

VISIT THE DUPAGE ROE STEM WEBSITE AT <http://www.stemdupage.com/>.



Illinois Green Ribbon Schools Application Now Available

Designed to recognize schools that have active programs, actions and dedication to promote and educate about sustainability, applications are due by February 12. For addition information, click [here](#).



STEM Demand and Opportunity

Business leaders in Illinois cannot find the science, technology, engineering and mathematics (STEM) talent they need to stay competitive. Students have made progress in math over the past decade but some students still do not get the chance to learn challenging content that prepares them for college and careers. [Read more](#).



Roselle School District 12 Launches Discovery Zone (aka Genius Hour)

District 12 staff and administration have put the learning in the hands of students by prioritizing personalized learning opportunities in the schedule during the daily "WIN or What I Need" time. For more information, please subscribe to the [Roselle D12 You Tube Channel Student Newscast](#).

Upcoming Events and Opportunities

Students Involved in Technology (SIT) Conference - February 10, 2018 at Blackhawk Middle School, Bensenville

This [conference](#) is **by and for 3rd through 12th grade students**. **Attend, present and/or volunteer**. Teachers, encourage your technology-gearred students to present at the conference and attend. Consider volunteering, too. Registration accepted through January 21 or until capacity is reached.

Understanding Inquiry Within the Context of the NGSS: Modeling, Argumentation and Explanation Workshops (New workshops)

Modeling will be the focus at the January 23 workshop and Argumentation and Explanation will be the focus at the March 2 workshop. These workshops are designed for classroom teachers responsible for teaching science in grades K-12. Click [here](#) for more information about the January 23 workshop and [here](#) for more information about the March 2 workshop.

2nd Annual Model Water Tower Competition – March 10, 2018

Consider entering one or more teams in this competition that focuses on real-world STEM learning. It requires little extra work and could be integrated into an existing curriculum or an after-school program. Contact Laura Riley with questions, liriley@cusd201.org.

Presidential Innovation Award for Environmental Educators (PIAEE)

This [award](#) recognizes K-12 teachers who employ innovative approaches to environmental education and use the environment as a context for learning for their students. Applications are due by March 1, 2018.

Resources

National Institute for STEM Education

Interested in learning more about STEM teaching? [Read more](#) about this competency-based, academic coach-led, online program.

McCarthy Dressman Education Foundation – Teacher Development Grants

Grants are available for individual teachers or small teams working in K-12 education. The focus is to foster insightful and innovative professional training and growth by implementing new teaching methods and strategies in the classroom. Apply online from January 15-April 15. Click here for more information. <https://mccarthydressman.org/teacher-development-grants/>

NGSS and Storylines

NextGenStorylines offers a guide to making classroom posters for the NGSS Science and Engineering Practices (SEPs), and provides some guidance to teachers for how they could be used to support instruction. [Learn more](#).

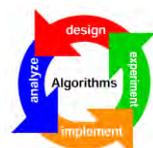
Winter Fun with Scientific Inquiry

Looking for fun, hands-on science experiments to encourage scientific inquiry and understanding? This holiday-themed [Physics Girl video](#) from PBS LearningMedia takes everyday household items and turns them into science experiments that your students can do in class- or at home with family and friends over break! [Watch Video](#).

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(Pixabay)



Football



Leaders Discuss STEM Trends During Summit

Lindsey Gardner, STEM Education Coalition, told attendees during a recent STEM Pathways Summit about the federal administration's STEM priority. [Read the takeaways](#) from all the speakers at the Summit.

Educators Rethink the Way Students Learn Science

Move from sit-and-get lessons to students being active participants in their learning through an inquiry-based approach. Inquiry helps students vocalize their understanding. [Read the article](#).

The Million Dollar Problem

So, what is an algorithm? And why are algorithms useful to us? Mathematicians search for the one algorithm to solve them all. [Learn more](#).

Tips for Teaching STEAM Using Sports

Look at STEAM through the lens of football. Here are [five tips](#) for making STEAM learning relevant to students, including hands-on activities and using processes to talk about job skills.

Challenging Middle School Thinkers

Use [science fairs and competitions](#) to challenge persistent, passionate middle school students to pursue careers in science and engineering.

Prevent Passing Down Math Anxiety

Parents agonize over their children's homework. It turns out that parents' fear of math can be passed along to our kids without even realizing it. Read more [here](#).

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Understanding Inquiry Within the Context of the Next Generation Science Standards: A Workshop for Science Leaders and Evaluators - November 28, 2017 at Medina Shriners, Addison (**New Workshop**)

Learn the important role that inquiry plays in the NGSS-aligned classroom and what this means for teacher evaluators and science leaders. Click [here](#) to register and [here](#) for more information.

Team America Rocketry Challenge

This hands-on, project-based learning program incorporates aerospace-specific STEM concepts. Students in grades 7-12 design, build, and fly a rocket. There is a \$125 entry fee per team. <http://rocketcontest.org/>

Lexus Eco Challenge

In this [STEM contest](#) for students in grades 6-12, teams tackle environmental issues related to land, water, air, and climate, while they create practical solutions and compete for amazing prizes.

Real World Impact: Water Quality Project Funding Applications Due January 12, 2018

Do you or your students have a project idea for your school that could help improve water quality in your area? DuPage County Stormwater Management has an annual fund for community projects that provides up to 25% of construction costs. [Read more](#).

Resources

Celebrate World Soil Day - December 5, 2017

One of our greatest natural resources is right beneath our feet! Get the dirt on soil and find [links](#) to activities and recommended reading.

STEMscopes

Activate a [free preview](#) to experience some of the reasons other districts have adopted this STEM curriculum.

Empower Sixth-Grade Students Through a Climate Change Lesson

"Can a single human impact the planet's climate?" Sixth-grade students dig into this question as they measure their carbon footprints in [this article](#) from the October issue of Science Scope.

Community Action Grants Program Offered by AAUW (formerly American Association of University Women)

AAUW funds programs to promote education and equality for women and girls. Special consideration given to projects that focus on STEM and involve community partners. Applications are due January 15, 2018. For more information, click [here](#).

Teacher Research Associates (TRAC) Program - Expected for Summer 2018 at Fermilab

TRAC offers research opportunities to outstanding science, mathematics, computer science and technology teachers. The eight-week appointments have a stipend of \$700 per week and an expected application deadline of February 18, 2018. See details on the [website](#).

Lemelson-MIT Program

The Lemelson-MIT Program offers a [collection of resources](#) designed to celebrate inventors and inspire young people to pursue creative lives and careers through invention. Designed for students in grades 7-12 to invent and develop hands-on STEM skills.

An Illustrated Guide to Biology - Book published by Jeff Grant, Downers Grove North Teacher

This [illustrated book](#), published in black and white so students can color and highlight content, can be used in biology courses, including high school (Introduction and AP), college, and even Anatomy. Work with concepts in a more organic, non-linear, approachable way.

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What Would You Tell a High Schooler Seeking Career Advice About a STEM-related Field?
The advice differs depending on the age group represented. [Read more.](#)

A Teacher's Tips on How to Get Kids Excited About STEM

Emerging diseases, energy sustainability and severe weather are just some of the global issues today's students will be asked to solve using the skills they learn. Continue reading [here](#).

Belief in Success Predicts How Kids Do in Math and Reading

When kids believe they can achieve success in math and reading, they are more likely to achieve high test scores in those subjects, [new research](#) suggests.

US Dept. of Education to Direct \$200 million to Science and Technology Education Grants

President Trump highlighted science and technology education this week with an announcement calling on the US Department of Education to direct [\\$200 million to competitive grants](#) for such programs. Officials say Congress has appropriated money for the grants.

NGSS Parent Guides Available in Spanish

Building on the success of the NGSS Parent Guides, new [versions are now also available in Spanish](#). The guides illustrate how the standards help students build a cohesive understanding of science over time.

Apply Now for the Northrop Grumman Foundation Teachers Academy

[Applications](#) are now being accepted for this middle school teacher program designed to enhance confidence and classroom excellence in STEM and to build teacher understanding of the skills needed for a scientifically literate workforce. This year the Academy will support up to 27 teachers in select [Northrop Grumman communities](#). Learn [more](#).



Upcoming Events and Opportunities

ISTA Fall Conference – October 27-28, 2017

Final days to register are quickly approaching. Engage in numerous science and STEM breakout sessions and workshops, with one- or two-day options and group discounts available. Participate in the Flea Market and win door prizes. [Click here for information.](#)

STEM: Putting the Pieces Together (ROE Workshop) – November 8, 2017

Participants will engage in hands-on activities with electricity, earthquake simulation, and simple machines. Time will be provided to use the materials, plan lessons and integrate NGSS. Completion of this workshop allows participants to check out classroom sets of the workshop materials. [Register.](#)

Girls Who Code Webinar – Fall 2017

Girls Who Code is the national non-profit that works to inspire, educate and equip girls with the skills to pursue 21st century opportunities. Learn more about FREE Summer & after-school programs at by attending a Launch Girls Who Code Clubs in Your Community Webinar. [Register](#) to receive connection details.

Resources

Learn Science with Crack the Circuit and Other Physics Games

[Lab Out Loud](#) shares Matt Blackman's physics games and apps. Matt founded [The Universe & More](#) where he creates educational games and apps such as [Crack the Circuit](#) and [Action Graphing](#). This webcast focuses on games and apps that supplement and enhance (but not replace) good teaching.

How Can Students Make Up Missed Lab Work?

Missing lab work can affect students' learning. Making up the work poses a real challenge. Here are [some thoughts](#).

NGSS Assessment – Next Gen Navigator e-Newsletter

This is the [second](#) of a two-part series looking at assessment, from the perspective of a principal, state science consultant and chief state school officer. The [August](#) edition looks at assessing three-dimensional learning in the classroom. Don't get it? [Sign up.](#)

And, More About Next Generation Science Assessment

This effort is a collaboration among the University of Illinois at Chicago, Michigan State University, SRI International, and Concord Consortium, funded by the NSF and Moore Foundation. The group is developing formative, classroom, technology-enhanced assessments for middle school physical and life science. [Click here](#) for more information.

2018 EngineerGirl Writing Contest

Students in grades 3-12 (boys and girls) are invited to write a plea to their community to improve its infrastructure. [Read more.](#)

Angela Awards for Middle School Girls

This award honors one female student in grades 5-8 with a strong connection to science. Nominees must be a resident of the United States, US Territories or Canada and enrolled full time in public, private or home school. [Apply here.](#)

Illinois Council of Teachers of Mathematics Resources

The ICTM website offers numerous resources including publications, curriculum materials, and interactive resources. And, these are available to the public thanks to the commitment and dedication of members. Check out the [resources](#).

Designing a Sustained Neighborhood

What contributes to a successful, interdisciplinary, project-based energy and engineering unit in the seventh-grade classroom? Find out in [this article](#) from the September Science Scope issue.

Illinois Computing Educators (ICE) Offers Mini-grants

ICE is awarding members mini-grants up to \$1000. Each application must be for one project or activity. The project must meet ICE guidelines and demonstrate innovation and the benefit to students. [Click here](#) for more information and to apply.

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American Society of Engineering Education Research on the Role of Failure

Failure and learning from it is integral to engineering design but not always welcomed in the classroom. Engineering authorities share how elementary teachers can change their perspective to support inquiry and learning. [Learn More](#)



Interactive Technology Can Boost Learning

Students are 3.4 times more likely to succeed in classes where technologies that support group learning and collaboration are used, according to a [study from SMART Technologies](#). Such interactive technologies, the researchers found, can contribute to improved social and emotional development and student confidence.

Girl Scouts Add 23 STEM Badges

The Girl Scouts want to see more women in STEM careers. The organization recently announced it is adding 23 new STEM badges created with the help of organizations like Code.org, SciStarter, GoldieBlox, and the Society of Women Engineers. Continue reading [here](#).



Upcoming Events and Opportunities

Toying with STEM – September 13, 2017

Join other DuPage educators to gain insights about how toys relate to and enhance STEM learning. Note: This is a repeat of the session held in Fall 2016. Register before the session closes - [click here](#).

ExSTEMaganza – October 13, 2017 – 5:00 to 9:00 p.m.

Students participants in grades 5-8 and their parents or other accompanying adult will learn about the engineering design while working in teams to build a large-scale Rube Goldberg-contraption. This event will take place at Hinsdale South High School in Darien and is the result of a partnership event with the DuPage ROE, Indian Prairie Library and Gower District 62. Click here for an [application](#).

STEMfest – October 21, 2017 – 10:00 a.m. to 5:00 p.m.

Celebrate science, technology, engineering and math at NIU's [STEMfest](#). FREE admission and interactive STEM activities for curious minds of all ages. NIU Convocation Center, 1525 W. Lincoln Highway, DeKalb, IL 60115. NIU is also looking for [teacher volunteers](#).

ISTA Fall Conference – October 27-28, 2017

Learn from and with other science educators in over 125 sessions and hear leading conservationist and panda researcher, Dr. Sarah Bexell. [Register now](#) for a great fall conference.

Resources

Science Talk Playlist

This playlist will support teachers as they incorporate more science talk in their classrooms to engage students in discourse, scientific phenomena, science and engineering practices. <http://stemteachingtools.org/pd/playlist-talk>

Girls Who Code Books

Girls Who Code teamed up with Penguin books to release a series of [fiction and non-fiction books](#) for girls about computer science and coding.

Illinois Classrooms in Action

Numerous resources related to learning standards are available online. Newsletters, online courses, professional development and access to content area specialists are just a sampling of what you find. <http://www.ilclassroomsinaction.org/>

How NGSS and CCSS for ELA/Literacy Address Argument

Argument is a disciplinary practice that is consistently present across ELA, literacy, math and science learning standards. Is there a common understanding among educators? Okhee Lee sheds light in this new [NSTA blog post](#).

Purchasing the Safest Lab Chemicals

Prior to the new school year, most science teachers select and order their lab chemicals. Before placing an order, however, teachers should consider the health risks associated with using hazardous chemicals in the classroom laboratory. [Read more](#).

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NGSS District Implementation Indicators Released

Achieve has released the [NGSS District Implementation Indicators](#). Designed primarily for district leaders, the document outlines thirteen key indicators of successful NGSS implementation.

Celebrate Earth Day/Week

Teach the importance of civic responsibility and environmental sustainability this month to celebrate Earth Day on April 22nd and Environmental Education Week, April 23-29, 2017.

Advancing Climate Change Environmental Education [Resources and Suggestions](#)

California Academy of Sciences [Earth Day Resources](#)

Earth Day Network. [Toolkit resources](#) (in multiple languages)

Edutopia Earth Day [Lesson Plans, Reading Lists, and Classroom Ideas](#)

National Education Association (NEA) Earth Day [Curriculum Resources](#)

Science NetLinks Earth Day [Lessons and Resources](#)



Upcoming Events and Opportunities

COD Hosts Second Annual STEMCON - April 29, 2017

Enjoy this free, fun, interactive STEM event from 9:00 a.m. to 4:00 p.m. [Click here for more information about STEMCON.](#)

Outstanding Earth Science Teacher Award

Designed to recognize exceptional contributions to stimulate interest in the Earth Sciences, K-12. [Apply yourself or nominate a colleague](#) by May 1, 2017.

NIU STEM Summer Residential Programs

General questions and camp fees: <http://niu.edu/stem/programs/camps/index.shtml>

For campers entering grades 5 - 7: <http://niu.edu/stem/programs/camps/engineering-amusement.shtml>

For campers entering grades 7 - 9: <http://niu.edu/stem/programs/camps/exploring-stem.shtml>

For campers entering grades 10 - 12: <http://niu.edu/stem/programs/camps/career-explorations.shtml>

National Laboratories Offer Fun, Informative Programs

[Argonne National Laboratory](#) and [Fermilab](#) offer endless opportunities to learn more about science and STEM through field trips, classes, professional development, and special events - for adults, students, teachers, and families!

DNA Learning Center – University of Notre Dame

One week camps for 7th and 8th grade students. Scholarships available. For more information, [click here](#).

Resources

Student Talk Flowchart and Protocols

This [insightful resource](#) from STEM Teaching Tools is designed to help you foster student talk in the science classroom.

NGSS@NSTA Infographics

These infographics are the first in our series on the Next Generation Science Standards. Print, share, and send them to your friends and colleagues. [Click here](#).

New NSTA Press Book Explores the DCIs

This new book will help make your science lessons more coherent and memorable. [Learn more](#).

Illinois Schoolyard Habitat Action Grant

Applications will be accepted by the IDNR Division of Education through November 30, 2017. [Read more](#).

Skype with a Scientist

Engage your students with a scientist via Skype. <https://squidscientistas.tumblr.com/post/156365179269/skype-a-scientist>

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madewithcode.com

Coding Project Supports "Hidden Figures" Film

Google launched a [coding project](#) to support the message of the film "Hidden Figures," which highlights the work of three African-American female NASA mathematicians. The project includes screening parties hosted by Google where students can discuss the film and use code to write their own messages of equality.



Tips to Ease Negative Feelings about Math

When math teacher Michelle Russell surveyed her students, she discovered 36% of them expressed negative feelings about the subject. In this blog post, she outlines some of the strategies she has used, such as small-group work, to help address students' feelings. [Learn more.](#)



Pixabay

How to Activate Your Brain's Ability to Learn

[Popular Science](#) reports spending an additional 20 minutes practicing a newly mastered skill may have lasting benefits, according to a study in Nature Neuroscience. Researchers studied optimal conditions for learning, noting that "overlearning" yielded gains for skill retention.

Upcoming Events and Opportunities

Tinkering in STEM Labs and Makerspaces - April 13, 2017

Does your school have a STEM Lab or Makerspace? Thinking about creating one? Join us to share experiences, ideas, and dreams. For more information, [click here](#).

Tech Savvy - March 25, 2017

[Tech Savvy](#) is a daylong science, technology, engineering, and math (STEM) career conference for girls in grades 6-9, parents, mentors, and teachers. The \$10 fee includes lunch. Each girl will also receive a t-shirt. The event will be hosted at Triton College in River Grove.

Apple Professional Development Sessions - April 26, 2017

The DuPage ROE is pleased to again collaborate with Apple Inc. in providing two exciting sessions. You can attend one or both sessions but must register for each one. Sessions will take place at the Center for Professional Learning, 1519 S. Grace, Lombard.

[Enhancing Teaching and Learning in Science Technology, Engineering, and Math \(STEM\)](#) - 8:30 to 11:30 a.m.

[Everyone Can Code](#) - 1:00 to 3:30 p.m.

Presidential Awards for Excellence in Mathematics and Science Teaching

Awardees receive the nation's highest honors and serve as models for colleagues, inspiration to communities, and leaders in the improvement of mathematics and science education. Applications for mathematics, science, and computer science teachers of grades 7-12 are open. [Nominations](#) are due April 1, 2017 and [applications](#) are due May 1, 2017.

Resources

Free activities for science classes

Mobile app [Science Journal](#) lets students use their smartphone or external sensor to conduct experiments and record findings. Teachers can find activity ideas -- such as building musical instruments that respond to light -- online at the [Making and Science](#) website.

Education Week Spotlight - Inquiry-Based Teaching and Learning

Access [articles and resources](#) regarding how to become more inquiry-based in your teaching approach.

Education Week Spotlight - Math in the Classroom

Examine best practices in STEM teacher training and retention, learn how to extend math into students' real lives, and see how project based learning see how project-based learning can generate diverse ways of tackling math problems. [Click here](#).

Science Fair Projects from the National Aeronautics and Space Administration's Jet Propulsion National Laboratory

Refer to this [video series](#) from the Laboratory, in which a scientist, engineer and educator team up to help students learn how to generate an idea for a science fair project and see it through to completion.

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DuPage Educator Named Northrop Grumman Teachers Academy Fellow

Erika Myers, STEM teacher at Lakeview Junior High School, was recently selected for the Academy and will participate with 24 other teachers from the United States in a series of science, engineering, and technology-related activities and professional learning opportunities this year. Congratulations, Erika! To learn more about this prestigious honor, visit <http://www.nsta.org/northropgrumman/>.



Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST)

This is the nation's highest honor for teachers of mathematics and science (including computer science). Awardees serve as models for their colleagues, inspiration to their communities, and leaders in mathematics and science education. This year nominees must teach in grades 7-12. For more information, visit <https://www.paemst.org/>.

Upcoming Events and Opportunities

Toying with STEM - February 4, 2017 (Yep, it's a Saturday!) This is a repeat of the "sold out" September 21 workshop.

Apply problem-solving skills in the study of STEM principles related to the exploration, engineering, and construction of toys; create testable questions; and devise experiments. And, take home a sampling of STEM toys! [Click here](#) for more information.

Elementary Science Summit - February 18, 2017

Breakout sessions will include the following: STEM Read, STEAMing It Up!, Creative Technology, Integrating Math and Science, Storyline Implementation, and much more! Free parking, door prizes, lunch included in the \$35 registration fee. [Learn more](#).

Tech Savvy - March 25, 2017

Tech Savvy is a daylong science, technology, engineering, and math (STEM) career conference for girls in grades 6-9, parents, mentors, and teachers. The \$10 fee includes lunch. Each girl will also receive a t-shirt. The event will be hosted at Triton College in River Grove. [Click here for more information and to register](#).

Young Scientist Challenge - Entries Due April 19, 2017

Discovery Education and 3M invite students in grades 5 through 8 to participate in this challenge. Entrants must create a one- to two-minute video describing a new, innovative solution that solves an everyday problem. For more information, [use this link](#).

International Young EcoHero Awards Program - Due Date is February 28, 2017

Action for Nature seeks applications from students ages 8-16 to recognize young people whose personal actions have significantly improved the environment. Projects must concern advocacy, environmental health, research or protection of the natural world. [Click here](#).

Research Experience for Teachers - Applications Due March 15, 2017

Selected science teachers will participate in 8 weeks of summer laboratory research with one of Northwestern's leading professors and earn an \$8,500 stipend. Research topics include materials science, physics, and chemistry areas such as polymers, nanoscience, biomaterials, molecular electronics, and photonics. For more information, visit <http://mrsec.northwestern.edu/facilities/education/ret/>.

Project '17 - July 17 through August 4, 2017

This program, to be held at Elmhurst College, involves middle and high school students seeking dynamic opportunities to explore diverse subjects in a challenging, creative environment involving intellectual, artistic, and scientific activities. [Learn more here](#).

Resources

National Science Foundation and STEM + Computing Partnership Grant

The National Science Foundation (NSF) STEM + Computing (STEM+C) Partnership program seeks to enhance the learning and teaching of science, technology, engineering, and mathematics (STEM) and computing by prekindergarten through grade 12 students and teachers. Proposals due March 29, 2017. [Learn more](#).

Tech Tip - Use Google Classroom to Manage Science Project Assignments

Teachers using Google Classroom can use the "[Create Assignment](#)" button at Science Buddies to add steps of the science project assignment to Google Classroom for easier oversight. Break the project into smaller tasks and create check-in points to help students stay on track!