AMTNJ NEWS
ASSOCIATION OF MATHEMATICS TEACHERS OF NEW JERSEY

Fall 2023 • Volume XLVI Number 3

IN THIS ISSUE

PRESIDENT'S MESSAGE

Dear Math Colleagues,

Welcome back to school! We have the incredible opportunity to shape young minds and ignite a passion for mathematics within them again this year. Mathematics is not just a subject; it is the language of logic, problem-solving, and limitless possibilities. Together, we have the power to empower our students, equip them with essential skills, and inspire them to embrace challenges with confidence. Let us embark on this new academic year with enthusiasm, resilience, and a commitment to nurturing the next generation of critical thinkers and problem solvers. Our collective dedication and passion will pave the way for a brighter future, where mathematical literacy opens doors to success in all walks of life.

As I begin another school year myself, I keep thinking about "thinking." We always want our students and peers to think critically and reflect in meaningful ways to further the learning process. Our Fall 2023 Conference on "Equity in Action: Building Mathematical Thinking" promises to offer everyone a hands-on, engaging experience with practical tips to bring back to all teaching and learning settings. In addition, we will be offering a series of one-day workshops at Rutgers University this school year with a continued focus on building thinking in the mathematics classroom. I welcome you to join us at our upcoming events, or share how you engage students and peers in thinking, in our professional network (@AMTNJ on Twitter). Our website, amtnj.org, will also host all information related to our programming. We are also always looking for volunteers to join our organization; the more thinking we do together, the more powerful we are for mathematics education in New Jersey. Here's to a productive 2023-2024 school year!

John Kerrigan Ed.D.

AMTNJ

HS MATH CONTEST

Test Your Students' Mathematics Skills Against Other Schools!

Jan 17, 2024 46th Annual HS Contest

Jan 10, 2024 Registration Deadline

Contest Rules and Registration Form

COMING SOON

Stay Up to Date at:

https://amtnj.org/contests/

Open to NJ parochial, public, and private secondary schools

12TH ANNUAL AMTNJ MIDDLE SCHOOL MATH CONTEST

February 15th, 2024

Registration Link

Open to grades 6-8 for NJ public, private, and parochial

VOLUNTEER CALL: AMTNJ FALL CONFERECE

- AMTNJ is hosting an in-person mathematics education event this fall on Friday, October 20th. The event, AMTNJ's Equity in Action- Building Mathematical Thinking Conference, takes place on Friday, October 20th at Brookdale Community College in Lincroft, New Jersey.
- The virtual keynote is Peter Liljedahl, author of Building Thinking Classrooms!
- The event runs from 8 am to 3:30 pm.
- Volunteers attend at no cost and may take part in the full day of activities & events including the vendor area.
- Volunteers will get lunch and an AMTNJ T-shirt!

Please reach out to teehankara@gmail.com if interested in volunteering!

AMTNJ SCHOLARSHIP AWARDEES 2023

Joan J. Vas, Executive Coordinator, AMTNJ Scholarship Program

Please see the last page of the newsletter for the 2024 scholarship application!

2023 Awardee – Annalise Caulfield

Annalise Caufield is our 2023 awardee. She just graduated from West Morris Central High School and was nominated by AMTNJ Past President, Dr. Kristie L. Prokop. She has been awarded $6,000 for her freshman year at John Carroll University. majoring in Mathematics Education. Annalise is one of the highest qualified candidates we have ever seen in the entire 27 years of the program. Her high school transcript consisted of all A's. As a toddler she would accompany her Mom to school for her older siblings and help the other students during snack time open their milk cartons. When she started school herself, she helped classmates learn to tie their shoelaces and tell time. Annalise recognized other students in need and understood that she had the ability to help them. By middle school, she saw teaching in a new light, thanks to her math teacher, Mrs. Brandes who would write songs about different topics such as dividing fractions. She saw how her teachers turned boring topics into fun and she learned about the effort and skill needed in crafting a lesson. In high school she was committed to teaching and decided mathematics was for her. "I believe mathematics should be a reason for excitement as it holds the secrets to the universe. Aa a teacher. I want to give my students the key to unlocking these secrets." She will be joining two older siblings in higher education this fall.

AMTNJ Scholarship, continued

2023 Renewal Awardees

Emily Elias is entering her fourth year at The College of New Jersey majoring in Mathematics Secondary Education. She enjoyed her classes this year and took the bulk of the remaining math classes in addition to two courses in math education. She conducted research on the Common Core math standards for grade six and compared them with two states not using Common Core, Florida and Minnesota. She has finished the honors program this year and started substitute teaching on days off. She says "overall, I learned a lot in my junior year and I am looking forward to a full year of student teaching experiences before graduating in the spring. AMTNJ has awarded her $3,000 for next year.

Abigail Scheer is entering her second year at The College of New Jersey majoring in Mathematics Secondary Education. She indicates that her first year consisted of fulfilling experiences in the math department. She says, "I am so happy that the professors I had were all so helpful and passionate about the subjects they were teaching. I visited them multiple times during office hours where I was able to get questions on homework answered and gain even more knowledge on the topics. I am looking forward to the methods classes next year." AMTNJ has awarded her $3,000 for next year.

I would like to recognize the AMTNJ Scholarship Committee for 2022-2023 whose dedication and commitment to excellence in mathematics education has been the driving force in student selection. They are as follows: President John Kerrigan, Past President Lena Komitas, Julie Norflus-Good, Anna Maria Graff and Past President Joan J. Vas, Executive Coordinator, AMTNJ Scholarship Program.

REMEMBER: Any active member of AMTNJ, can nominate High School students who indicate that they have a desire to become mathematic educators and who are about to graduate from high school. The current application is available on the AMTNJ website, www.amtnj.org. **The deadline for submitting applications is APRIL 15, 2024.**

A committee evaluates these applications and awardees are announced each May. All awardees are able to apply for renewal of their scholarships for the subsequent three years. The applicants MUST be majoring in mathematics education and maintain good grades. The amount of monies awarded each year is dependent on available funds.

AMTNJ has a strong history of committing to improving the field of mathematic educators and supports the development of young people in this vocation. Please join us by donating to the future of NJ math educators.
Your contributions in support of this program should be mailed to AMTNJ, 111 Third Avenue, Belmar, NJ 07719. Checks should be made payable to the AMTNJ Scholarship Program. Remember that AMTNJ is a tax-exempt organization, (501C3), and your contributions are fully tax deductible.

Thank you all for your continued support of this program, Joan

AMTNJ "Equity in Action: Developing Mathematical Thinking Conference

The AMTNJ will hold “Equity in Action: Developing Mathematical Thinking” Conference on Friday, October 20, 2023 at Brookdale Community College in Lincroft, NJ. This event will feature a live virtual keynote presentation by Peter Liljedahl.

Stay tuned to our website for more information on our fall conference, “Equity in Action: Developing Mathematical Thinking” this October 2023! Registration is available!

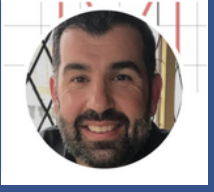
Our Fall event promises to be an exciting conference, featuring talks on relevant topics including equity, social justice, data science, building thinking classrooms, leadership, and more. Our keynote is Peter Liljedahl, author of "Building Thinking Classrooms."

We welcome teachers, co-teachers, building and district leaders, and anyone else interested in the learning and teaching of mathematics content. We will have a number of vendors on hand, as well as door prizes and meals for attendees included as part of the day!

Please note: AMTNJ does not accept cancellations after one week prior to any conference.

Please submit your registration to your Board of Education as early as possible for Board approval. In most cases, this will be by the September or October 2023 BOE meeting.

Register: Fall 2023 Conference Registration Form



desmos classroom

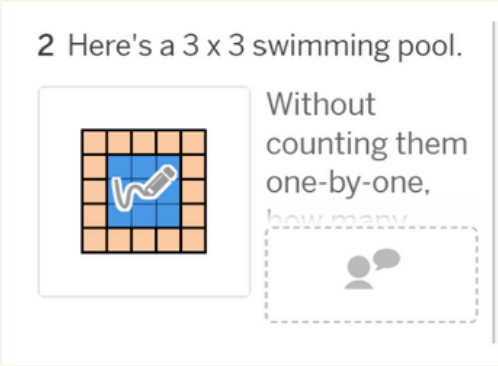
Delight with Desmos: POOL BORDER PROBLEM

Nick Corley

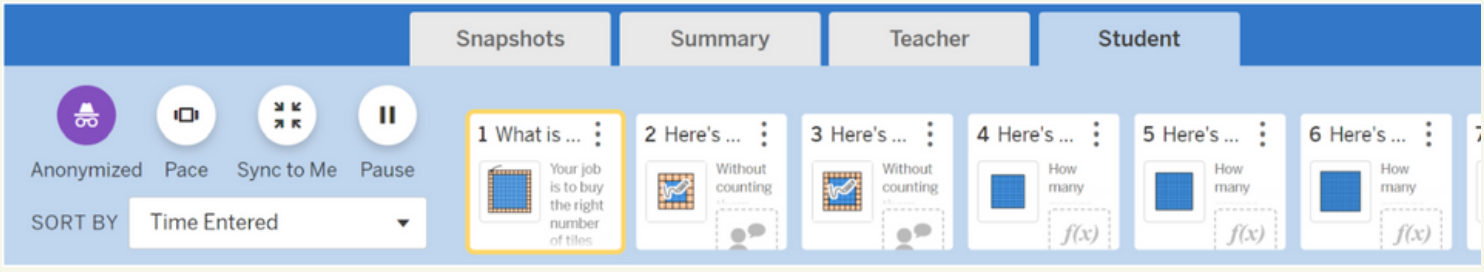
Hey fellow NJ math educators. My name is Nick Corley, I am an Eighth Grade/Algebra 1 teacher from Southern NJ. In addition to teaching, you can find me presenting at conferences, representing Desmos Studios and Desmos Classroom for professional development, supporting schools and teachers by being a math consultant, basically anything MathEd.

I'm here to discuss my favorite Desmos Classroom activity and discuss why I love using it with my students. The activity is called "Pool Border Problem". It's an activity I use with my students and also when I am working with and supporting other math educators. It is a free activity that is available to all, and the design of the activity and the tools Desmos Classroom offers allow me to create an amazing learning experience for all. You can participate as a student by going to www.student.desmos.com and typing in the code : JR52YQ

The students have a great experience due to the design the staff at Desmos Classroom put into the activity. Students start by writing expressions using only numbers for the tiles that surround a pool, then move onto using variables, and finally applying to expressions they used using variables to solve a problem. The activity offers the sketch tools to help students develop their thoughts, and has digital interactions that offer interpretive feedback to support the learning process. I like to have two students working on 1 device during the activity to get the conversations about different approaches happening.



I then use the teacher dashboard to create a sense of community in the classroom and explore multiple techniques for solving the problem, embracing the idea of a student-centered classroom. One of the teacher moves I use to accomplish this is to use the snapshot tools to grab the responses from different groups so we can compare and contrast them and ultimately identify if any of the expressions are more advantageous in accomplishing our final task. These class discussions comparing the techniques add another level of discourse to the activity.



(Check out the new look of the teacher dashboard!)

desmos classroom

There are so many amazing activities that Desmos Classroom offers for free to all educators. “Pool Borders Problem” is one of my favorites because it allows the students ideas to drive instruction and the teacher just becomes a facilitator for the learning process. It is so counterintuitive that an edtech tool like Desmos Classroom allows me to create a more student-centered and social classroom.

If you have a Favorite Desmos Classroom Activity that brings joy to your students and would like to share the enjoyment, let us know at kbdscarter@gmail.com or teehankara@gmail.com to spotlight your Delight with Desmos in the next newsletter.

AMTNJ Customized PD

AMTNJ is proud to offer customized professional development (PD) services that are tailored to meet the unique needs of your school. Our team of experts is dedicated to helping your teachers achieve their goals and improve their instructional practices.

We have worked with several schools across the state, including Wood-Ridge, Holmdel, and Alexandria, and have provided PD on a variety of topics, including Best Practices for Teaching Math, Using Data for Middle School Teachers, Strategies for AP Teachers, and Differentiation. With experts available for every grade level, we can accommodate requests for both special education and general education teachers.

Whether you prefer in-person sessions or virtual Zoom sessions, we can provide the training your teachers need to enhance their teaching strategies and meet the needs of their students. If you are interested in targeted PD for your district, please reach out to us at info@amtnj.org for pricing and more information. Let us help your teachers excel and improve student outcomes through our customized PD services.

2023 NJ PAEMST State Finalists Announced

Kathleen Carter, 2nd Vice President AMTNJ

Last spring **Geena Taite** and **Ben Isecke** were named the New Jersey Finalists for the Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST) in the area of mathematics.The Presidential Awards recognize outstanding teaching for grades k-12 in the science, technology, engineering, mathematics and/or computer science. The 2022-2023 nomination cycle for Presidential Awards was open for teachers grades 7-12, and applications were submitted February 6, 2023. Candidates for the award must demonstrate mastery of their content, exemplary pedagogical skills and various assessment strategies. In addition these finalists exhibit habits of reflective practice and demonstrate leadership in education in their school, district and beyond.

Benjamin Isecke

Benjamin Isecke started his career in Jersey City teaching vocal music and computer science, but returned to his alma mater at the Bergen County Academies (BCA) in 2014 as a teacher in BCA's Academy for Technology and Computer Science. Although he is part of the Computer Science academy, he continues to teach both music and computer science classes.

Most of his recent teaching has focused on computer science, including courses on Mathematical Foundations of Computer Science, Functional Programming & Lambda Calculus, Computational Theory, and the Computer Science Senior Capstone Project; yet he continues to stay at least a little involved with music, teaching a Student Conducting class, Pit Orchestra, and Concert Band. He believes that teaching two topics has helped him grow as a teacher. "Every field has its own approach and challenges, and forces you to focus on developing different parts of your own craft," he says.

Early in his career, a mentor encouraged him by saying, "students will grow more when you trust them," and that advice has guided his work ever since. This is evident as he describes the experience of the Senior Capstone Project. Students work in groups of 3-4 to develop a project for a client; meet with the client, write, submit and revise proposals, collaborate with professional engineers, pass a security check and present a final project to a panel of judges. Throughout the capstone experience, Ben guides them with regular check-ins but allows the students to steer the research as they work with professionals beyond the classroom; trusting them to follow their curiosity and navigate their journey.

He is also the founding President of the Computer Science Teacher Association of NJ (CSTANJ), which he helped organize in 2021 to support computer science teachers across the state.
Ben is looking forward to facilitating the growth of computer science programming in New Jersey through his work with CSTA, and exploring coursework for students to learn about ChatGPT. To learn more about CSTANJ, go to newjersey.csteachers.org.

2023 NJ PAEMST State Finalists Announced (Continued)

Geena Taite

Geena Taite currently teaches Algebra 2, AP Calculus AB and AP Research at Diana C. Lobosco STEM Academy in Wayne, NJ. Geena has been teaching at Diana C. Lobosco STEM Academy since 2018. The STEM Academy is a part of the Passaic County Technical-Vocational Schools, a national award-winning high school for career and technical education. Previously she taught at Northern Valley Regional High School at Old Tappan and the Ramapo College Upward Bound Math and Science program. Throughout her career she has also taught Algebra 1, Geometry, Probability and Statistics, and Algebra 1 and Algebra 2 Applications courses.

Geena is also a Ph.D. Candidate in Mathematics Education at Montclair State University. Her work with students in Algebra 1 and Algebra 2 Applications launched her research with Mathematical Modeling. As part of her graduate work she formed and led a team of doctoral students in action research to provide professional development, support and resources for in-service teachers to implement authentic modeling tasks in their classrooms. In February of 2023 they presented their work with in-service teachers at the AMTE conference. She has also done research with pre-service teachers, which was presented at the NCTM virtual conference in March of 2023. Her own research allows her to work closely with students in the AP Research course, guiding them through the research process from choosing a topic and developing a research question to selecting an appropriate method and analyzing data.

Geena is excited to continue her action research on mathematical modeling with her students, colleagues and team of graduate students and looks forward to presenting her research this fall at the North American Chapter of the International Group for the Psychology of Mathematics Education in Reno, NV. To learn more about Geena's research, visit her team's website at modelingmodelers.com.

These state finalists were selected by a panel of New Jersey mathematicians, education researchers, district - level personnel and classroom teachers. Each received feedback from the panel and had the opportunity to revise his/her submitted application before it was forwarded to the national competition. There are 2 finalists for mathematics and 3 finalists for science. On May 11, 2023, the national PAEMST team celebrated all state finalists in a virtual event. Next, the National Science Foundation reviews the applications of the state finalists and forwards 2 candidates to the White House Office of Science and Technology Policy. The winners receive a certificate signed by the president, a $10,000 award from NSF, and a paid trip to recognition events and professional development offerings in Washington, DC. Best of luck to Ben and Geena as they await the White House announcement of the New Jersey Presidential Awardee for 2023. For more information about PAEMST or to nominate an outstanding K-6 teacher for 2023-2024, please visit paemst.org.

AMTNJ: Stay in the know

Fall 2023 One Day Conference - *October 20th, 2023 at Brookdale Community College (Lincroft campus)*

Spring Conference - *March 15th, 2024 at Rutgers University*

Keep up with us on twitter **@amtnj**

Math Shirt Monday

Andrea Bean, AMTNJ Past President

The spirit of NJ math teachers is unparalleled, and it's time to let it shine! Embrace the excitement for mathematics and show off your pride by participating in Math Shirt Monday, a year-long celebration of our love for all things math.

Every Monday, we invite you to wear your most vibrant and quirky Math themed shirts to school. Whether it's equations, mathematical patterns, or punny math jokes – let your shirts speak volumes about your passion for the subject!

But the fun doesn't stop there! We encourage you to take a group picture with your fellow math enthusiasts and tweet it using the hashtag #mathshirtMonday. Share the joy and camaraderie with the world as we come together as a strong math community in New Jersey.

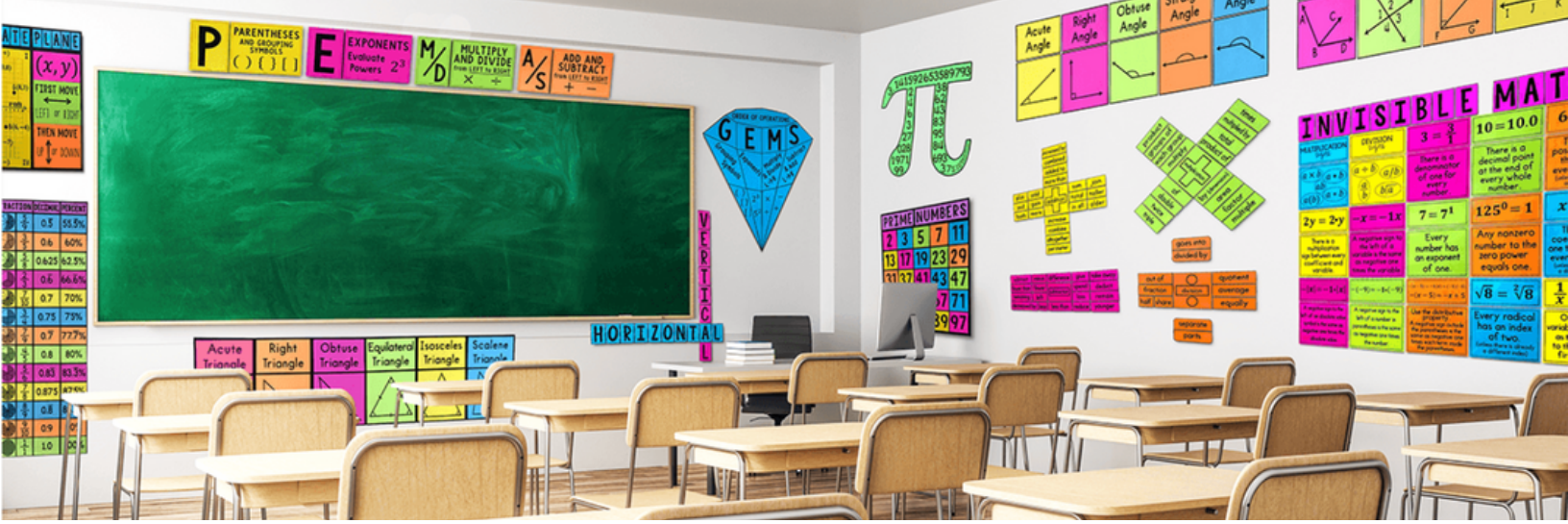
Tag us at AMTNJ (Association of Mathematics Teachers of New Jersey) to be a part of this exciting movement. By doing so, you not only inspire others to embrace the joy of math but also stand a chance to win fantastic prizes! 🎁

Math Shirt Monday is more than just a dress-up event; it's an opportunity to foster a positive environment around mathematics, encourage creative expressions, and ignite curiosity in our students. Let's unite as educators, showcasing the boundless enthusiasm we have for teaching math.

So, raid your closets for those amazing math-themed shirts, and let's make every Monday a celebration of our collective love for mathematics. Together, we'll create a memorable and inspiring experience that our students will cherish forever.

Join us for Math Shirt Monday, and let's set the stage for an incredible year filled with math pride and spirit!

Happy Math Shirt Monday! 🌟

New Teachers Section

What do I do if I struggle with content I am teaching?

This is such a common concern, even among veteran math teachers! Teaching a new course or grade level with previously learned math content can be intimidating. The first time teaching a course/grade level is the most challenging, but it gets easier after that! Put on your student hat: seek out online videos and resources to review the content. Reach out to colleagues who have taught the course/grade level or are teaching it currently. Try "flipping" the class: having students pre-read, watch short instructional videos, or take notes at home prior to a lesson to get a foundation. This will allow them to get foundational knowledge before class and give you more time to engage with the students are they are practicing, taking some of the timing pressure off when you are teaching something new and are unsure what to emphasize in the lesson. You might utilize Khan Academy for your own learning and/or theirs. Another resource is https://www.solutiontree.com/products/making-sense-of-mathematics-series.html. There are also open source courses online that you can take to brush up on a certain subject/topic, and if you search online for other teachers who teach your course/grade, there are many teachers who post their resources and knowledge to share!

Stay tuned for more new teacher advice in our next issue. Have a pressing new teacher question? Email info@amtnj.org and we will address it in an "Ask AMTNJ" section!

Computer Science Corner

So, you've been asked to teach computer science. *Now what?*

Ben Isecke

It may feel like the digital revolution has already come and gone, and the importance of computer science education is already old news. But this transformation is still ongoing, and at a breakneck pace. Generative AI models such as ChatGPT and midjourney are only the latest world-altering breakthroughs, and more are certain to come. As societies become ever more digitally interwoven, quality computer science education becomes ever more vital.

New Jersey, recognizing the significance of this evolution, is preparing to substantially expand its computer science curricular requirements in 2027. One of the major changes they're making is a requirement that every K-8 student *take* computer science, necessitating an influx of qualified computer science teachers. Many mathematics teachers, given their strong foundation in logical reasoning and problem-solving skills, may be called upon by their districts to help bridge this gap. So, if you find yourself as a math teacher suddenly facing the prospect of teaching computer science, first take a moment to breathe and say, "I've got this!"

Why, you may ask? Because, as a mathematics educator, you are better prepared than you might initially realize. What we currently call "computer science" is, at its heart, the union of two fields: discrete mathematics and software engineering. As a math teacher, you likely already have familiarity with at least one of those two branches. The same logical reasoning and problem-solving skills you use to solve math problems are foundational to computer science. The gap between math and computer science isn't really very wide at all.

To help you navigate this journey, here are a few key resources you will want to tap into. Your starting point is CSTANJ, the Computer Science Teachers Association of New Jersey, which is free to join. The group holds meetings about every six weeks, provides resources, and gives you access to a community of educators who can share their experiences. In fact, they're currently launching a mentoring program that pays both you and a mentor (a veteran computer science teacher) to support you during your first year teaching CS. The importance of having a support system when you are venturing into a new area cannot be overstated, and CSTANJ offers exactly that.

The next step is to take a moment to evaluate what exactly you will be teaching. Will you be introducing K-2 students to computational thinking? Orchestrating Lego robotics projects with middle schoolers? Or perhaps taking on a general high school intro to computer science course or AP Computer Science A? The scope of your curriculum will shape your approach, your resources, and your professional development.

Take this information to CS4NJ. The CS4NJ Coalition is a group of advocates and organizations dedicated to promoting and advancing K-12 CS education in New Jersey. On their website, you will find an *array* (sorry, CS pun) of carefully curated curricula, such as those offered by code.org, designed to get teachers who are new to computer science up and running quickly and easily.

High school teachers might also want to consider the TEALS program. TEALS matches high school teachers new to computer science with an experienced engineer who can assist in teaching a pre-developed curriculum. They offer five different courses: Introduction to Computer Science, AP Computer Science Principles, AP Computer Science A, Cybersecurity, and Data Science / Machine Learning / AI.

In addition to these resources, don't forget about the wealth of professional development opportunities available online. Platforms such as Coursera or edX offer computer science courses that can help build your understanding and confidence in teaching the subject.

Teaching computer science is more of a journey than a destination. It's a field that is continuously evolving, and, as educators, we must be prepared to evolve along with it. Embrace the idea of learning alongside your students and cultivating an environment of curiosity and exploration. You won't have all the answers, and that's perfectly fine. The beauty of computer science lies in the quest for solutions and the unending potential for discovery.

With these resources, your journey into teaching computer science will not only enrich your professional experience, but will also contribute immensely to preparing your students for their futures in a digitally-driven world. Good luck on your exciting new adventure!

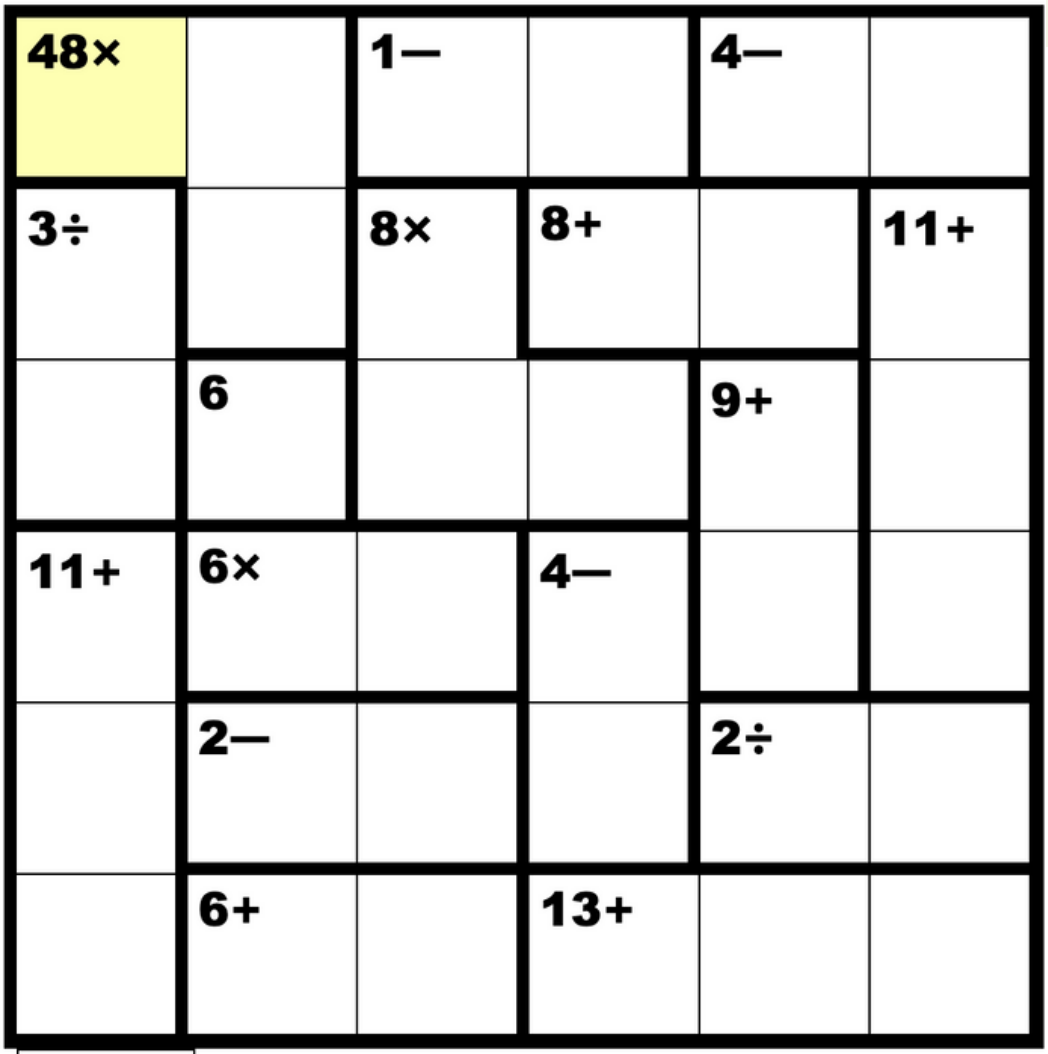
Ben Isecke is a computer science and music teacher at the Bergen County Academies, the founding president of CSTANJ, a moderator on the CSEducators StackExchange (https://cseducators.stackexchange.com), and a Presidential Awards for Excellence in Mathematics and Science Teaching finalist. He devotes his free time to his wife, his two daughters, and to helping educators improve their educational practice.

Math Education Student Corner

Attention future math teachers! This corner is for you. We want to feature research, thought pieces, art, and questions by current math education students at the undergraduate or graduate level. Please email info@amtnj.org for more info or to submit a piece of work!

Puzzle Corner

KenKen is a "grid-based numerical puzzle" that looks like a combined number cross and sudoku grid. Invented in 2004 by a famous Japanese math instructor named Tetsuya Miyamoto, it is featured daily in *The New York Times* and other newspapers. It challenges students to practice their basic math skills while they apply logic and critical thinking skills to the problem.



THE ASSOCIATION OF MATHEMATICS TEACHERS OF NEW JERSEY

SCHOLARSHIP APPLICATION – DEADLINE, April 15, 2024

NAME _____ BIRTHDATE _____ EMAIL _____

ADDRESS _____ TELEPHONE # (____) _____

_____ SOCIAL SECURITY NUMBER _____
(Needed from finalists)

Parent/Guardian//Father's NAME _____ OCCUPATION_____

Parent/Guardian//Mother's NAME _____ OCCUPATION_____

BROTHERS AND SISTERS (NAMES AND AGES): _____

HIGH SCHOOL _____ TELEPHONE NUMBER (____) _____

ADDRESS _____

CHOICE OF COLLEGE: #1_____

. _____

EXTRACURRICULAR ACTIVITIES: #2 _____ #3. _____

COMMUNITY SERVICE ACTIVITIES: _____

AWARDS AND HONORS: _____

PERSONALESSAYS:

1. Submita500word12pointdoublespacedessayaddressingwhyyouwishtopursueacareerinmathematics education. You may choose to include any special talent or ability or skill you possess which will help you become an effective teacher or you may include how one of your teachers has influenced your career goals.
2. Submit a brief paragraph explaining your need for financial aid.

This application must be accompanied by one official copy of your high school transcript through the first semester of the senior year, a copy of your scores on the SAT or the ACT, and exactly three letters of recommendation, one from an ACTIVE member of the Association of Mathematics Teachers of New Jersey and one from one of your high school math teachers. Each letter should be no more than one page. All information must be typewritten in an easy-to-read font. Handwritten applications cannot be accepted. Applications postmarked after the deadline, April 15, 2024 will not be accepted. Awardees will be introduced and award ceremony held during an AMTNJ Board of Trustees Meeting in May, 2024.

CERTIFICATION: By my signature, I certify that all of the information given by me on this form is true and complete to the best of my knowledge.

SIGNATUREOFAPPLICANT DATE _____ _____

SIGNATURE OF ACTIVE AMTNJ MEMBER WRITING LETTER OF RECOMMENDATION

PRINT NAME_____

RETURN BY April 15, 2024 TO: AMTNJ , C/O Joan J. Vas, 10 Edgewater Dr, Matawan, NJ 07747

LATE APPLICATIONS NOT ACCEPTED. TO ENSURE DELIVERY SEND "RETURN RECEIPT"