



South Carolina Council of Teachers of Mathematics

March 2019

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"Mathematics is for human flourishing. You cannot separate the true practice of mathematics from what it means to be human. If you want to teach mathematics well, you have to connect it to the things they long for: play, truth, beauty, justice, freedom, community and love."

President's Message

Marc Drews

"Mathematics is for human flourishing."

—Francis Su

In the December 2018 newsletter, I challenged our membership to join us on a journey to help communities begin to see mathematics differently. As an organization, we have the responsibility to will work together to address the systemic issues of access, the achievement gap, accountability, agency, authenticity, and advocacy.

This month, many of us will celebrate Pi Day 2019. When we do, let's consider how we can use the most popular ratio and irrational number as a springboard to get the discussions going in our schools. Using parent engagement events as venues to talk about how mathematics is so much more that the public sees it.

Let's get the conversation rolling by bringing families together and use the entire month of April (Math Education Month/Math Awareness Month) to keep the conversations going. A set of web resources are found in this newsletter to generate ideas for activities to help students and their families to get excited about mathematics, seeing it as something awesome and necessary.

There is also news found in this issue from both the SCCMS and SC Future Minds that share how they are working to use their voice as advocates for mathematics and science. Please visit their websites for more information.

At the January 26 meeting of the SCCTM Board, your officers were challenged to take action during the month to help promote mathematics for all that it is. The quote to the left are the words of the former president of the American Mathematical Association, Dr. Francis Su, shared at the NCTM Conference last April. See and read <https://mathyawp.wordpress.com/author/mathyawp/>.

Let this message serve as a challenge to all our SCCTM members to join the Board throughout April in promoting mathematics as something special, something valued, and something inspirational. Join us on this journey to help communities see mathematics differently.

— Marc Drews
SCCTM President 2019
mdrews@edventure.org

Plans Underway for our SCCTM 2019 Annual Conference

The 2019 SCCTM conference will be held in Greenville, SC at the TD Convention Center on November 14-15, 2019. The conference theme is "Building Your Math Superpower: Taking Action."



Hotel
Information for
the
2019 SCCTM
Fall Conference

HOTELS

Registration is now open for the
2019 SCCTM Fall Conference
in Greenville, South Carolina

Register for Conference

We are accepting proposals for the
2019 SCCTM Fall Conference

Submit Your Proposal

Proposals are due May 15, 2019 with
presenters being notified during the summer.

Who We Are:

The South Carolina Council of Teachers of Mathematics is an organization dedicated to:

- (1) encouraging and stimulating greater interest in mathematics and its applications
- (2) encouraging and providing opportunities for the exchange of ideas and materials related to the instruction of mathematics
- (3) furthering the cooperative study of problems related to the teaching of mathematics at all levels
- (4) working for the improvement and advancement of mathematics instruction at all levels of education

Platinum Sponsors

click on each Platinum Sponsor
to link to their website



Teacher Grant Awards Deadline is April 15

2018 Awardees

Dawn Bryant

J.D. Lever Elementary
Aiken County

Wanda Noblin

Cowpens Elementary
Spartanburg School District 3

Carrie Simpson

Robert Anderson Middle School
Anderson School District Five

Application for the 2019 Teacher Grants are online and ready to be submitted by April 15, 2019. The winning proposals will be announced this summer and will be recognized at the conference in November.

The SCCTM Executive Board makes grant funds available each year to support SCCTM members desiring to implement projects in mathematics-related areas. Individual grant awards may not exceed \$1,500. Grant applications may be made for most mathematics-related purposes.

This year's Teacher Grants will be coordinated by Dr. Ryan Higgins, our president-elect, who will seek input from each of the vice presidents. For information, members are strongly encouraged to visit scctm.org/Grants.

Mathematics rightly
viewed possesses not
only truth but
supreme beauty.
Bertrand Russell

April is Mathematics Awareness Month

Here are a few links to help assemble some Math Awareness Month activities.

<https://www.verywellfamily.com/activities-for-math-awareness-month-1449065>

<https://www.eduplace.com/monthlytheme/april/math.html>

<http://www.nea.org/tools/lessons/math-awareness-month.html>

<https://classflow.com/excited-about-math-month/>

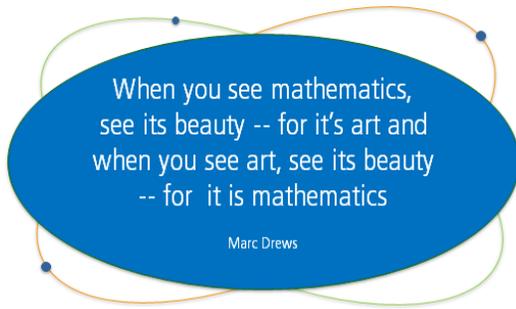
<https://www.envisionexperience.com/blog/mathematics-awareness-month>

<https://www.math.hmc.edu/funfacts/> (changes daily)

<https://www.nctm.org/Standards-and-Positions/Position-Statements/Access-and-Equity-in-Mathematics-Education/>

Here's to Pi Day, Thursday, March 14, 2019

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When you see mathematics,
see its beauty -- for it's art and
when you see art, see its beauty
-- for it is mathematics

Marc Drews

coming soon!
more about the
SCCTM Art Contest

Building Your Math Superpower: Taking Action

SCCTM Art Contest

Each year, the South Carolina Council of Teachers of Mathematics sponsors an Art Competition open to all K-12 students across the state, whose teacher is an active member of SCCTM. If the teacher sponsor is a not member, they may attach a membership application along with payment of only \$10 for their one-year membership.

One piece of artwork may be selected for submission to SCCTM for each grade band: K-2, 3-5, 6-8 and 9-12, with teachers submitting one artwork from each grade level for each grade band (maximum of 4 pieces of artwork) from each school.

Artwork must be representative of this year's theme, "**Building Your Superpower: Taking Action**". Each artwork must have a math teacher sponsor, as well as a thematic title and a label placed on the artwork which gives the student's first and last name, the name of the math teacher sponsor, grade, school, contact number/e-mail address, county or school district. The label should be on the back side of the artwork.



Participating teachers and students are strongly encouraged to visit bridgesmathart.org, the website dedicated to bridging mathematics and art. The Bridges Organization oversees the annual Bridges conference on mathematical connections in art, music, architecture, education, and culture. Since 1998, Bridges has traveled to North America, Europe, and Asia, and has attracted participants from over thirty countries. The website includes galleries of the tremendous artwork over the years that will truly inspire both mathematicians and artists alike.

To encourage greater collaboration between SCCTM members and the school's art teacher(s), we are providing an incentive for the teachers this year. Look for information soon regarding this year's art contest that is being coordinated by Don Sarazen (elementaryVP@scctmconference.com). From M.C. Escher to Piet Mondrian to the many other artists who inspired the world with their work, let's send the message that mathematics and art go together so well.

Experience the beauty of
mathematics and art

visit bridgesmathart.org



Josep Rey Nadal,
Mathematical and creative
museographer
Mathematics Museum of Catalonia
La Garriga, Catalonia, Spain

2018 Gallery

12 lemniscates
10 x 32 x 32 cm
plastic and brass

Knot made of 12 Bernoulli lemniscates that reveal to be a torus' sections.



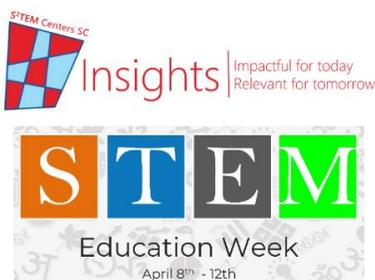
Get ready South Carolina! Next month [South Carolina's Coalition for Mathematics & Science](#) is organizing the first ever STEM Education Week. The goal is to remind our communities of the important role STEM education plays in our State. Last year we took STEM Education to the Capitol, showcasing student robotics teams, celebrating past success as well as introducing new initiatives. This year, we are expanding our efforts with a full week of daily activities geared toward school and community participation.

We know STEM is happening in your schools and after-school clubs and programs, but this is a time to share it with those not in your classrooms each day – legislators, business/industry professionals, community organizations and parents.

Plus, join fellow STEM enthusiasts and schools around the State in the 2019 SC STEM Education Week!

Tuesday, April 9, 2019 is STEM Education Day at the Capitol

The Statehouse will be abuzz with STEM Signing Day, exciting announcements on STEM initiatives, and the naming of the STEM Teacher of the Year. Additionally, student groups will be onsite demonstrating robotics and other STEM projects they have designed and engineered. If you can't be present at the Capitol, we still want to hear from you! Use the link on the event [webpage](#) to send us a video or email on why STEM education is important to South Carolina, tell us about cool STEM things happening in your school, and why students want and need a strong STEM education.



S²TEM Centers SC is an innovation partnership managed by [South Carolina's Coalition for Mathematics & Science](#) at Clemson University. Its purpose is to serve South Carolina by growing the Science, Technology, Engineering and Mathematics (STEM) possibilities and capabilities of learners and leaders. For more information about this exciting week designed to promote the importance of STEM, please visit their website linked above.

Raise Your Voice for STEM Education!

Raise your voice and shoot a quick email to your legislators, encouraging them to continue supporting STEM education during this legislative session!

Not sure who your legislators are? Use this [link](#) to easily locate your representatives.

Short on time or not sure what to write? No worries. Simply start with our sample email and customize it to fit your message. Please encourage students to write emails as well. Their voices have a great impact on our legislators who are interested in knowing how supporting STEM education leads to a better prepared workforce and brighter economic outlook for our state.

Sample Email:

Opportunities in STEM career fields such as Advanced Manufacturing, Computing, and Engineering continue to grow in South Carolina. STEM learning in schools, in afterschool programs, and in a wide variety of formal and informal learning settings all contribute to an informed citizenry, a workforce with increased knowledge and skills, and a better quality of life for all.

I ask you to support STEM teachers and learners in this 2019 legislative session by_____.

I value your leadership as a legislator and look forward to working with you to support the STEM education this year and every year!

Here are some items you **might** consider asking your legislator to support:

- The STEM Teacher Fellows program aimed at retention of mid-career teachers proposed by South Carolina’s Coalition for Mathematics & Science and approved by the Education Oversight Committee.
- Tax credits for business/industry that employ STEM educators from any grade level as interns.
- The creation of a professional development fund targeted to assist STEM teachers, with special emphasis on middle and high school mathematics teachers, in developing interdisciplinary, project-based instruction and assignments that engage students in applying science, computational thinking, engineering and mathematics skills to solve problems.



NASA
Mathematicians



aviatrix

Pictured: Katherine Johnson, Dorothy Vaughan, Mary Jackson, and Bessie Coleman

March is Woman's History Month

SCCTM members are encouraged to recognize the many contributions woman have made to the world of mathematics.

The First SC STEM Educator of the Year to be awarded in April

Thanks to the support of Comporium, South Carolina Future Minds, S²STEM Centers and the STEM Development Foundation, the inaugural SC STEM Educator of the Year award will be announced at STEM Education Day at the State Capitol on April 9, 2019. The award will honor and recognize teachers who are making a significant difference in the lives of students across the state by providing an excellent curriculum, encouraging lifelong learning, and inspiring a passion for STEM beyond the classroom and into the future.

Applications have been judged by a panel of reviewers to determine the finalists, with their names to be announced on Pi Day (March 14th) and the overall winner will be introduced at the annual STEM Education Day at the State Capitol.

Definition of a STEM Teacher

South Carolina Future Minds

Many believe that STEM education is simply about science, technology, engineering, and mathematics; however, STEM is more than an acronym – it pervades every part of our lives. It is a philosophy for teaching and learning, a transformative approach to education that uniquely engages formal and informal stakeholders from PreK-20, out-of-school learning space, business/industry, etc. STEM education is a direct response to an ever-changing society, an innovative way of teaching and learning for all students and an approach to developing the creative, critical-thinking and problem-solving skills that all students need to be successful in today's world.

STEM education is one of the most effective tools we have to prepare our students for college and career success that awaits them. The Profile of the SC Graduate supports STEM as world-class knowledge; such knowledge is beneficial when complemented by important world-class skills that are focused on building critical and creative thinking and analytical skills by addressing how students view and experience the world around them.

STEM educators hold the content knowledge necessary to teach and facilitate learning within their content area, as well as the ability to collaborate with other content area educators to create interdisciplinary, integrated opportunities for student learning. STEM educators include elementary, middle and high school STEM content area educators and CTE (Career and Technical Education) educators. STEM teaching prepares learners to be critical and creative thinkers, innovators, problem solvers, collaborators, team players, and strong communicators. STEM learners persevere through global and community problems, are self-directed and are better prepared to face the challenges of a competitive and constantly changing society.

Effective STEM teaching and learning rely on:

- Inquiry-, technology-, problem- and project-based learning immersed in real-world problem-solving;
- Diverse, interdisciplinary curriculum where activities in one class complement those in other classes and sometimes, other schools;
- Meaningful partnerships with multiple stakeholders that reach beyond purely funding to opening the walls of the classroom to include higher education, business and the community – resulting in an engaged STEM community; and
- Strong school and district leaders who understand the STEM approach to teaching and learning and harness its power to transform education in their schools.



NCTM’s publication, *Principles to Actions* ENSURING MATHEMATICAL SUCCESS FOR ALL, lists the following critical reasons why we teach mathematics. In summary, our responsibility is to help students as follows:

- become more reflective in their thinking;
- observe patterns, to notice, to wonder;
- critique information and ask questions; and
- increase engagement and motivation to want to learn more.

Mathematics Teaching Practices
<p>Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.</p>
<p>Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.</p>
<p>Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.</p>
<p>Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.</p>
<p>Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students’ reasoning and sense making about important mathematical ideas and relationships.</p>
<p>Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.</p>
<p>Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.</p>
<p>Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.</p>

From the *Principles to Actions Executive Summary*
https://www.nctm.org/uploadedFiles/Standards_and_Positions/PtAExecutiveSummary.pdf

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White Knoll Elementary School
Lexington District One
Lexington County



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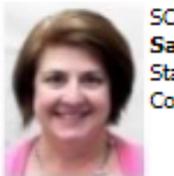
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Greenwood County

Building Your Math Superpower: Taking Action

November 14-15, 2019

at the Greenville Convention Center

The poster features a city skyline at night with two parabolic equations overlaid on the scene. The equations are $y = -.086x^2 + 1.127x + 4.93$ and $y = -.0703x^2 + 3.114x - 29.817$. The text on the poster includes: "NCTM Annual Meeting & Exposition San Diego 2019", "Reserve your spot today for the leading math education event of the year in San Diego. Network with thousands of your peers and fellow math education professionals to exchange ideas, engage with innovation in the field, and discover new learning practices.", "PREMIER MATH EDUCATION EVENT", "NCTM ANNUAL MEETING & EXPOSITION 2019", and "April 3-6 | San Diego".

Are you heading to San Diego? If you are interested in an SCCTM meet up, please let us know by sending an email to Cindy Parker, our SCCTM Executive Director, at director@scctmconference.org