Puget Soundings

We are excited to announce that Tracy Drinkwater, President and Founder of Seattle Universal Math Museum will be our October 24, 2022 Fall Dinner Speaker! Learn more at: seattlemathmuseum.org

June 6, 2022   **Enjoy your summer!**   **Editor: Joyce Frost (frostjoycee@gmail.com)**

Save the dates!

Our 2022/2023 PSCTM Dinner presentations will be:

October 24, 2022
February 13, 2023
May 15, 2023

Board Meetings:
September 12,
December 5, 2022
January 23, 2023
March 13, 2023
April 17, 2023
June 12, 2023

Happy Summer PSCTM members,

Yesterday, our school hosted our annual Walk-a-thon and end-of-year PTA BBQ. There was such an incredible sense of joy as students, staff, and community members came together for a common purpose. Just as the BBQ was getting underway, a thunderstorm rolled into town and the rain came pouring down. Students, their family members, and staff didn't let the rain spoil their fun. We continued to visit outdoors, eat hotdogs, and play. This school year has had so many challenges but the excitement of connecting with one another again has been a true gift.

Coming this fall, we will resume our in-person gatherings. We invite you to join us for the PSCTM Fall dinner event and the Northwest Mathematics Conference. Please update your contact information with us to receive your invitations with the details. We hope you'll gift us with your presence as we share our teaching experiences, discuss our learning, and continue to build our community of math educators.
Enjoy your well-deserved summer!
Best wishes,
Traci Cotton, PSCTM President

Renew your PSCTM membership online!

Jane Bissonnette - Past President, Secretary, Joyce Frost – Program, Newsletter, Jane Hunter - Newsletter, Art Mabbott – Treasurer, NCTM Rep, Joe Frost - Web Page, Laura Beckett, Maryke Haynes - Equity, Angela Ensminger – Membership/Social Media,
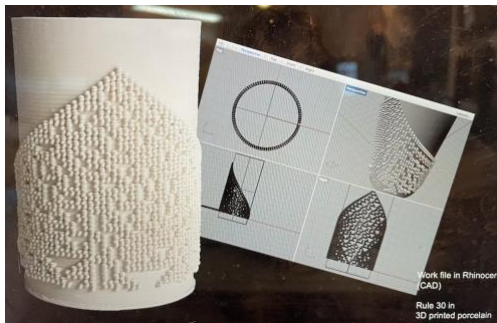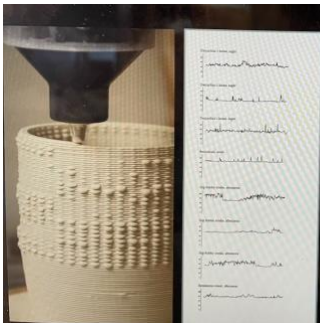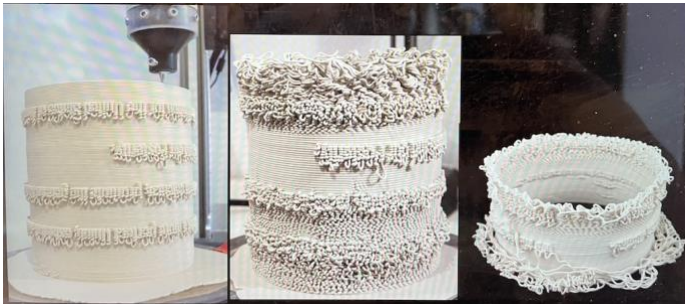
Timea Tihanyi is a Hungarian born interdisciplinary visual artist and ceramist living and working in Seattle, Washington. Tihanyi holds a Doctor of Medicine degree from Semmelweis University, Budapest, Hungary; a BFA in Ceramics from the Massachusetts College of Art in Boston; and an MFA in ceramics from the University of Washington.

PSTCM Zoom Presentation May 9, 2022
UW Interdisciplinary Visual Arts Teaching Professor, *Timea Tihanyi*

Making and Breaking Rules: Art and Math as Embodied Practices

1. A collaboration with a mathematician on ceramic 3D printing using elementary cellular automata algorithms,
2. A body of artwork entitled *Object Permanence (recent exhibit at Bellevue Art Museum)*
3. A new art & math course developed with the help of a Mellon Foundation grant at the UW
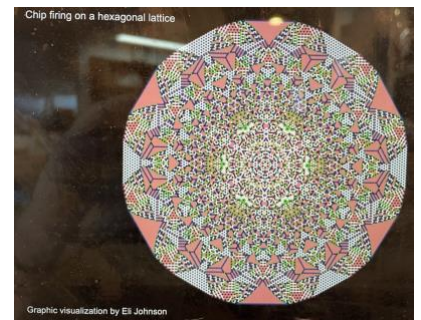

Burst and Follow series based on the Elementary Cellular Automata. 2018
CoCalc coding by Sara Billey. 3D printed porcelain

Object Permanence at the Bellevue Art Museum

Art and Math Discovery Seminar – Geodesic Dome Assignment

New UW Art & Math Course – Mellon Foundation Grant

Enjoy this fabulous interview with Timea about her recent Bellevue Art Museum exhibit: Object Permanence 2022 Exhibition Interview

In the form of a binary code / digital algorithm our culture witnesses a new area of rule-governed system behaviors, the challenge of which intrigues me. Rigidity and predictability is often expected but complex code-based systems and mathematical models are also unstable and susceptible to error in the physical world, be those caused by external forces or internal glitches. Simple sets of rules repeated long enough can lead to immensely complex patterns, which the human brain is programmed to search for and recognize.
Code Slip *explores the Cellular Automata, the mathematical area of modeling with self-replicating rule-based systems, and experiments with creating randomness and error by technological means.*

A word about her ceramic sculptures: "*Rule breaking, by accident or by intention, is my focus in the emerging area of ceramic 3D printing. I often collaborate with mathematicians on using algorithmic principles (similar to those used in machine learning and AI) for the creation of novel forms and surfaces. Following the prescribed path of the digital design or an algorithm-generated code, the ceramic 3D printer extrudes a thin coil of soft porcelain and creates each object layer by layer, line by line.*" ***Timea Tihanyi***

Receive Clock Hours for PSCTM events!

For attending one or more PSCTM events: Fall 2021, Winter or Spring 2022, you can receive 1 ½ clock hours per presentation. Email art@mabbott.org after the event.

PSCTM's Clock Hour process:

- Request clock hours for any one of the events
- Art will send you an evaluation form
- Complete evaluation form and email to Art
- Art will send you the clock hour form for the event
- Complete clock hour form and keep for your records. (*Email Art if you have questions*)

Follow PSCTM on social media! Share your lesson ideas, news with us, too! @PSCTM

Four Ways Teachers Can Stay Grounded

Burnout often catches people by surprise. Tiffany Perry, the author of *4 Ways Teachers Can Stay Grounded*, shares some ideas on how to continue to find joy in the classroom with some practical ideas for self-care.

Step 1: Revisit your core values - What would you want as a student? What inspired you to start teaching?

Step 2: Humanize learning - Creating strong student-teacher relationships lead to academic success.

Step 3: Pay it Forward to Your Students - Share your strategies for relieving stress. Helping students build their capacity for self-care supports a healthy classroom community.

Step 4: Take your PTO - As challenging as it can be to take time off, spending time and devoting it to taking care of yourself it so important.

Read the full article here - - - *Traci Cotton*

Congratulations to our Spring dinner door prize winners!

PSCTM members Rona Gurkewitz, Jane Bissonnette, Angela Ensminger, and Molly Daley each won a copy of:
Math Games with Bad Drawings: 75 ¼ Simple, Challenging, Go-Anywhere Games – And Why They Matter by Ben Orlin

"From beloved math popularizer Ben Orlin comes a masterfully compiled collection of dozens of playable mathematical games. This ultimate game chest draws on mathematical curios, childhood classics, and soon-to-be classics, each hand-chosen to be (1) fun, (2) thought-provoking, and (3) easy to play. With just paper, pens, and the occasional handful of coins, you and a partner can enjoy hours of fun—and hours of challenge."

We hope this entertaining new book is a great summer treasure!

Self-care is how you take your power back.
- - - Lalah Delia

The world is hugged by the faithful arms of volunteers. - - - Terri Guillemets

Selfless action is a source of strength. - - - Mahatma Gandhi

Love and compassion are necessities, not luxuries. Without them, humanity cannot survive. - - - Dalai Lama
We should indeed keep calm in the face of difference and live our lives in a state of inclusion and wonder at the diversity of humanity. - - - George Takei

Summertime Math! – Joyce Frost

What a great time to enjoy math outside! Here are some of my favorite math activities /projects that can be done outside, are super fun, and will keep the math going all summer!

Parabola Water Balloon Volleyball:

My students in Algebra had a hard time remembering that for every quadratic function ($y = x^2$, for example) there are two solutions. After getting a chance to experience this fun game, you can remind them over and over about the two solutions – there are two times when the water balloon achieved a particular height – on the way up and the way down.

Materials: You'll need a bath or beach towel for every two people, filled water balloons (the bigger the better), a grassy or sandy area marked off as a court (line down the middle or net are optional). With one person on each end of the towel (grasp one hand on each corner), start with a filled water balloon resting in the middle of the towel. Together, the pair swings the towel upward at an angle lobbing the water balloon across to an opposite pair who attempt to catch the balloon in their towel. Don't be afraid to lob the balloons high into the air (this gives the receiving pair slightly more time to catch it). For those people really competitive, you can attempt to keep score and meticulously alternate between the two sides with evenly matched teams. Or just enjoy watching the parabolas fly and find yourself laughing uncontrollably as pairs "occasionally" miss catching the balloons or fail to send off their balloon.

Polyhedral Bubbles:

Cocktail straws and pipe cleaners make fantastic polyhedra! With a pair of scissors, cut 15 or more straws in half (to make more manageable lengths). Cut several pipe cleaners into short segments to use as connectors between the straw ends (1-inch segments work). Using the necessary number of straws, make the 3 simplest Platonic Solids (Tetrahedron, Cube, Octahedron). You might also try another polyhedra such as a triangular prism. Using dish washing liquid, make up a container of soap bubbles large enough to dip the largest of your straw polyhedra into. Keep adding soap until nice bubbles form. Scoop off the foam. Enjoy creating fascinating bubbles as the soap tries to create minimal surface areas. Check out this cool Pdf!
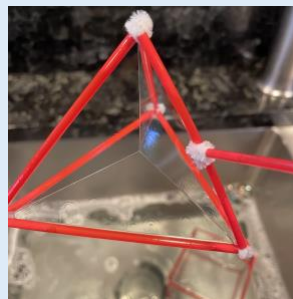
Circles in the sand:

Take a long rope (20 feet or longer) and tie knots in it about every foot. At your favorite beach (low tide would be best), have one person stand in one place with one end of the rope while a second person holds onto one of the knots, pulls the rope tight, and walks around the first person while digging their toe or a stick in the sand. Repeat the process with the first person in the same spot and the second person holding onto a different knot. This is a great visual for the definition of a circle (all points equidistant from a center point) and a great example of how to create concentric circles. Besides, it will look really cool and certainly get a few comments!
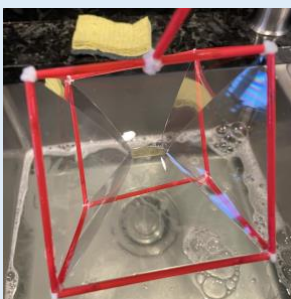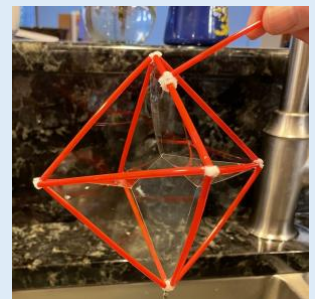

*Parabola Water Balloon Volleyball*   *Cube Bubble*   *Tetrahedron Bubble*   *Octahedron bubble*

Newspaper Geodesic Half Dome Tent:

You need two ½ '' dowels (Home Depot/Lowes): one 26'', the other 28'' long. You also need a large stack of newspapers (2x30 & 2x35, but who's counting) Using two large sheets of newspaper, roll them up on a diagonal using first the 28'' dowel. Cut the newspaper off beyond each end and put a piece of masking tape or blue tape around the tube at about the center to hold the tube together. Remove the dowel and repeat until you have 35 28'' newspaper tubes. Repeat using the 26'' dowel Again, make 30 tubes using 2 pieces of newspaper for each one. Starting with the 28'' pieces, arrange 10 of them in a circle. Using a stapler (heavy metal one works best), staple the 10 struts to make a circular ring with about a 1'' overlap between connecting struts. Follow the color coding at right to create the structure working from the bottom up. Throw a sheet over the top to create a newspaper tent or sun shelter!
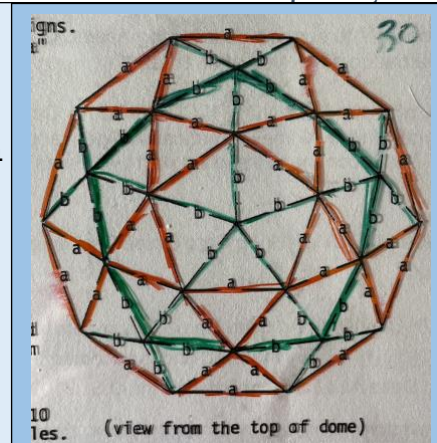
Ten 28" (red)around outside, five sets of 2 red, every other outside red, 5 sets (triangle) of red at each point of previous triangles, 6 five spoke green stars(26") in between.

Sand Mandalas:

Drill a ¼ to ½ inch hole about a half inch in from both ends of a yard or meter stick. You will need two short dowels (of the same width or slightly smaller than the holes) to draw your circle.
On a large expanse of smooth beach, push one of the dowels through the hole in one end of the yard stick and push it into the sand to anchor it. Using the second dowel piece in the other end of the yard stick, mark out a 6' circle in the sand by walking the dowel and yard stick around the anchored center dowel. Next, position the center dowel anywhere on the circle and to another circle in the same manner. Continue making circles by moving the center point to intersections of other circles. Be creative!
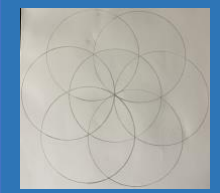
Sidewalk Chalk Math:

Anything that can be done on a whiteboard, personal whiteboard, document camera, etc. can be done using sidewalk chalk and a clean sidewalk or asphalt. Let your neighbors see all of the cool math that you are doing! Imagine graphing parabolas, ellipses, hyperbolas in front of your house! I am sure everyone would enjoy your latest cool math joke (*Life is complex; it has real and imaginary parts…*) And do not forget **skip counting**! That literally says what you have to do!

Math Fun *by Jane Bissonnette*

Here is a fun way to talk about the distributive property and prime numbers. Have your students pick any 3-digit number and tell then you will race them to multiply that number by the prime numbers 7, 11 and 13. They can use a calculator and you will not. Any three-digit number multiplied by 7, 11 and 13 will always be six-digit number repeating the original three-digit number. For example, 223 x 7 x 11 x 13 = 223,223. This is because 7 x 11 x 13 = 1001. In other words:
(1001 x 223) = (1000 x 223) + (1 x 223) or 223,000 + 223=223223.

And a division twist on the problem!

Ask students to pick a 3-digit number (like 258) and then write it as 258,258. Divide it by 7 (don't worry about the remainder; there won't be one). Divide the answer by 11 (again, no remainder). Divide the answer by 13 (Again, no remainder). And the answer is 258! How does that work? This is a great way for students to practice that pesky long division - giving them a chance to do 1- and 2-digit division with a variety of numbers. It always feels like magic! - - - *Joyce Frost*

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math: you are invited
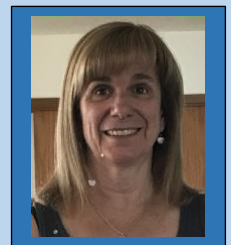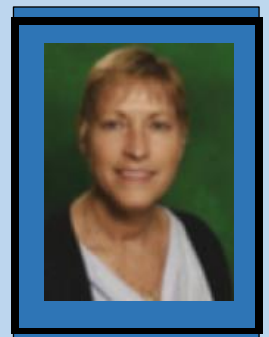
∏∖∧⊏ 2022
math: you are invited

Tacoma, Washington
October 13-15, 2022

Registration is Open for the October 13-15, 2022
61st Northwest Mathematics Conference!

PSCTM is excited to partner with the **Washington State Math Council** for the **2022 NW Math Conference.** The conference will be returning to the **Tacoma Convention Center October 13 – 15, 2022.**

We will be focusing on strands of inviting **all voices** into math, addressing diversity and inclusion, planning for equity and access, inviting in through play and curiosity.
We plan to provide several ways to participate through registration options (Saturday only, Keynote streaming) and intentionally creating space for educators to connect. We will have a slightly longer and robust program on Saturday for 'Saturday only' participants.

If you are interested in helping, contact Maryke at: mhaynes@everettsd.org, (206) 351 – 3095
Maryke Haynes (co-chair, logistics)

KEYNOTES: Dr. Robert Q Berry, Opening Keynote
Laila Nur, Closing Keynote
Breakfast Keynote: Alison Hintz
Friday Night Ignite program!

Dr. Robert Q Berry, **Opening** Keynote Speaker

Alison Hintz, **Breakfast** Keynote Speaker

Laila Nur, **Closing** Keynote Speaker

Dan Finkel at *Math For Love* has lots that is new to share!
Be sure to check out their Award-Winning Games, Free Lessons, Curriculum, PD, and resources!

PODCAST: LET'S TALK MATH!

Math Games Galore! with Kent Haines and Dan Finkel

Check out this new podcast featuring Dan Finkel with **Math For Love.** *What a great way to start summer!*

"What makes a good math game? We might not know it, but some of our most loved games are steeped in mathematical thinking.

Today we are passing things over to Kent Haines. Kent is a Heinemann Fellow Alum and middle school math educator based in Alabama. He is joined by Dan Finkel, founder of Math for Love, a Seattle-based organization devoted to transforming how math is taught and learned.

Kent and Dan talk about all the ways games can help (or hinder) the development of strong mathematical reasoning. Listen at this link*."*

Check out these websites suggested by Dan Finkel from Math For Love.

Also, join the mailing list to get tons of free content, like their Games to Play at Home packet, puzzles, lessons, and more!

[Classmates wouldn't sign bullied boy's yearbook, so older kids stepped in — and that was just the start](#). Seattle Times, June 3, 2022

Eleventh graders at the Academy of Charter Schools in Westminster, Colo., with Brody Ridder, center, a sixth grader at the school. After classmates declined to sign his yearbook, older students stepped in. (Photo courtesy of Simone Lightfoot).

"No one helped me when I was in that situation," said Maya, 14. "So I wanted to be there for him." She rounded up her friends, all of whom were eager to give Brody a confidence boost. The impromptu initiative spread throughout the school, and on May 25, the day after the yearbooks were distributed, a swarm of older students filed into Brody's sixth-grade classroom, ready to sign his yearbook.

Have you dreamed of presenting for an NCTM Conference? Check out this opportunity for the 2023 Virtual Conference.

[Call for Proposals](#) for the March 29 – April 1, 2023, NCTM Virtual Conference
Applications can be filled out online from May 2, 2022 - June 30, 2022 (closing at 11:59 pm PST). You can choose between a 60-minute live presentation (webinar or meeting with breakout rooms for small discussions) or a prerecorded on-demand presentation which could be viewed at any time before, during, or after the virtual conference.
NCTM Virtual Conference Strands can be viewed by [clicking this link](#).

Eldon Egbers Northwest Mathematics Conference $200 Scholarship!

Dear PSCTM members,

It is my pleasure to invite you to apply for the Eldon Egbers Scholarship. Eldon Egbers was a special friend to many math teachers in the state of Washington. His wish was to have other teachers experience the delight of teaching mathematics. He believed that one place to share that enthusiasm for teaching mathematics was by participating in the Northwest Mathematics Conference. In honor of his dedication and enthusiasm for mathematics education the Puget Sound Council Teachers of Mathematics has established a scholarship to be awarded to two teachers to attend the NWMC. The scholarship is $200, and the funds may be used to offset the costs of attending this amazing event. The following requirements must be met to apply for this prestigious award:

- The applicant has a minimum of two years of membership to PSCTM.
- A brief letter explaining why attending the NWMC would be beneficial.
- The applicant has not been a previous recipient of the award.
- The $200 scholarship funds may be used toward the costs of: registration, transportation, lodging, meals, or a substitute teacher.
- The recipient will receive the funds after the awardee has submitted receipts to the PSCTM treasurer, and a brief article to be published in Puget Soundings (the PSCTM newsletter) has been delivered to the PSCTM newsletter editor. The article could contain lesson ideas, resources, reflections on practice, or other ideas the awardee learned at the conference.
- Letters of application should be emailed to Traci Cotton, PSCTM President at tcotton@everettsd.org. Please include Eldon Egbers Scholarship in the headline of the email. Applications are due Wednesday, June 15, 2022.

Award selection process

1. The awardees will be selected by lottery style granted that each applicant has met the requirements.
2. The awardees will be contacted by a PSCTM Executive Board Member. The awardees will be publicly recognized on PSCTM social media accounts and at our Fall Dinner Event in October.

Best wishes,

Traci Cotton, PSCTM President

Hugs and happy Summer from two of our newest Covid pets, Tate and Atlas.

Seattle Universal Math Museum - - - *Art Mabbott*

About a dozen years ago two events had a major impact on my teaching career and to some degree my life. The first was my 'trip of a lifetime' to Egypt. There I was able to experience first-hand great connections between mathematics and history. I saw many signs of numbers and counting carved in stone. And I was able to visit one of the great libraries of the world in Alexandria and left to search some of their stacks.

The other event that impacted me was hearing about MOMATH - The National Museum of Mathematics that is located in Manhattan, NY. Yes, there is a National Museum of Mathematics!

MOMATH was founded in 2009. Over the years, they have produced phenomenal workshops for educators and sessions both in person and on-line for kids of all ages. In 2017, on 08/15/2017, MOMATH organized the Pythagorization of Seattle, a scavenger event across the entire city of Seattle open to anyone and everyone. I got involved by staffing one of their sites - at the old Gasworks Park. It was a great event and a lot of fun. After the event, I signed on to be on their email outreach.

I wished that I could go to more of their productions, but New York is a long way from Seattle especially once the pandemic happened. I kept thinking that it would be nice to have something like that here. And then I discovered SUMM (Seattle Universal Math Museum).

Seattle now has its own Math Museum! It is just in its infancy but just like MOMATH, SUMM is already providing vibrant programs for students of all ages and for teachers. They have run programs with Dan Finkel and Math-4-Love in local schools and have produced a Math and Art show with our recent PSCTM speaker, UW Visual Arts professor, Timea Tihanyi.

Tracy Drinkwater, the founder, and President, believes that no one teacher has all of the resources that they might need within the four walls of their classroom. SUMM hopes to provide a space for teachers to bring their students to be immersed in the mathematics that they are exploring; a place rich with manipulatives and a space to play inside and out. They are currently working to procure a permanent site in King County.

PSCTM is partnering with SUMM in two special ways. The first is offering teachers attending SUMM events and training free clock hours. The second is that Tracy Drinkwater, President, and Founder will present at our October 24, 2022, Fall PSCTM dinner.

Tracy and SUMM will have a booth at this fall's Northwest Math Conference in Tacoma.   Check it out when you attend in October. This is a great resource for all of us. Please take time to explore MOMATH AND SUMM and get to know them.

https://seattlemathmuseum.org   https://momath.org

From our PSCTM newsletter files:

This article originally ran March 19, 2019, the day this prize was announced!
Read Joe's article about her, play with some soap bubbles (see summer outdoor fun above) and consider how math is so much a part of our everyday lives.

For the first time, mathematics' most prestigious prize has been awarded to a woman, Karen Uhlenbeck

(CNN) Karen Uhlenbeck, a mathematician and professor at the University of Texas, has been awarded this year's Abel Prize, a mathematics prize modeled after the Nobels. It's the first time the prize has gone to a woman. *"One of Uhlenbeck's most famous contributions was her theories of predictive mathematics inspired by soap bubbles. The thin, curved surface area of a soap bubble is an example of a "minimal surface," a surface that forms itself into a shape that takes up the least amount of area. Examining how these surfaces behave can help researchers better understand a wide amount of phenomena across a wide array of scientific studies."*

"We were told that we couldn't do math because we were women; I liked doing what I wasn't supposed to do, it was a sort of legitimate rebellion."
Karen Uhlenbeck, Abel Prize Laureate 2019

Karen Keskulla Uhlenbeck, *2019 Abel Prize – First Woman recipient*

Karen Keskulla Uhlenbeck, who in 2019 became the first woman to win the Abel Prize, was one of the founders of the Park City Math Institute. She also co-founded the Women in Mathematics Program at the Institute of Advanced Study and is viewed as a role model for women in mathematics. She has said, "What you really need to do is show students how imperfect people can be and still succeed. … I may be a wonderful mathematician and famous because of it, but I'm also very human."

She began her graduate program at New York University, but, when her husband moved to Harvard, she moved with him and restarted her studies at Brandies University. After earning her M.A. in 1966 and Ph.D. in 1968, she had temporary positions at MIT and UC Berkeley. Rules against nepotism made it hard for her to find a permanent position at the same schools as her husband. They finally landed at University of Illinois, Champaign-Urbana in 1971, where she began research with Jonathan Sacks on sequences of energy-like measures on two dimensional surfaces. The studies launched a new field of mathematics, modern "geometric analysis," combining the tools of analysis to the questions of topology.

After her divorce, she moved to the University of Illinois at Chicago in 1976, and to the University of Chicago in 1983. Building on her earlier work, she began the study of minimal surfaces in hyperbolic 3-manifolds; work that has been described as foundational in the analytic aspects of the calculus of variations. In 1988, she married again and moved to the University of Texas at Austin.

In 1991, she co-founded the Park City Math Institute (PCMI), which many members of PSCTM have been selected for and participated in over the years. PCMI has the mission to "provide an immersive educational and professional development opportunity for several parallel communities from across the larger umbrella of the mathematics profession." Researchers, professors, graduate and undergraduate students, and K-12 teachers gather for three weeks in the summer to interact and attend lectures and seminars for each group in the topic of the year. She then co-founded the Women in Mathematics Program, with the intent to encourage and prepare more women to participate in PCMI. As Dr. Uhlenbeck writes, "Many female students and young researchers have encountered discrimination in certain situations and have concerns about entering a field with few senior women visible. The atmosphere in classes and seminars can be unappealing, and nearly all young women have practical questions about managing a career and personal interests. Often women have not had the opportunity to work with other serious women in their profession or listen to more than an occasional lecture or course given by a woman. The network formed through contacts with women functions like any other network in giving opportunities, support, and inside information to its members."

In 2007, as a professor at the University of Texas, Austin (where she is now a professor emeritus), Dr. Uhlenbeck reflected on her long career. "All in all, I have found great delight and pleasure in the pursuit of mathematics," she wrote in accepting the Leroy P. Steele Prize from the American Mathematical Society. "Along the way I have made great friends and worked with a number of creative and interesting people. I have been saved from boredom, dourness, and self-absorption. One cannot ask for more."

(This article includes a summarization of an article in Quanta Magazine and further information from the websites of the IAS programs Dr. Uhlenbeck cofounded).

Everyone knows that if people are smart, funny, pretty, or well-dressed they will succeed. But it's also possible to succeed with all of your imperfections. - - - Karen Uhlenbeck
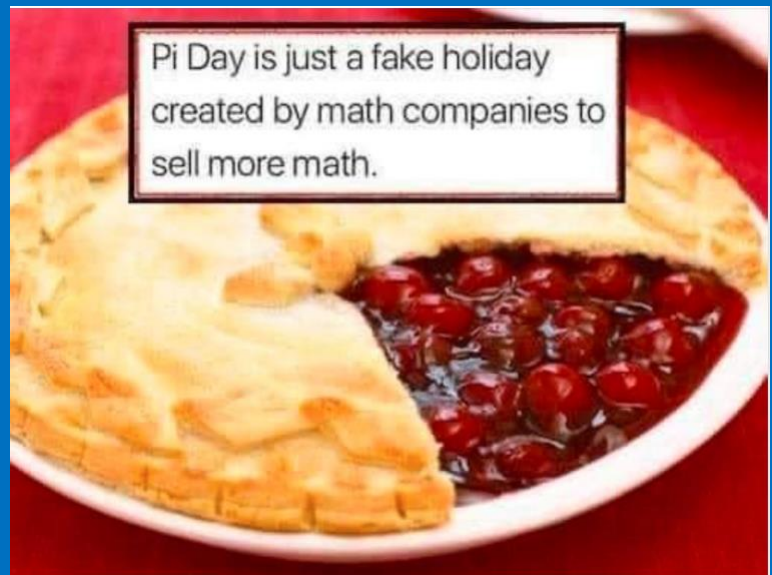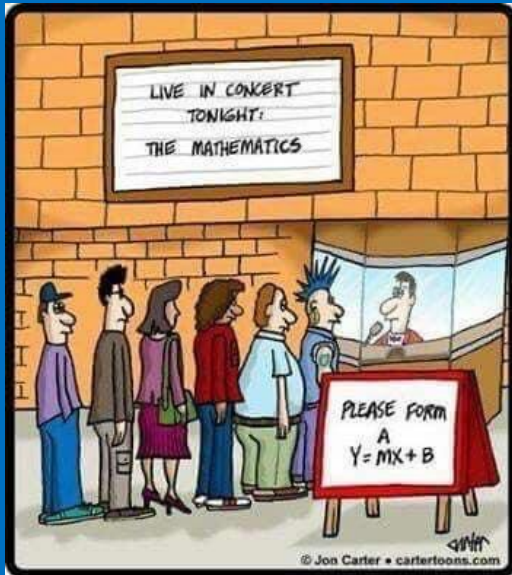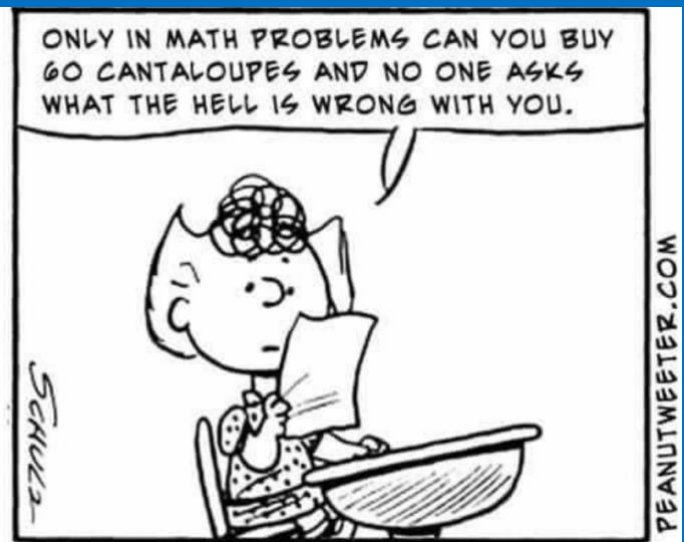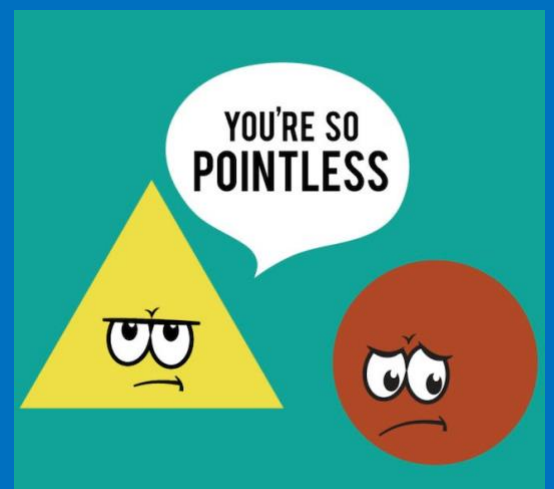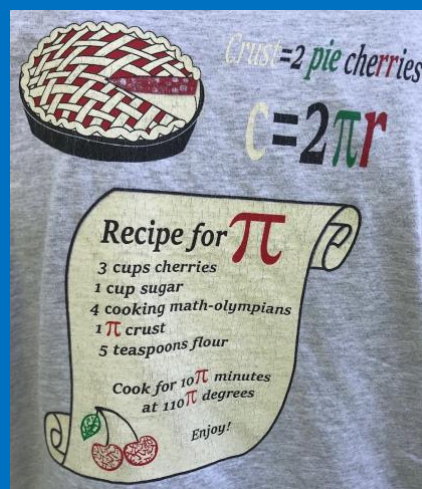
I saw my math teacher with a piece of graph paper yesterday. I think he must be plotting something…