

January 2016

News You Can Use...

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



Galileo's book
(Minneapolis Public Library/Alamy)

What students can learn through integrated STEM literacy

Roger Essley, an illustrator and author, describes the need for integrated STEM literacy and highlights examples of using storyboards and illustrations to help students develop their visual- and text-based information skills. <http://www.middleweb.com/26572/stem-visual-learning-a-vital-combination/>

After-school programs ignite girls' passion for STEM

Programs that strive to engage girls in science, technology, engineering and math are increasingly relying on research-based methods to spark early interest, researchers and practitioners said in this article. Some programs emphasize real-world relevance, mentoring and hands-on learning. <http://youthtoday.org/2015/12/unlocking-the-code/>

House-building project teaches students real-world math

Fifth-grade students at a Kentucky elementary school applied math concepts while constructing a one-room, wood-frame house in the gym as part of a nationwide program called "If I Had a Hammer." <http://www.kentucky.com/news/local/education/article47564055.html>

Upcoming Events and Opportunities

NGSS for ALL students - February 24, 2016

Participants will explore research-based strategies to engage students in three-dimensional learning. To learn more and to register: <https://www.dupage.k12.il.us/register/course.php?recid=6403>

Reading to learn in science

Enroll in this free course from Stanford University designed to provide knowledge and strategies to help you help students comprehend the language of science texts. Runs from January 13 to April 13, 2016. Learn more: <https://novoed.com/science-mooc>.

Building quality three-dimensional classroom assessments in K-12 science - February 13, 2016, Bloomington Jr. High School

Learn to work with the Three-Dimensional Science Assessment and the Illinois State Board of Education Quality Classroom Assessment training materials to develop quality science assessments. For more information and to register: <https://www.eventbrite.com/e/building-quality-three-dimensional-classroom-assessments-in-k-12-science-bloomington-normal-tickets-19680079648?aff=ebrowse>

The DuPont challenge science essay competition

For students enrolled in grades 6 - 12, to help increase science literacy among students and motivate them to excel in communicating ideas in STEM. Deadline for entry is January 31, 2016. For more information, go to <http://thechallenge.dupont.com/essay/teachers/>.

Become a PBS learning media digital innovator

Participate in a robust professional learning community. Foster new ways of thinking and lead the way with technology to drive student achievement. Apply by February 8, 2016. For more information and to apply: <http://www.pbslearningmedia.org/digitalinnovators>.

Resources

STEM teaching tools

Launch STEM investigations that build on student and community interests and expertise. <http://stemteachingtools.org/brief/31>

9 things you need to know about NGSS this month

Subscribe to this monthly newsletter dedicated to NGSS topics. <http://campaign.r20.constantcontact.com/render?ca=73941342-100f-40f7-b7f6-55b46310fdc0&c=a10a7b50-92ed-11e3-950e-d4ae529cde13&ch=a19d4570-92ed-11e3-959c-d4ae529cde13>

What's new in STEM education? NSTA asks experts.

In a brief video filed at the NSTA conference last year, experts were asked, "What do you think are the exciting new developments in STEM?" [Watch the video](#), and see if you agree with the answers.

Science snacks

Hungry for exciting activities based in mind-blowing scientific phenomena? Try bite-sized versions of Exploratorium exhibits and other investigations that you can build at home or in your classroom using inexpensive, readily available materials.

<http://www.exploratorium.edu/snacks>

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The STEM Learning Ecosystem

The nature of STEM learning is changing with 24/7 access to science-related information and the focus on life-long experiences. Today's opportunities include traditional schooling and numerous informal opportunities that collectively form the STEM learning ecosystem. Learn more about leveraging these opportunities to enrich STEM learning. <http://csl.nsta.org/2016/03/taking-an-ecosystem-approach/>

Engaging America's Youth in STEM through Hands-On Experiences in Labs and Communities Across the U.S.

The U.S. has more than a half-million job openings in information technology and more that require STEM training. The Administration is working to provide opportunities in STEM and entrepreneurship. [Read more here.](#)

How Female Science, Math Teachers Influence Whether Young Women Major in STEM Fields

Technology giant Google was heavily criticized for its statistics on workforce diversity in May 2014. Media organizations have tracked the company's progress in closing the gaps. The reality is that far fewer women and minorities enter STEM careers. [Read more here.](#)

Do Students Have Time to Tinker?

Tinkering fosters deeper learning, suggests Jasmine Escalante, product development and curriculum writer for MindWorks Resources. Students benefit from the "journey" of tinkering -- not necessarily the end result. <http://www.eschoolnews.com/2016/01/28/why-we-all-need-time-to-tinker-with-tech/?/>

Upcoming Events and Opportunities

Latina STEM Conference - April 9, 2016

Invite an 8th grade Latina girl and her mother/mentor/teacher to a FREE STEM conference at Fermilab on Saturday April 9th. Details with link to registration and event flyers in Spanish and English: <http://latinaconference.org/stem-conference/>

Tech Savvy – April 16, 2016 at Oakton Community College

Introduce girls in sixth through ninth grades to many types of careers in science, technology, engineering, and math (STEM), and help them learn "savvy skills" such as negotiation and public speaking. Learn more: <http://www.aauw.org/what-we-do/stem-education/tech-savvy/#schedule>

The National Academy of Engineering Announces the E4U3 Video Contest

NAE is looking for 1 to 2 minute videos that introduce a particular mega-engineering project and will award the \$25,000 Grand Prize for the most inspiring video. Submissions accepted from **March 1, 2016 to May 31, 2016**. <http://www.nae.edu/e4u3/#linkPrints>

Brookfield Zoo

Choose from numerous educational opportunities designed with teachers in mind. <https://www.czs.org/Brookfield-ZOO/Learning/Teacher-Resources-Classes>

Resources

Intriguing Appearances of Pi and the Fibonacci Sequence

Explore these instances outside of mathematics in the video [Pi & The Fibonacci Sequence](#) from The Great Math Mystery. Grades 6-12.

Encouraging Students to Consider Engineering and Science

Show them that people working as engineers and scientists reflect a wide range of backgrounds and interests. The Secret Life of Scientists and Engineers is a fun and insightful collection of profiles from NOVA. <http://www.pbs.org/wgbh/nova/blogs/secretlife/>

New Look for the NGSS Website

The NGSS website has a brand new look and more levels of utility. The revamped website has new features for parents, teachers, administrators and others. <http://www.nextgenscience.org/>

Google for Educators: Best Features for Busy Teachers

EduTopia has a [great article](#) highlighting tools from Google for Educators. These resources will keep teachers and students inspired, inventive, and organized.

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Coalition Gives Third Congressional Briefing on Informal STEM Education 101

STEM coalition focuses on the state of educational research on informal STEM education programs and outcomes. [Read more here.](#)

SciGirls Profiles: Women in STEM

The profiles feature women innovators, problem-solvers, and dreamers working to make the world a better place. For more information: [SciGirls Profiles: Women in STEM](#). Profiles are also available on [YouTube](#).

Jazz Legend Develops Math/Science Curriculum

Education Secretary John B. King Jr. and Grammy Award-winning jazz artist Herbie Hancock launched a free tool kit that uses music to teach math and science in the classroom. Learn more about the [Math, Science & Music initiative](#).

Middle School Reading List - Science Focused Additions

Access great suggestions for nonfiction reading selections in science. [Read more on the NSTA blog.](#)

Help Students Read & Think Like Scientists

The work of scientists does not always require lab coats and goggles. Read more about integrating complex scientific text to deepen student learning. [Read more here.](#)

Upcoming Events and Opportunities

Bradley University - STEM Master's Degree

Starts Fall 2016 for 33 months, featuring online classes and 1-2 residency weekends/semester. Scholarships available. For more information: <http://www.bradley.edu/academic/cio/stem/educators/> or contact: Bob Wolffe (309) 677-2520 or at bjwolffe@bradley.edu.

Northwestern University - Certificate of Advanced Study in Next Generation Science Teaching

Participants complete four project-based summer courses, while developing teaching practices, curriculum materials, and assessments to reflect the goals of NGSS. <https://www.sesp.northwestern.edu/msed/certificate-for-advanced-study-education/>

DePaul University - MS in Science Education

Starts Fall 2016. A cohort of K-12 teachers will complete the program in two years. Tuition discount available. For more information: go.depaul.edu/msse or contact Victoria Simek at 773-325-4790 or vsimek@depaul.edu.

Summer Culinary Camp for Students

Eighth through tenth graders can explore the world of culinary arts at Technology Center of DuPage in Addison. For more information: <http://www.tcdupage.org/Page/1621>

Notre Dame University - DNA Learning Center Summer Camp for Students

The DNA Learning Center is hosting one-week residential camps. Students who have completed grades 7/8 and 9/10 stay in campus dorms during the camp as they participate in DNA related activities and experiments. <http://dnacenter.nd.edu/summer-camps/>

Oak Brook and Woodfield Microsoft Stores Offer Summer Camp Opportunities

YouthSpark Camps get kids of all ages coding, creating games and apps, and learning computer science. <https://www.microsoft.com/about/philanthropies/youthspark/youthsparkhub/programs/yscamps/>

Resources

California Academy of Sciences - Flipside Science video units

Media-rich video units engage middle school students in discussions about food, water, and energy, empowering them to make a difference for the planet. <https://www.calacademy.org/educators/flipside-science>

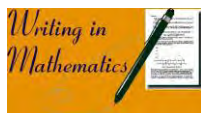
Westinghouse Grants

Westinghouse awards grants in K-12 STEM education, environmental sustainability, and community vitality. Requests for funding are due August 10 and December 10. For this opportunity and others like it: [NSTA calendar page](#).

New "Short Courses" on Curriculum Adaptation and Three-Dimensional Formative Assessment

Explore STEM Short Courses: [How to Develop 3D Formative Assessments for the Science Classroom](#) and [How to use Curriculum Adaptation to Adopt the New Vision for Science Education](#).

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Students in My Math Classes Next Year Will Do a Lot of Writing. Here's Why.

Through verbal and written strategies, students gain a deeper grasp of math content, while giving teachers a window into their understanding. [Read more.](#)

Digital Tools to Boost Math, Science Lessons

The new school year for fifth-grade math and science teacher Ashley McDowell means 90 math and science students all learning in unique ways with one-on-one instruction. [Learn more.](#)



ThinkZone Games Takes Top Prize in White House Edtech App Challenge

Developer creates a game app to help students make career choices and wins the grand prize in the Reach Higher Career App Challenge run by the White House and the U.S. Department of Education. [Read more here.](#)



Social Media Use Linked to Low Math, Reading, Science Performance

Assessment data suggest that 15 year-olds who play online video games score above average in math, reading, and science, while those who engage in social networking tend to score below average. [Read more.](#)

Teaching Teachers to Overcome Hidden STEM Biases

What can be done to entice girls to pursue STEM classes before they lose interest? [Learn more.](#)

Upcoming Events and Opportunities

2016 Fall Math and Science Conference – October 7 – 8; 2016, Peoria, IL

This is the **THE** conference to attend this fall. Jointly sponsored by the Illinois Council of Teachers of Mathematics and Illinois Science Teachers Association. Experience excellence in professional development by and for math and science educators. Flexibility to attend both math and science sessions. For information and registration: [Click here.](#)

Science Online Seminars

Six-week online courses co-taught by museum scientists and classroom educators and accessible anytime on your schedule. Earn graduate credit with courses in the life, earth, and physical sciences. [American Museum of Natural History](#)

Once in a Lifetime Solar Eclipse – August 21, 2017

The Sun will sweep across only the U.S., beginning in Oregon and ending in South Carolina. [Read more about it](#), and sign up for [NSTA's half-day virtual conference](#), perfect for grades 4-12 educators. Registration includes an e-book.

Resources

Free Resources from NSTA

What science teacher does not like to receive free teaching materials? [Here is your chance.](#)

Nurturing Plant Life

Make the most of a school garden with the Captain Planet Learning Gardens Program. [Learn more.](#)

Next Generation Science Standards Group Offers Tips on 'Bundling' Skills to Teach

Bundling offers benefits to the teacher and learner. [Read more.](#)

Enter Now for a Chance to Win the 2016–2017 Shell Science Lab Challenge

Are you a science teacher providing exemplary lab instruction with minimal equipment and resources? Win a lab makeover by sharing your approaches. Middle and high school teachers (grades 6–12) in the U.S. and Canada, [apply](#) by January 23, 2017.

Makerspace Classic Kit Giveaway

[Enter for a chance](#) to win one of 50 prizes, each including a "Makey Makey™" Makerspace Classic Kit for your classroom or library and a \$300 gift card for buying makerspace supplies. The deadline is December 31, 2016.

Registration for the Bright Schools Competition – Now Open

Engage students in STEM education with [The Bright Schools Competition](#). Middle school students (grades 6–8) explore the links among light, sleep, and student health and performance. [Registration](#) is now open and projects are due **February 6, 2017**.

October 2016

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Eight Reasons to Empower Girls in Schools

'Girl fueled' youth activism has educational benefits. [Read more.](#)

Fueling Exploration, Creation and Invention

Learn some of the ways in which STEM and makerspace projects can be blended. [Click here.](#)

Visual Experience Shapes How Individual Learn Math

Researchers compared data from two groups, one with congenitally blind individuals and the other with sighted individuals. Regardless of sight, members of both groups used the area of the brain often used for visual processing. [The Atlantic Online.](#)

Minecraft to Launch Education Edition Nov. 1

More than 35,000 students and teachers have tested and given feedback on a free, trial version of Minecraft: Education Edition. The full version, to be released Nov. 1, will add a companion app for teachers to use in the classroom. [TechCrunch](#)

Apple Announces New Coding App is Available

The learning and teaching materials for Everyone Can Code are now updated and available for download. Check out Swift Playgrounds, the new app for teaching coding on iPad, and the iTunes U course, App Development with Swift, that teaches those new to programming to build their first app with Xcode. [Visit Everyone Can Code here.](#)



(Leon Neal/AFP/Getty Images)

Upcoming Events and Opportunities

NGSS, 3-D Learning and Design, and Use of Classroom Assessments - November 15, 2016

Wondering how to develop NGSS aligned assessments? Still have questions about the 3-dimensional aspect of NGSS? Join others in the journey to understand and apply these concepts. Designed for Grade K-8 educators, with break out grade level sessions, too. This is a rare opportunity to learn from Dr. James Pellegrino and other NGSS assessment researchers/authors. To learn more, [click here.](#)

Elementary Science Olympiad Program for Grades K-5 - May 6 or 13, 2017

Form a team to compete in 12 different elementary science events. The team registration fee (\$125), which covers registration for National Science Olympiad organization and participation in the tournament, can be done at www.illinoisolympiad.org. A training and support program about the Olympiad, team logistics, and specific competitive events will be held on Saturday, November 19, 2016 at Palatine High School. Interested in learning more? Go to the [website](#) or email elementary@illinoisolympiad.org.

Fiction to Action - November 17, 2016

Join NIU, the DeKalb Public Library, and author Mike Mullin for a fun and thought provoking evening. One session focused on Sci-Fi stories and hands-on activities. For more information, use this [link](#).

EGIRL Essay Contest - Deadline February 1, 2017

Boys and girls in grades 3-12 can write and submit an essay on how engineers impact the animal world. Interested in more information? [Click here.](#)

Resources

Stanford Center Offers Free Math Activities, Videos for K-12 Instruction

Youcubed has debuted "[Week of Inspirational Math](#)," five free math lessons for K-12 teachers. The series, which aims to foster visual and creative math experiences, comes with activities and motivational videos.

Educational Grants and Resources

Access educational grants, contests, awards, free toolkits, and classroom guides aimed at helping students, classrooms, schools, and communities. Check this page weekly to get the latest updates! www.edutopia.org/grants-and-resources

The Learning Lab at Argonne National Laboratory

Students and their teachers are immersed in challenges to discover skills and dispositions used by scientist to make sense of the world. The three-hour labs are NGSS-aligned, inquiry-based, and technology-driven. To learn more, [click here.](#)

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Send suggestions, comments, and feedback to
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Careers with Code

[Click here](#) to access this magazine and online resource that shows how computer science can intersect with students' passions to create a dream career in health, sports, business, virtual reality and more.



Eight States Have Fewer Than 10 Girls Take AP Computer Science Exam

More girls take the AP exam but in eight states the numbers lag far behind boys in this area of study. [Read more](#) in Education Week.

NSTA Reveals Inaugural List of Best STEM Books for Students

[Check out these STEM titles](#) for K-12 students and teachers, selected by volunteer educators in cooperation with the Children's Book Council.



NASA Addresses Diversity

During the *Grace Hopper Celebration of Women in Computing*, three prominent and inspiring women addressed a range of important issues regarding women in NASA and diversity in STEM careers. [Read more](#) about the event and [watch the complete video interview](#).

New
from the
ROE

Upcoming Events and Opportunities

NGSS - 3D Learning, Phenomena, Driving Questions, Storylines, and More! - January 31, February 16, and March 3

This is the NGSS workshop that has been requested by K-8 teachers throughout DuPage County. Gain new insights about building a coherent science curriculum while leveraging the use of driving questions and storylines within the context of the three-dimensional nature of the NGSS. This is a three-session workshop series. Participants must attend all three sessions due to the sequential nature of the content. For more information, [click here](#). Registration closes January 24. Get your spot early!

Fermilab's Teacher Research Associates Program

Appointments expected to be available for Summer 2017 to provide outstanding science, mathematics, computer science and technology teachers with professional scientific, engineering or technical experiences through summer research opportunities. The eight-week appointments have a stipend of \$700 per week. [See details on the website](#). The expected application deadline is February 19, 2017.

Innovative Online Graduate Courses for Progressive Science Educators

Learn to apply phenomena, disclosure, and sense-making to your teaching strategies through MSSE 501 Teaching Inquiry Through Science and Engineering Practices. Check out this and Spring 2017 online courses offered by the Master of Science in Science Education (MSSE) program at www.montana.edu/msse.

Resources

Coding Resources

Although the official week or hour of code has past, here are some great resources to help you get started.

[Guest Blog Post from Girls Who Code](#); [Young Women in Computing](#); [Made with Code](#); [Design Squad Global](#); [Diving into Careers with Code with Google and the National Girls Collaborative](#).

Grant Opportunity from the National Science Foundation

The NSF has allocated \$6,000,000 for project awards as part of their Cyberlearning and Future Learning Technologies program to integrate opportunities offered by emerging technologies in three interconnected areas: Cyber innovation, learning innovation, and advancing understanding of how people learn in technology-rich learning environments. [Read more](#).

Community Action Grants Sponsored by AAUW

These grants allocate funds for programs and non-degree research projects in science, technology, engineering or mathematics to promote education and equality for women and girls in grades K-12. [Learn more](#).

Shell Science Teaching Award

This award recognizes one outstanding classroom teacher in grades K-12 who has had a positive impact on students, the school, and community through exemplary classroom science teaching. The deadline is January 6, 2017. [Click here](#) for more information.