KYMAA Newsletter

KYMAA Calendar

Regional Conferences

National Conferences

Competitions

THE (SOUL-CRUSHING) SOUND OF SILENCE

By Lew Ludwig

You've done your part. You presented the material, laid the groundwork, and gave the possible arguments. The air is ripe with anticipation. Your teaching senses tingle. It is time to ask a well-phrased question demonstrating that your students are ready to take their learning to the next level.

How often have I been at this critical moment in my classroom, only to have my hopes dashed?

Scenario 1: The "Hermione Granger" student shoots up her hand with other students passively watching. Or worse, in her excitement, she blurts out the answer or idea before the other students even have time to digest the question.

Scenario 2: The "extroverted risk-taker" offers his opinion. Not that the answer is necessarily correct, but he has been rewarded over the years for his willingness to contribute to the class discussion, if for nothing else than breaking the dreaded silence.

Scenario 3: The entire class reverts to the "predator-prey model" or "T-rex strategy," as my colleague calls it. The students (the prey) know that if they sit still and avoid eye contact, the professor (the predator) will overlook them and move to the next victim.

Of course, there are variations, but the three options presented cover a large swath of what I've experienced in the classroom. To overcome this, consider adopting a partner strategy to battle this, where students must explain their answers to their partners. To ensure everyone has a partner, pair students together every few weeks, and make sure they sit with their partners during the class.

Practitioners may recognize this process as think-pair-share: pose a question, let students think independently about the question, discuss their ideas with their partner, then share with the whole class. As I have been known to mess these up, let's take each in turn.

Think: After posing the question, provide time for the thinking part and do not jump straight to the "tell your neighbor." In my own Hermione-like excitement, I often skip the thinking part. Then instead of single option 1, 2, or 3 for the whole class, I have paired versions throughout the entire class. My Hermiones quickly tell their neighbor the answer, my extroverted risk-takers start pontificating, and my scenario-three pairs stare at their notes, avoiding eye contact with the partner next to them.

Read more about Mathfest in the full post on MAA's mathvalue's blog.

Russell Goodman
Central College

Candice Price
Smith College

ANNUAL CONFERENCE PREVIEW

Our annual section meeting is just around the corner, and your officers are already working hard behind the scenes along with Dr. Shane Redmond from Eastern Kentucky University to organize an amazing conference!

Save the Date: Next year's conference will be held at Eastern Kentucky University April 5-6, 2024.

We already have our invited speakers lined up! Here is what you can look forward to:

Russell Goodman of Central College: *"Narrow Margins: Winning the Presidency with Minimal Popular Vote."* Polya (1961) and Wessel (2012) investigated the hypothetical question of "What is the smallest fraction of the popular vote a candidate can receive and still be elected President of the United States?" What's your best guess of the answer to this question? This talk will give a thorough account of the dynamics behind the question, pursue a sub-optimal approach, identify a more effective approach, and leave the audience with an invitation to explore some unresolved issues within this topic. A resource with historical data will also be offered to the audience for their continued exploration.

Candice R. Price of Smith College: *"Can we make grace the norm in our classrooms?"* For much of my life, I was always confused about the way that people perceived the relationship between students and instructors in the classroom, especially in mathematics. There is such an adversarial relationship that even sharing my career choice with strangers leads to groans and stories of trauma. I believe this is what happens in a classroom without grace. So when we add grace the opposite should happen, right? During our time together, I hope to discuss with you the ways that I incorporate grace in my classroom and why many people think it is radical. I invite everyone to come and reflect on ways they can make grace the norm in their classrooms and spaces.

KYMAA CALL FOR NOMINATIONS!

There will be new elections in 2024 for the following KYMAA positions:

Secretary, **Treasurer**, and **Student Chapter Coordinator.**

The duties of each position are descibed in the KYMAA Bylaws. Officers must be members of the MAA Kentucky Section, and can volunteer or be nominated in advance of the spring meeting via email by sending name, contact information, and a short biographical sketch to the nominating committee by mid-March.

We are also in need of someone with experience in web development to possibly serve as the KYMAA Web Developer. If you or someone you know is interested, please contact a KYMAA officer.

Other KYMAA News: Kenny Barrese (Brescia University) was appointed to the role of Historian. He will be inheriting the role from Dan Curtin. A huge thank you to Dan for his many years of service!

SPRING 2023 STUDENT CHALLENGE PROBLEM

Consider a $(2m-1) \times (2n-1)$ rectangular region, where m and n are integers such that $m, n \geq 4$. This region is to be tiled using tiles of the two types shown:
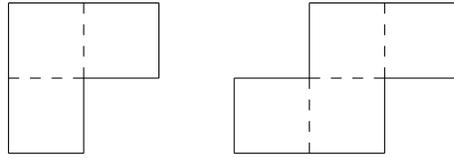
(The dotted lines divide the tiles into 1×1 squares.) The tiles may be rotated and reflected, as long as their sides are parallel to the sides of the rectangular region. They must all fit within the region, and they must cover it completely without overlapping.

What is the minimum number of tiles required to tile the region?

No solutions were submitted to the previous problem. Do not despair! It will remain as a challenge problem until the next newsletter.

FALL 2023 STUDENT CHALLENGE PROBLEM

Let $n \geq 1$ be an odd integer. Alice and Bob play the following game, taking alternating turns, with Alice playing first. The playing area consists of n spaces, arranged in a line. Initially all spaces are empty. At each turn, a player either

- places a stone in an empty space, or
- removes a stone from a nonempty space s, places a stone in the nearest empty space to the left of s (if such a space exists), and places a stone in the nearest empty space to the right of s (if such a space exists).

Furthermore, a move is permitted only if the resulting position has not occurred previously in the game. A player loses if he or she is unable to move. Assuming that both players play optimally throughout the game, what moves may Alice make on her first turn?

Submit solutions to the Newsletter Editor.

MATHEMALCHEMY EXHIBIT AT NKU

Opening mid November at the Department of Mathematics and Statistics at Northern Kentucky University, Mathemalchemy is a multimedia art installation that celebrates the beauty and creativity of mathematics. Mathemalchemy is the brainchild of mathematician Ingrid Daubechies and fiber artist Dominique Ehrmann, the Mathemalchemy project became in 2020 an exciting collaborative enterprise, driven by the energy and enthusiasm of twenty-four mathematical artists and artistic mathematicians.

You can learn more about the exhibit on their website.

MAA

The mission of the Mathematical Association of America is to advance the mathematical sciences by:

- supporting effective mathematical education at all levels,
- supporting research and scholarship,
- providing professional development,
- influencing public policy, and
- promoting public appreciation and understanding of mathematics

KYMAA

The Kentucky Section of the Mathematical Association of America is devoted to promoting and encouraging the study, the teaching, and the learning of mathematics in the state of Kentucky.

KYMAA Officers

Chair
Elizabeth Donovan
Murray State University
edonovan@murraystate.edu

Chair-Elect
Doug Chatham
Morehead State University
d.chatham@moreheadstate.edu

Vice-Chair
Hunter Chandler
Bluegrass Comm. and Tech. College
hunter.chandler@kctcs.edu

Secretary
Robert Riehemann
Thomas More University
riehemr@thomasmore.edu

Treasurer
Joshua Qualls
Morehead State University
jqualls@moreheadstate.edu

Newsletter Editor
Rachel Barber
Morehead State University
r.barber@moreheadstate.edu

Student Chapters Coordinator
erica j. Whitaker
University of Kentucky
ewhitaker@uky.edu

AMC Coordinator
Justin Truin
Kentucky Wesleyan College
jtrulen@kwc.edu

Historian
Dan Curtin
Northern Kentucky University
curtin@nku.edu

Webmaster
Scott Dillery
Lindsey Wilson College
dillerys@lindsey.edu

Representative
Kathy Lewis
Morehead State University
k.lewis@moreheadstate.edu