics Education and has many years of experience with young people in schools, camps, outreach programming and as a high school physics teacher. Contact Pati with any questions about programming or camp life.
 - **Games Camps:** NIU's Digital Convergence Lab hosts camp sessions for middle school children interested

in animation, computers, 3D virtual worlds, or video games. Games Camp was a huge success in its initial year (see story) . Explore some "hard fun" at one or both weeks of Games Camp. Each week will focus on a totally different technology so that students can sign up for either week or both weeks. Check out the Games Camps page for details and registration.

- **Science Day Camps:** Saturday Science day camps occur periodically on campus and at other locations. We can assist school districts wishing to host their own Spring Break Science Day Camps and can also help coordinate events with museums.
 - **Rural Health Careers Camps:** High school students from rural Illinois communities sample clinical laboratory sciences, communicative disorders, dietetics, nursing and physical therapy by means of a simulated disaster and campus activities. In 2008, the simulation involved a car accident, on-site treatment by emergency medical personnel, and rescue by helicopter. During the camp, students toured the university's anatomy lab for first-hand experience with a human cadaver, explored issues and careers in public health, and visited Kishwaukee Community Hospital to learn about careers outside NIU's curriculum. Alan Robinson is in charge of the Rural Health Careers Camps offered by the College of Health and Human Sciences. arobinson@niu.edu or 815-753-8996.
 - **ExxonMobil Bernard Harris Summer Science Camp:** The Science Technology Engineering Middle School Summer Camp is a program approved and funded by the ExxonMobil Bernard Harris Foundation. The free two-week program seeks to increase underrepresented students' interest in future math and science careers.
 - **Enhancing Engineering Pathways:** Enhancing Engineering Pathways (NIU-EEP) is a program funded by the Motorola Foundation to establish a sustainable pathway for the middle and high school girls through the girl scout organizations to the Field of Engineering. The program includes a summer camp and Saturday session throughout the school year.
- **Spooky Science Saturday** – A Saturday to explore science hands on including a Haunted Physics Lab and Creepy Chemistry
 - **Capture the Colorful Cosmos** – An opportunity for the whole family to learn how to capture your own pictures from space
 - **Physics Olympics** – A day of Physics challenges
 - **Public Events** – Keep up with exciting STEM events
 - **Digital Convergence Lab** – Provides exciting learning experiences focusing on emerging technologies and 21st century skills.
 - Scouting Badge Nights – Workshops are available for scouting groups
 - **GetWise** - Women In Step with Engineering, Summer Camp and more
 - **NIU Observatory** – Explore the sky at NIU's best keep secret!

ISMA

Illinois Math and Science Academy – Aurora, IL

FUSION PROGRAM- AFTER SCHOOL ENRICHMENT FOR STUDENTS 4TH-8TH GRADE

<https://www3.imsa.edu/programs/fusion/program>

ISMA FUSION is an after-school enrichment program for Illinois students who are talented, interested and motivated in mathematics and science. ISMA FUSION places a special emphasis on students who are historically underrepresented in those areas. The program provides on-going professional development and support for the participating Illinois teachers and administrators.

One part of the program is designed to serve up to 20 late elementary students in the 4th or 5th grade; the other part is targeted to serve up to 30 middle level students in grades 6 through 8. Invited students have the opportunity to remain in the program for all five years. In addition to the after school sessions, students also may participate in related field trips and other enrichment activities.

SUMMER IMSA – OFFERED EVERY SUMMER

<https://www3.imsa.edu/programs/SummeratIMSA>

WHERE are Summer@IMSA programs held?

Programs are in eight communities around the state of Illinois ~ Rockford, Chicago, Belleville, Aurora, Springfield, Carbondale, and Lake County.

WHO should come to Summer@IMSA programs?

These programs are for ALL students entering grades 3 through 10 who have a passion for math and science.

WHAT kind of programs does IMSA offer?

A range of day and residential programs in math, science and technology.

DOES Summer@IMSA offer scholarships?

YES! Financial need-based scholarships for students in all programs. Call 630-907-5987 for more information.

DOES IMSA offer programs during the school year?

<http://www.centerforgifted.org/>

COALITION FOR SCIENCE AFTER SCHOOL

http://www.lawrencehallofscience.org/csas/case_coal_memb.php?sortby=name

THIS WEBSITE HAS LINKS FOR PROGRAMS ALL OVER THE US. THERE ARE A HANDFUL IN CHICAGO.

ILLINOIS EARLY LEARNING PROJECT

<http://illinoisearlylearning.org/askanexpert/beneke/sup.htm>

ONLINE RESOURCES AND ACTIVITIES -STEM OPPORTUNITIES FOR EARLY CHILDHOOD.

STEM WEBSITE WITH ONLINE RESOURCES TO MAKE STEM COOL FOR HIGHSCHOOL/MIDDLE SCHOOL STUDENTS.

<http://www.mn-stem.com/>

THE NATIONAL COALITION OF GIRLS' SCHOOLS - A VARIETY OF STEM SUMMER PROGRAM LINKS FOR GIRLS AROUND THE U.S.

<http://www.ncgs.org/stem/resources/parents/summerprograms/>

College of DuPage

<http://home.cod.edu/academics/conted/youth/>

Debra Kennedy, Talent Search Coordinator kennedy@cod.edu

- **Talent Search Program:** Talent Search courses provide academic enrichment and acceleration critical to the development of gifted students. Students enrolled in grades 3 to 12 can participate in one of the leading programs of its kind in the country, featuring expanded opportunities in math, science, information technology, problem solving, literature, language and writing.
- **Grades K to 8 Enrichment Programs:** Enrichment and review classes provide opportunities for students to increase their knowledge and improve their academic skills throughout the year. A wide variety of programming options are offered, from academic skill builders, languages, arts, sciences and technology, as well as popular summer day camps.

Laboratory School for Science and Technology (LSST)

Physics After school program for middle school students.

For Information: Esther Wong ewong@lsst-usa.org

www.lsst-usa.org

The Laboratory School for Science and Technology is a weekly school enrichment program taught by LSST-selected high school physics teachers serving middle school students who are interested and motivated in STEM – science, technology, engineering, and mathematics. Our program focus is in physics – the core of STEM education - and it brings into the study of science the integrative relationship between physics and mathematics and between science and technology. Our program is comprehensive, ensuring students develop a solid foundation of basic science concepts, critical thinking, and problem-solving skills that will facilitate their accelerated growth in high school and college.

Benedictine University

Lisle, IL

For Information: JZigmond@ben.edu

Summer Sleuths Program

Northwestern University

Center for Talent Development, (847) 491-3782

www.ctd.northwestern.edu

Students completing grades PreK through 12th grade - The Center for Talent Development is an accredited learning center and research facility serving the gifted community of the Midwest. Through the Midwest Academic Talent Search and other programs, CTD has assisted more than 350,000 families. Offering a variety of learning alternatives for the gifted student, CTD provides school-year programs such as Saturday Enrichment Program, Gifted LearningLinks distance learning, Civic Education Project, as well as summer academic programs.

- **The Midwest Academic Talent Search (MATS)** is a program that offers above-grade-level testing to bright students. MATS provides students and parents with assessment and counseling tools that enable them to make wiser academic decisions about courses to take and paths to choose.
- **Saturday Enrichment Program** offers enriching and challenging courses for academically talented PreK-9th grade students in Evanston, Gurnee, and Naperville. SEP supplements regular school curricula and explores areas of science, mathematics, and humanities at a pace and in a setting compatible with students' abilities. The academically challenging courses are designed to promote interdisciplinary study, focus learning around key concepts, and foster the development of independent learning strategies.
- **The Gifted Learning Links Distance Learning Programs** offers academically talented students the opportunity to take enrichment, high school honors, and Advanced Placement (AP) courses either online or via traditional correspondence. These programs are designed for independent students who wish to move quickly to advanced levels of coursework, whose local school offerings are limited, who have scheduling difficulties, or who are home-schooled.
- **The Civic Education Project (CEP)** is an award-winning leadership and citizenship program for outstanding high school and junior high school students. CEP combines traditional education and community service to promote civic responsibility among young people. Through innovative school year programs and summer courses, CEP offers promising young people opportunities to learn and serve in communities across the country, developing the knowledge, experience, and leadership skills they need to make a positive impact on society.

The Summer Program offers accelerated courses in mathematics, science and the humanities. Apogee, Spectrum and Equinox courses meet for three weeks, five hours per day, with commuter and resident options available. Leapfrog courses meet for one week, and are commuter only.

Northwestern University

National High School Institute

www.northwestern.edu/nhsi

nhsi@northwestern.edu

students high school, priority given to juniors

The National High School Institute, established in 1931, is the nation's oldest and largest university-based program for outstanding high school students. Students gain practical college-level experience in their chosen field; interact closely with outstanding faculty; tackle new social and intellectual challenges; and experience campus life with other exceptional high school students. NHSI students leave the Institute better able to make decisions about their future, and many go on to study at the finest colleges and universities.

The Scholars Program

Aurora University, Aurora, IL (630) 892-6431

Dr. Ann Butcher, Director, abutcher@aurora.edu

<http://www.packergroup.com/scholars/index.cfm>

The Scholars Program is a lecture series offered to gifted and talented high school age students. It encourages excellence and enrichment opportunities among gifted students, and expands students' knowledge in areas of interest.

University of Illinois

Illinois Aerospace Institute, Urbana, IL (217) 244-8048

Diane Jeffers, Coordinator of External Relations deffeff@uiuc.edu

www.ae.illinois.edu/IAI

The Illinois Aerospace Institute is a one-week summer residential program for students entering grades 9 to 12 which provides an outstanding introduction to aerospace science and engineering through classroom studies, laboratory work, field trips and workshops.

Exploring Your Options, Worldwide Youth in Science & Engineering

Discover Engineering, Worldwide Youth in Science & Engineering

(217) 333-6634

Mary Weaver, Director Weaver2@uiuc.edu

Exploring Your Options, Worldwide Youth in Science & Engineering: This is a one-week residential program for junior and senior students who are interested in math and science.

Discover Engineering, Worldwide Youth in Science & Engineering: This program is a week-long residential camp where sophomore students will be involved in hands-on projects that incorporate several aspects of engineering.

G.A.M.E.S. Summer Camp

Women in Engineering Program

(217) 244-7673

Minosca Alcantara wie@uiuc.edu

www.engr.uiuc.edu/k12/summercamps.php

G.A.M.E.S. (Girls' Adventures in Mathematics, Engineering, and Science) provides academically talented middle school girls (entering 6th-9th grade) the opportunity to explore math, engineering and science through demonstrations, classroom presentations, hands-on activities and contacts with other women in these technical fields.

Packer Engineering Foundation

Aurora, IL

<http://www.packerfoundation.com/>

- **Aviation Camp:** Aviation Camp offers high school students and middle school students a unique opportunity to explore the history and science of aviation and to discover exciting career opportunities in aeronautics and aviation technology.
- **Pathways:** Provides a unique opportunity for a paid internship-style experience on site at Packer Engineering Inc. in Naperville.
- **Scholars:** For more information on the Scholar's Program at Aurora University: Contact: Dr. Ann Butcher, Director, abutcher@aurora.edu
- **Young Scholars Gifted Program:** Motivated learners as young as four are invited to join. The learning opportunities are continuous from the Preschool, Primary, Intermediate, and Middle School levels. Enrichment offerings are available in the fall, winter, and summer.
- **Step:** Designed for students who are considering engineering or engineering technology as a career.

Links to some STEM opportunities - some are in the summer and others are not:

- Univ of Chicago Outreach program: http://research.uchicago.edu/outreach_stomp.shtml
- Univ of IL at Urbana STEM camp: <http://cs.illinois.edu/outreach/k12> (for MS girls)
- One stop shopping for biomedical internships: <http://people.rit.edu/gtfsbi/Symp/summer.htm#skip>
- One stop shopping for engineering, environmental, biomedical internships: <http://people.rit.edu/gtfsbi/Symp/highschool.htm>
- Mini Medical School for HS students: <http://www.minimedicalschool.com/MiniMedSchool.html>
- Milwaukee School of Engineering: http://www.msoe.edu/high_school_students/summer_programs/
- Vanderbilt: <http://www.scienceoutreach.org/research.php>
- Indiana State Univ: <http://www.indstate.edu/experience/>
- Iowa State Univ Carver Summer Internships: <http://www.ag.iastate.edu/diversity/gwc/HS.html> (HS students)
- Society for Science & the Public: <http://www.societyforscience.org/impact> (sponsors Intel STS, Intel ISEF, and MASTERS competitions for MS/HS)
- Siemens Science Competition for HS: <http://www.siemens-foundation.org/en/index.htm>
- NCTM's Mathcounts Program for MS: <http://mathcounts.org/>
- Math Kangaroo Competition (all ages): <http://www.mathkangaroo.com/2010page/kangur/main.htm>
- Biotechnology Institute: http://www.biotechinstitute.org/programs/biogeneius_challenge.html (for HS)

Engineering Competitions

National Engineers Week Future City Competition

<http://www.futurecity.org/>

The mission of the National Engineers Week Future City Competition is to provide a fun and exciting educational engineering program for seventh- and eighth-grade students that combines a stimulating engineering challenge with a "hands-on" application to present their vision of a city of the future.

FIRST

<http://www.usfirst.org/default.aspx>

Part of FIRST's vision is to positively transform culture by inspiring young people, their schools and communities to appreciate and celebrate science and technology. There are several competitions to engage different age groups.

- FIRST Robotics Competition for high-school students
- FIRST Tech Challenge for high-school students
- FIRST LEGO League for 9 to 14 year-olds
- Junior FIRST LEGO League for 6 to 9 year-olds

JETS TEAMS

<http://www.jets.org/>

The TEAMS program is an annual high school competition helping students discover their potential for engineering. Using their math, science and 21st century learning skills, students work together to problem-solve real, everyday world challenges.

JETS National Engineering Design Challenge

The NEDC is an annual design competition in which high school students put their creativity and problem-solving skills to use by creating a workplace assistive technology device for a person with a disability.

Ecybermission

www.ecybermission.com

eCYBERMISSION is a web-based science, math and technology competition for 6th through 9th grade teams.

MATHCOUNTS®

<http://mathcounts.org/>

MATHCOUNTS is a national math enrichment, coaching and competition program that promotes middle school mathematics achievement in every U.S. state & territory.

National Science Decathlon

www.sciencedecathlon.com

National Science Decathlon is dedicated to promoting science education by organizing competitive, hands-on science-based tournaments throughout the United States.

Argonne National Laboratory

Argonne, IL

http://www.dep.anl.gov/p_k-12/

K-12 Programs

- Introduce a Girl to Engineering Day
- NEWTON
- Rube Goldberg Machine Contest
- Science Careers in Search of Women Conference
- Educational Field Trips
- Academies Creating Teacher Scientists
- Middle School Science Bowl
- Teacher Resources / Workshops & Classes
- Pre-Service Teacher (PST) Program
- Indian Education Renewable Energy Challenge

Fermi National Laboratory

Batavia, IL

<http://www.fnal.gov/>

K-12 Programs

- **Target:** an apprentice research program for local high school students. Our program encourages historically underrepresented minority students to apply. <http://wdrs.fnal.gov/eo/target.html>
- **Beauty and Charm** A teacher-developed unit of hands-on experiments enables midlevel students to explore ways scientists study the subatomic world. Classes completing the unit may visit Fermilab and meet with a scientist.
- **Fermilabyrinth** Students explore the science and technology of Fermilab by playing games that are online versions of the Quarks to Quasars exhibits.
- **Lederman Science Center** The home of K-12 education programs includes Quarks to Quasars, interactive exhibits that explain the science and technology of Fermilab, and the Teacher Resource Center.
- **Particles and Prairies** A teacher-developed instructional unit introduces midlevel students to the tall grass prairie and provides an opportunity for them to conduct field studies in the Fermilab prairie.
- **Phriendly Physics** This physical science program includes field trips to the Lederman Science Center for elementary students and a professional development program for teachers.
- **The Prairie - Our Heartland** A teacher-developed instructional unit introduces intermediate students to the tall grass prairie and provides an opportunity for them to study the ecosystem first-hand. The program encourages students to become stewards of the prairie.
- **QuarkNet** High school students and teachers learn physics by collaborating with particle physicists on projects that range from classroom activities to experiments that probe the nature of our universe.
- **Saturday Morning Physics** The program furthers the understanding and appreciation for modern physics among high school seniors whether or not they are interested in pursuing science as a career.
- **Science Adventures** The Lederman Science Center offers a variety of informal classes for students and families throughout the year on Saturdays and during summer vacation.
- **SIMply Prairie** In this online instructional unit students answer research questions about native and reconstructed prairies using quadrat data they and other students have collected.
- **Teacher Resource Center** Educators have access to a large preview collection of K-12 science, mathematics and technology materials and support for professional development and may ask for assistance in enhancing their classroom programs.
- **Topics in Modern Physics** Teacher-developed classroom materials introduce students to particle physics within the curriculum of a standard introductory high school or college physics course.
- **Scout Programs** badge workshops for Girl and Boy Scout troops.