

AMTNJ News

Association of Mathematics Teachers of New Jersey

June 2021 • Volume XLV, Number 2

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President's Message

As we arrive at the end of the 2020-2021 school year, I want to say “thank you” to all who have helped support the teaching and learning of mathematics this year. First, to mathematics educators, who have persevered through very difficult conditions – thank you for continuing to invest in our students, for giving of your time to plan, teach, and assess in a remote and hybrid world, for focusing on relationships, making mathematics enjoyable, and thinking of new and innovative ways to bring mathematics to life. The work that you do is essential, and the impact you make on our students is immeasurable. Thank you also to our students, who have been charged with the difficult task of bringing their best selves to mathematics class, at a time when circumstances were not always the best. The teaching and learning of mathematics is a two-way street, and I am grateful to all who have worked so hard this year, and hopeful that our engagement with one another, and with mathematics, will only grow from this experience.

AMTNJ has adapted to the unique needs of this year, recognizing that professional support and relevant resources are more important than ever, and should be provided in a way that is manageable and accessible to teachers. This is why we provided our Fall/Winter Virtual Sessions and Spring Engage Series, as well as resources and inspiration from AMTNJ’s Newsletter, free of charge. As we look forward to next year, I strongly encourage you to become a member of AMTNJ. We are already developing additional Engage Series for the Fall, with plans for our in-person conferences to resume in the Spring. We will continue to publish our newsletter and journal, facilitate a high school and middle school contest, and provide college scholarships for graduating high school seniors with math education as a career goal. In addition, AMTNJ plans to facilitate semi-regular roundtable discussions in the Fall for pre-service teachers, first-year teachers, and supervisors. If you are interested in learning more about membership, please visit www.amtnj.org, and if your district, school, department, or organization would like to learn about discounted rates through an institutional membership, please e-mail info@amtnj.org.

Thank you to the authors and contributors to this newsletter, and to Lena Komitas for putting it all together. I found this issue to be encouraging and timely, and I hope you do, too. I hope you have a healthy and restful summer, and thank you again for all that you do.

Mark Russo

AMTNJ President 2021

Professional Development Update - Past and Future!

Andrea Bean, Math Supervisor 6-12, West Windsor-Plainsboro Regional School District & John Kerrigan, Director of Mathematics K-12, Middletown Township Public Schools

During February and March, AMTNJ was very busy providing short, engaging, virtual sessions featuring Desmos and GeoGebra, focusing on special education, diving into Algebra 1, and leading discussions about mathematics instruction for teachers and administrators from New Jersey and beyond. Our first-ever “Engage” series of topics were widely attended to by their highly focused nature. Participants were able to spend three sessions diving deep into learning about a single topic or platform. For example, in the Desmos Engage Series, participants were able to expand their knowledge of Desmos Activity Builder, Computational Layer, and more. Participants explored GeoGebra Classroom, augmented reality, virtual live whiteboards, and more in the GeoGebra Engage Series. Participants discussed issues related to hybrid instruction, equity, virtual assessment, co-teaching, and more in the sharing sessions. In some of our busiest sessions, we had over 100 attendees join us live for professional development. Thanks to all the teachers who committed their time to learn with us. Special thanks to our speakers, Tim Brzezinski and Caitlin Murphy, for volunteering their time and expertise to our organization and the mathematics education community.

Moving into the 2021-2022 school year, the AMTNJ will be providing a variety of virtual professional development opportunities for teachers. In September we will hold the 2nd Annual Edcamp AMTNJ. The Edcamp registration is now available! In October, Dianna Sopala will lead a virtual Engage series on *Personalizing Education*. We know that next year, more than ever, teachers will engage with students with a wide variety of previous learning experiences. Dianna will show us techniques for meeting the needs of all learners, “just in time” intervention instead of “just in case” intervention, and how to leverage some of the amazing technology we used this year. In November, Andrea Bean will be leading a virtual Engage series on *Social-Emotional Learning (SEL)*. This series will focus on the structures of your class that promote SEL, the instructional choices that promote SEL, and how to infuse your curriculum with the skills outlined in the [CASEL Framework](#). In December, Jessica Cincotta, Melissa Pearson, and Susan Totaro will host a virtual Engage series on *Equity and Inclusivity*. Look for more details as that series approaches. Also, look for an in-person conference in Spring 2022!

Still need more? Remember, AMTNJ offers customized professional development for your school. We have a database of speakers who are experts in a wide variety of topics. Need GeoGebra or Desmos tailored specifically to your school’s needs? How about support for your coaches? Contact us at info@amtnj.org with your needs. We look forward to supporting you.

Check our Twitter handle: [@amtnj](#) or our website <https://amtnj.org/> for the latest updates.



Edcamp AMTNJ is back!

Discussions, sharing, door prices and so much more!

Mon, Sep 13, 2021, 12:00 AM – Wed, Sep 15, 2021, 2:30 PM EDT

Use [this link](#) for more information and **FREE registration**.

The Association of Mathematics Teachers of New Jersey Awards One Scholarship for 2021

Joan J. Vas, Executive Coordinator of AMTNJ Scholarship Program

For the 2020-2021 school year, AMTNJ awarded one student a \$3,000 scholarship. This year's awardee is **Haley Meyerson, Pascack Hills High School**, sponsored by Dr. Mark Russo, District Supervisor of Mathematics and Computer Science.

Haley will be attending Montclair State University in the fall. She wrote in her essay that "becoming a teacher has always been a dream of mine ever since I was young. My love of children feeds into my interest in teaching along with my interest in the subject. I have always found math to be a puzzle that I am eager to solve and enjoy learning new concepts. I am currently a teacher assistant alongside my former Algebra II teacher, Ms. Gaeta. Her positive and encouraging attitude brightens the classroom and makes everyone ready to learn. I can only hope that I can do the same for my students."

Congratulations to our awardee and thanks to Dr. Mark Russo for recommending this outstanding candidate. Haley will have the opportunity to reapply for this scholarship for the next three years.

To date, 65 candidates have received this initial scholarship. Once the initial award has been made, these awardees are contacted for the next three years and given the chance to apply for a renewal scholarship. This May we have eight previous awardees who will have this opportunity available to them.

The amount of the renewal scholarship is dependent upon available funds at that time. Members should visit the AMTNJ website, www.amtnj.org, for the latest scholarship application and additional information for those who wish to make a tax-deductible contribution to the program.

Special thanks to the Scholarship Committee consisting of AMTNJ Past Presidents Jelena Komitas and Thomas Walsh along with Julie Norflus Good, Anna Maria Graf, and Joan J. Vas, Executive Coordinator of the AMTNJ Scholarship Program. It should be noted that this is the 25th year that AMTNJ has awarded scholarships to graduating high school seniors interested in a career in mathematics education.

Thank you to the AMTNJ Executive Board and the AMTNJ membership for their continued support of this program. Special thanks to President Mark Russo for his generous support of this program.

Our sincere THANK YOU to ALL our members who contribute to this incredible program.

To make a contribution in support of this program, visit <https://amtnj.org/donations/> OR mail your check to AMTNJ, 111 Third Avenue, Belmar, NJ 07719. Checks should be made payable to the AMTNJ Scholarship Program. AMTNJ is a tax-exempt organization, (501C3), and your contributions are fully tax deductible.



Easy Measurement Activities: Strategies for the K-5 Mathematics Teacher

Tom Walsh, Math Education Professor, Kean University, Union, NJ



Measurement is a required topic in all math classes, grades K – 5. There are many great and fun activities that can be used to have students understand measurement techniques. This article will offer a few of them.

To begin, it is a wise move to have students measure using nonstandard units, for several reasons. One, nonstandard units make it easier for students to focus on the attribute being measured. Two, using nonstandard units quite quickly suggests to students how useful it is to move to standard units of measure. Three, the lesson you are teaching is more about understanding the actual measurement of the item you are measuring, rather than about understanding the unit of measure (foot, meter, square inch, etc.)

Instructional objectives in your measurement lessons should focus on four goals:

- Estimation of the size of the object being measured should be done first, to develop students' estimation skills
- Students should be familiar with the unit used to measure the object
- Students' ability to choose the appropriate measurement unit (Ex: we wouldn't measure a book using the unit of a mile)
- Relationships among units should be understood (how many inches in a foot, how many pints in a gallon, how many centimeters in a meter, etc.)

With those ideas in mind, here are a few activities.

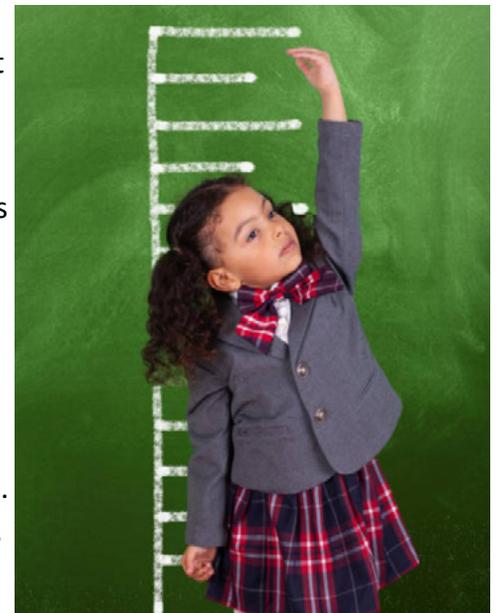
Activity 1: Estimation scavenger hunt

a) Length. Choose a nonstandard measuring unit (the length of a paper clip, a book, or a pencil), and then have students look around the room (and perhaps in the hall, if it doesn't disrupt other classes) to estimate the length of the object using the length of the chosen measuring unit. Have students make a list with two columns: one for the estimate, and one for the actual measurement of the object.

b) Area. Decide on a standard area measure (an index card, a book, or a standard sheet of paper) and estimate, then measure, the area of various objects around the room (a student's desk, the teacher's desk, a window, etc.).

Activity 2: Body length

Have students trace their silhouette on butcher (or wrapping) paper, and use that length to estimate the length, width, and height of the room. Other distances students could measure with their height would be the hall length, the length and width of the school, the play yard, and the length of cars, for instance. As with the first activity, have students estimate the length first, then measure it, if that is possible.



Activity 3: Multi-measure

Choose a single object, such as a pumpkin, a watermelon, or a cantaloupe, and have students estimate, then measure multiple attributes of it (the diameter, the circumference, the weight, and the height), using standard units (inches, feet, pounds).

Activity 4: Unit length hunt

Give students a length measure (a strip of card stock, a stick, or a length of string or rope), and have them find things around the room that are less than, greater than, or equal to the given length. This is particularly adaptable for students with special needs.

Activity 5: Measure a crooked path

Lay out two or three paths with masking tape on the floor. The students are to consider which path is longest, next longest, and shortest. Suggestions for calculating how long the paths are could include using a string to measure separate legs of the path, or measuring them using their feet (or paces). This is particularly adaptable to students with special needs, by using a string and marking all the turns with a small piece of tape.

I would suggest reading the book *Measuring Penny* (2000) by Loreen Leedy to help students transition from non-standard to standard units of measure.

Activity 6: Measuring an object with a ruler

Offer a foot or yard (or meter) ruler to the students and ask them to measure several objects around the room. Point out that sometimes measuring from a unit past the end might be desirable. For instance, if the ruler is old and the end is rubbed or chafed off, measuring might be more accurate using a unit or two in (if you have a ruler that has a damaged end, show it to students to explain what you mean).

Activity 7: Students making their own ruler

Have students use a small piece of wood to make their own ruler. Paint stirring sticks from the local hardware store are ideal and might be free, or very inexpensive. A small (gallon) stirring stick in many stores is exactly 12" long, but they have dimples about 2" in. A better choice might be a large (5 gallon) stirring stick as you can cut off an exact 12" length, avoiding the dimples. Have students lay a ruler alongside the wood stick, and mark the inches, half inches, quarter inches, and eighth inches. It might be difficult to go smaller than that. This exercise will give students an excellent understanding of how large the various lengths are.

Activity 8: Area measuring

Students will make a square measuring unit (cut a 3 x 5 index card, or a 4 x 6 index card) to form a 3" square or a 4" square unit, then use that to measure items around the classroom (books, desks, the black or whiteboard, the teacher's desk, etc.). Now, have them measure the linear length and the width length of the items. Have them multiply the two, and point out that this is where the area of a rectangle (or square) comes from.

Activity 9: Area of parallelograms

Prepare a parallelogram, and convert it to a rectangle by drawing a perpendicular from the bottom edge to the top edge, forming a triangle. Then, cut the triangle off and fit it to the other side of the parallelogram, forming a rectangle. Students should thus see that the area of the parallelogram is simply the length of the bottom edge times the height of the parallelogram.

Activity 10: Area of a trapezoid

Lay out a trapezoid with masking tape on the floor. Then, have students use square measuring units (cut a 3 x 5 index card, or a 4 x 6 index card) to form a 3" square or a 4" square unit, then use that to measure the trapezoid.

When students come to squares that go over or under the edge of the trapezoid, have students estimate how much of the square unit is overlapping and encourage students to combine partial square units to make whole ones. This will closely approximate the area of the trapezoid.

For further reading:

How Big is a Foot?, by Rolf Myller (1991)

Every Minute on the Earth: Fun Facts that Happen every 60 Seconds, by Matthew Murrie & Steve Murrie (2007)



What do teachers really need to do to support unfinished learning in math?

There are many perspectives on how math education will move forward next year. Many of us asking questions such as: What mathematical concepts did students learn well this year? What will I need to review? What skills will I need to concentrate on? We ask ourselves these questions when we prepre lessons every year, but next year might be somewhat different. We are in uncharted territory. In her [blog post](#), Emily Freitag, CEO of Instruction Partners, uses a fourth-grade math example from the Engage NY materials to provide a step-by-step approach to supporting unfinished learning alongside grade-level instruction. She shows how to spiral the skills from the previous year into the grade level classroom. It is a great example of how to compact learning for third and fourth grade mathematics.

Celebrate Your Colleagues' Hard Work and Achievements! Nominations for Max Sobel Award are Open!

Each year the Association of Mathematics Teachers of New Jersey, AMTNJ, presents the prestigious Max Sobel Award for Outstanding Service and Leadership in Mathematics Education. The Award is named after Monclair University, Professor Emeritus, [Dr. Max Sobel](#). He was a passionate pioneer in the field of Mathematics Education. He was the first person to be honored by AMTNJ with an award for Outstanding Service and Leadership in Mathematics Education. We invite you to submit nomination(s) for the Max Sobel Award for 2021. Please help us continue to honor New Jersey math educators who have made an exceptional contribution to mathematics education.

Use [this link](#) for additional information and application. While the initial nomination is due by June 30, 2021, all pertinent documents and the candidate's curriculum vitae will be due by July 31, 2021. If you know of an individual(s) who deserve(s) the Max Sobel Award, please submit your nomination(s) to Jelena Komitas (lena.komitas@amtnj.org). The Max Sobel Award selection committee will make its decision based upon the strength of the written evidence. **All previous years' applications have to be resubmitted according to the current criteria.**

Teaching and Learning During a Pandemic

Andrea Bean, Math Supervisor 6-12, West Windsor-Plainsboro Regional School District & Jelena Komitas, Math and Science Supervisor, Freehold Regional High School District

Schools across the U.S. switched to a full virtual or hybrid mode of instruction over a year ago. While there is no doubt that the current pandemic disrupted both our educational system and our learning process due to school closures and rising rates of depression and anxiety, it also challenged our current educational system, forcing us to consider the pedagogy we use to educate children. The priorities of our educational establishments, what we teach, how we teach, and how we assess have been rethought by teachers everywhere. In this article, we would like to focus on what we, as educators, have learned during the pandemic, and how these lessons will change the way we teach.

Building Relationships

This year more than ever, teachers have connected to students in purposeful, meaningful ways. Teachers have taken extra time to implement different types of welcoming rituals. For example, we have seen teachers ask students to submit a daily question. Each day, a different student's question is used to start a lesson. Teachers have used Number Sense Routines that have a low floor and high ceiling to engage all students at the beginning of class. Other activities we have seen included You are a Classroom DJ Today, Stars of the Day, "Bring" your Pet to Class and many other great ways to highlight individuals and build a learning community. Moving forward, these relationship-building skills will be front and center as we transition back to our new normal.

Moving forward, the relationship-building rituals developed this year will be front and center as we transition back to our new normal.

Teaching

What do we currently teach in mathematics? Our lesson objectives have to be aligned to NJSLS for Mathematics or the College Board framework. This is not negotiable. However, the connections we make between the standards and

"Every activity should be built around making sense, exploring new concepts, and always reflecting on learning."

how we use technology to support meaningful learning are in our control. We have seen some outstanding ways that technology can make concepts come alive for students. Some examples are easily found on DESMOS or Geogebra. Caitlin Murphy reminded us during an AMTNJ session: "Every activity should be built around making sense, exploring new concepts, and always reflecting on learning." During the pandemic, we have seen that conceptual understanding and deep thinking absolutely make mathematics meaningful for students. While practice is important, we have begun to question how much skill-related practice is needed. Additionally, we have seen teachers increase the opportunity for students to reflect on their learning. Teachers have used videos, JamBoard, and journals for students to track their learning journeys. This has encouraged student ownership of the learning.

Examples of Reflection questions

Which part of today's lesson was most difficult for you and why?

Write two specific questions about your homework.

I used to think _____ but now I know _____.

We have observed teachers experimenting with the best methods to give students feedback on their work and learning. Feedback is one of the most powerful tools in a teacher's toolbox. Based on his meta-analysis of educational influences, John Hattie assigned an impact score of 0.7 to feedback as an educational influence. Any influence over

0.4 is considered to have a positive impact. For more on Hattie's work see <https://visible-learning.org/>. This year, with remote students, teachers needed to find ways to give meaningful, timely, targeted feedback. Teachers have used the private chat and breakout rooms on Zoom. We have seen Google Forms, Pear Deck, Google Classroom messages and comments, JamBoards, and blogging. Some teachers have recorded audio messages that have been attached to student work. Students have mentioned over and over this year that the personal, private feedback was very helpful. Privacy is very important to many of our students. Receiving feedback electronically has helped students correct their errors and ask questions without potential embarrassment. The tools that allow us to provide students with timely and actionable feedback will most certainly stay as we move forward.

Assessing

Assessing in a virtual environment brought its own challenges. In the classrooms, we could always control access to resources that assist students in taking assessments. When students are at home, we simply cannot. And should we? The technology that can perform procedural mathematics is widely available to us and our students. When students are asked to reason and analyze, the access to classroom notes, technology and any other resources might not be as helpful unless they have understanding of the material. In fact, the use of technology can facilitate, challenge, and enhance students' thinking, if we ask the right questions. Let's look at the two assessment questions below that students are asked to complete at home:

Example 1: Graph the given function: $f(x) = x^2 + 3x - 4$

Example 2: Use the graph of $f(x) = x^2 + 3x - 4$ to identify: the vertex, average rate of change on the interval $[0, 3]$, zeros of the function, the interval where $f(x)$ is increasing and the interval where $f(x)$ is decreasing.

The use of technology can and should facilitate, challenge, and enhance students' thinking, if we ask the right questions.

Which of the two assessed skills above are more valuable to our students? Which of the assessment questions will provide educators with better evidence of student learning? Which question will provide students with an opportunity to show their true understanding of quadratic functions and functions in general? Which skills they will be able to transfer to their higher level math classes and use in real life? While we still have to teach students how to graph basic quadratic functions using the key features and transformations, the priority should be on teaching students to identify, describe and interpret attributes of functions using various representations. Being able to transfer the skills taught in the classroom to their next math class and to meaningful real-life situations is our goal. Students need to develop thinking and reasoning skills to make this happen. We have a limited time with our students in our classrooms. Let's make every lesson count by using meaningful assignments and assessments.

We have had the privilege of visiting many classrooms and speaking with many teachers. The one common thread that we have noticed is how teachers have come together to share ideas and support one another. The collaboration between teachers has been amazing. **Please add your thoughts and reflections about your Teaching and Learning During the Pandemic on [this Padlet Board](#).** After you leave your thoughts, come back and see the thoughts of other mathematics teachers. It is our hope that as we move forward, schools will continue to make time for teachers to learn and grow together.

Reflecting on all we have learned, it is evident that collaborative teachers are successful teachers.

HAVE A GREAT SUMMER!



Unmut-Ed: A Behind the “Screens” Look at Teaching Math During a Pandemic

Lisa Crammer, Pequannock Valley Middle School

Teaching mathematics looks a lot different than in years past. And if you're like me, then most of your students are learning in a seated, still position behind a mask or screen. My personal teaching philosophy has always been to motivate students by making math fun and hands-on. I strive to challenge students to look for math in their everyday lives and think critically about the world around them using manipulatives, games, and partner work. Undoubtedly, many of these expectations have become difficult to implement due to the current circumstances. Throw in two very active boys under the age of five who are with me at home, and occasional inept wifi or technology glitches, and you suddenly find yourself on the verge of a breakdown. So how is it that we can survive these stressful challenges? How can we teach math during a pandemic, while still ensuring the sanity of our students and families?

To me, it helps to think about what life is like behind the screens. Let's use a math analogy to think about our students. What we see during class is probably only a fraction of their lives. When considering each student as a “whole,” we can gain greater insight into their learning. We need to remember that every single teacher and every single parent and student is being challenged in some way by this pandemic. As teachers, we feel immense responsibility for all aspects of our students' success, and for this reason, we must continue to do whatever it takes to help them succeed.

To begin, make each moment matter. Time is precious, and we know that we need to fill in the learning gaps to ensure that our students stay on track. Planning is perhaps the most important piece now more than ever. Have a plan A and a plan B and a plan C. Think about and plan for every possible circumstance... from a loss of internet to a backup option for students who are absent, to a slide as simple as, “How are you feeling today?” Hybrid teaching requires being adaptable. Work with grade level and department colleagues so that you can share ideas and workload. I am lucky enough to have a supportive district, administration, and team, and it has truly been a lifesaver over the past few months. Don't isolate yourself and try to collaborate with team members at least once a day, whether virtually or in person. Keep yourself informed. Take a virtual seminar or workshop (I highly recommend all that AMTNJ has to offer) or join in a Twitter chat just to remain motivated and educated. Unfortunately, we are realizing now more than ever that time cannot be taken for granted, so use it wisely both for yourself and your students.

Secondly, take risks. We are professionals and we are doing everything we can to re-learn how to teach in this new hybrid environment. Similarly, students are re-learning how to learn. We need to be mindful and forgiving during this change. The entire world is being challenged with new skill sets that have never been needed in the past. Think about how much you have learned from March 2020 until now during this rollercoaster of a school year. Similarly, think about the skills and knowledge that your students have gained both in your content area and outside of the classroom. I am fairly certain there is a tremendous amount of growth on both accounts. Both students and teachers are becoming much more technologically savvy and independent workers and these skills will surely be useful for years to come. So don't be afraid to fail. Try a new app, experiment with a new program, and continue to reflect and grow based on these experiences (I have listed some of my favorite sites and programs below).

Finally, take a deep breath. I know that you have heard this before, but really... stop and take a deep breath. I find that I'm placing more and more pressure on myself to be a better teacher, be a better mother, and be a better wife. We are all doing the best we can and we all need to support and encourage one another as we continue to navigate these uncertain times. Not only is it important that we take some time to focus on our own well-being, but we need to encourage students to do the same. While math content is crucial to the success of student achievement, it can be argued that social-emotional well-being is just as important. It's okay to take a break for a few minutes and ask students about their weekend, or what they had for dinner, or their favorite place to go. That information is valuable and can be used when planning our lessons or getting to know our students as a "whole." We should share information with our students as well, and be honest and open with how we are feeling. Be sure to take a yoga class, go for a walk, or try making a new recipe that you've always wanted to try. As the wisest woman in my life (my mother) told me, "Take it one day at a time." Focus on one thing at a time, one standard at a time, and one class at a time. This is just one small portion of our lives, and someday we'll look back with gratitude when it is over.

In conclusion, I find that we all need to unmute ourselves and feel comfortable having a conversation about just how difficult this really is. Not only is it challenging in the classroom, but it is challenging behind the screens as well. One of my favorite math quotes reads that "Mathematics may not teach us how to add love or minus hate, but it gives us every reason to believe that every problem has a solution." We are math teachers... and every problem DOES have a solution.

Make each moment matter. Take risks. Do the best YOU CAN. Take a deep breath.

THE TOP TWENTY TECH TOOLS that helped me teaching Mathematics in a hybrid model and will help me to support and enhance math instructions when we fully return to our classrooms. **If you would like to share your favorite technology tool(s), please post them on the jamboard by clicking on the image below.**





Summer 2021 Out of The Box

Dr. Julie Norflus-Good

It is hard to truly believe that we are days away from Summer 2021. Amidst the end of the year workload and looking forward to putting the 2020-21 school year behind us, many are also prepping to send home summer packets to create “Learning Excellence” and avoid the dreaded “summer slide” which can really be felt in mathematics.

This year, when putting together your packets I encourage you to think outside of the boxes. While the first box that I am referring to is the virtual box that many students and teachers have been sitting in for the past year and a half, it is the second box that I am referring to. This is the non-conventional box. In the past, we would design work packets that were chocked filled with computer games and copies of worksheets. Summer 2021’s summer math packets don’t have to mean sitting inside in front of a computer and or with workbooks/worksheets, especially during this summer!

Think about bringing summer math enrichment outdoors! Students need to continue to think mathematically over the summer break by learning to turn everyday activities into opportunities to learn and/or reinforce math. This is not just a great opportunity to explore the outdoors and remove the kids from sitting

in front of their computer, it is an opportunity to make math applicable and see and use math in “real life”. We know that if kids understand the relevance and see the “why and how”, they become more motivated, and then the concepts “start to click” and math becomes more meaningful.

With a little tweaking, many of these activities can be used and/or modified for the various grade levels, preschool – high school and evoke mathematical thinking and relevance in many day-to-day activities!

Here are only a few of the many opportunities:

Hopscotch

Hopscotch can be transformed into a review of the four basic operations of elementary arithmetic (addition, subtraction, multiplication, and division). Using chalk, draw and number a hopscotch board with the numbers 0 - 9 on the driveway or pavement. Instead of the traditional number sequence, kids can populate the squares in whatever order they want. They can decide if they want to create a board that has addition, subtraction, multiplication, or division problems. Players can also use two-footed hops for even numbers and symbols and one-footed hops when landing on zeros and odd numbers. The player continues until they make

a mistake, such as hopping and or stepping on a line or incorrectly answering the equation. Then it is the next player's turn.

Running/Racing

Think about all of the math activities that can revolve around racing, running, rollerblading, skateboarding, and biking. Kids can determine their route and/or obstacle course. They can determine what mode of transportation will be faster (ie running, biking). Students can create a starting point and destination for a run or an obstacle course and determine a reasonable speed. Then have them calculate the distance they'll go. This can be done in their neighborhood, on the way to a local park, or store, and even in a park, the schoolyard, etc. These are amazing opportunities to creatively work on word problems, time, elapsed time, distance, miles, comparison, etc.

Yoga, Stretching or Tai Chi

Outdoor Yoga, stretching or Tai Chi can be a good time to review angles. While striking a pose, kids can reinforce classifying and identifying angles and different shapes. For older kids, they can identify the properties of their angles and/or lines. Students can measure and identify postural alignments, depending on the size of their inside angle: right, obtuse, acute, reflex, full rotation, and flat angles. In addition, there are many opportunities to provide creative challenges by identifying a segment or a vertex.

Scavenger Hunts

Scavenger hunts are also a lot of fun and can be designed to look for shapes in nature. To make it even more exciting, they can also look for 3-D shapes. To further extend this activity they can determine if there are any lines of symmetry in nature. In addition, they can

estimate the angles of tree branches or leaves and then check it with a protractor.

Math Hikes

When kids go out walking/hiking they can also measure the distance and/or the rate of speed of the walk and/or hike. They can even chart and determine the levels of elevation and/or incline. They can also track and graph elements such as daily temperature highs and lows, levels of humidity, allergens, or the amount of rainfall. These can also be turned into awesome word problems that even compare and contrast siblings or friends.

Swimming

A swimmer knows that math is an integral part of training and racing and there are a lot of activities that could incorporate math! Swimmers need to read a clock and solve time equations while underwater and swimming at a fast pace. They also need to count, add, multiply and subtract to quickly evaluate their speed and efficiency in the water and quickly solve problems. Any competitions and/or practices can also be turned into awesome word problems that even compare and contrast siblings or friends.

I hope by now I motivated you to go outdoors! I am sure I also piqued your interest and started to have you think about other activities. Please note that although these ideas revolve around math, many of these activities are really beneficial for other academic areas as well. This is a great opportunity to collaborate with colleagues and create interdisciplinary activities! I challenge you to be creative and most of all engage the students in learning outside of the classroom! If you need to brainstorm and or chat about ideas..... just reach out to me!..... Dr. Julie Norflus-Good - jgood@ramapo.edu.

New Teachers' Corner

AMTNJ traditionally offers advice and encouragement to new teachers. This pandemic year is no exception. This year, our advice for first year teachers was suggested by graduate students at the Saint Peter's University Caulfield School of Education.

There's no pressure to be perfect in your first year, so be yourself. Remember, every year you get a chance to inspire future leaders!

- Bianca Gray

Don't be afraid to look for help from and take advantage of the experience of other teachers around you. -

Ryan Sottolano

Don't fret. You won't complete every chapter or unit!

- James Clayton,
Ed.D., Professor

Do not be afraid to try new techniques. You will find out very quickly what works and what doesn't.

- Christopher DeGeorge

Have patience, with not only your students but especially yourself. Your expectations will be high but have patience that with time they will be met.

- Mackenzie Stevens.

How I assessed my students on geometric probability

Nikki Sammartino

Bayonne High School



Prior to the pandemic, I did a great lesson during my student teaching on geometric probability that I would love to share with everyone. My students were learning about geometric probability and I did not want to give them a traditional paper and pen test. I wanted to do something fun and engaging. What's more fun than carnival games? Now I was not able to bring a whole carnival to my school, sadly, but I was able to bring in balls, die, Twister mats, and boxes! I put my students into groups and had them measure and calculate the probability of winning their game. One game that I set up was using a square box, and I put different size cups in the box. The students had to find the measurements of the box and the cups and then calculate the probability of tossing a ball in the small, medium, and large cups. In one of the other games, I had the students roll a big foam die onto a twister matt. The goal was to have the die land on a circle. The students had to find the measurements of the mat and each dot. They then had to calculate the probability of landing the dice on each dot. The next day I let the students collect data! Since I broke the class into groups of four students, I had two students stay at their station to collect data on their classmates' scores. I let the other two students go around the class and play games. Halfway through the period, the students switched roles. Those who were collecting data were now able to play games and vice versa. On the third day, I let the students look over their data and come to a conclusion. Since there was time left in class I let them play their favorite game! I hope you enjoyed this lesson idea as much as I did!



The 2021 NJEA Convention Proposal Portal is now open. Please use the link below to submit your proposal to present at the 2021 NJEA Convention.

<https://apps.njea.org/Proposals>

NJEA is currently planning for an in-person event for 2021 to be held back in Atlantic City, New Jersey. If this changes, all presenters who submitted a proposal will be notified and asked if they are willing to present virtually as was done at the 2020 convention.

Join a team of passionate math educators to promote quality teaching and learning of mathematics.

To learn more about membership benefits and join AMTNJ visit

<http://amtnj.org/membership/>

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The AMTNJ newsletter seeks to create a space for educators to share their experiences with mathematics teaching and learning, and to update our membership on AMTNJ events. AMTNJ strives for its newsletter to be fair and correct in every way. If you have a question or comment about information in this newsletter contact us at mark.russo@amtnj.org lena.komitas@amtnj.org

THANK YOU to the authors who shared their knowledge and experience to make this newsletter possible.