



A message from the Executive Director, Tom Young

Hello all!

Newsletter #2 for the 2022 – 2023 season. In it, notice these items:

1. Announcing the day to sign up for times for Meet Four
2. Meet 5 expectations
3. State Tournament Video contest
4. State Tournament T-shirt Design contest
5. State Tournament schedule for the day and expectation for attendance
6. Announcing Po-Shen Loh as guest speaker at State Tournament
7. Announcing Documentary of Math Bowl and Math League in general
8. Summer Math Institute Dates
9. Summer Coaches Conference
10. Request for volunteers to serve on committee to examine our practices and suggest changes.

The season has been going well! Let's keep creating a "Culture of Coolness!"

Photos from Meet 3 Classic Suburban



1. Announcing the Day to sign up for Online times for Meet Four

Online times for meet four will be open Wednesday, January 18th

2. Meet 5 expectations

All teams in a division are expected to travel to a common site for Meet Five. Plaques for the first-place team in the division and framed certificates for the second-place team will be sent along with individual awards. Divisions should organize a recognition party. Divisions will be reimbursed \$70 per team for the Meet Five party. Reimbursements for food and refreshments for the party should be requested by the division coordinator. Section winners will receive a plaque at the state tournament.

3. State Tournament Video contest

See ad later in the newsletter

4. State Tournament T-shirt Design contest

See ad later in the newsletter

5. State Tournament schedule for the day and expectation for attendance

All schools that qualify for the state tournament are expected to arrive before 10:30. Students and coaches will be attending a talk by the coach of the USA IMO team, Po-Shen Loh. Also, teams will be guests for lunch. The rough schedule is as follows

10 - 10:30 Invitational test
10:45 - 11:25 Po-Shen Loh talk
11:30 - 12:30 lunch
12:45 - 2 Math Bowl
2 - 5 Events A - D, Team event, and awards

Events will be administered as they were last year. Students will take events A through D in the cafeteria. Each team will have their own homeroom.

6. [Announcing Po-Shen Loh as guest speaker at State Tournament](#)

We are honored to have Po-Shen Loh as our guest speaker for the state tournament. He is an American professor of mathematics at Carnegie Mellon University and the national coach of the United States' International Math Olympiad team. Under his coaching, the team won the competition in 2015, 2016, 2018, and 2019—their first victories since 1994. He previously won a silver medal for the US as a participant in 1999. Po-Shen Loh runs a popular course to train students for the William Lowell Putnam Mathematical Competition known as Putnam Seminar and is the founder of the educational website Expii.

7. [Announcing Documentary of Math Bowl and Math League in general](#)

We have contracted with a local videographer to make a short documentary about the Math League featuring the Math Bowl. We will be asking for some student interviews. Be aware that you may be on camera. If you haven't already, coaches should have students sign the Code of Conduct/Media Release form which includes an opt out for students who do not want to be photographed.

8. [Summer Math Institute Dates](#)

See ad later in the newsletter

9. [Summer Coaches Conference](#)

See ad later in the newsletter

10. [Request for volunteers to serve on committee to examine our practices and suggest changes.](#)

Math league has been around for 43 years and has maintained a certain style of competition. Given the fact that some schools are having difficulty recruiting students, we want to explore possible changes to the league format. Volunteers will be asked to attend a summer retreat, brainstorm possible changes and help present those ideas to coaches at the Summer Coaches Conference

Summer Coaches Conference 2023
Topic: Giving Math League a Facelift
Dates: TBD

With the challenge of making Math Team more appealing to students, the topic of the conference will be how to give Math Team a facelift. Conversation items include: topic list, number of topics per meet, how a meet is run, getting more schools and students involved

Make plans to attend!!

2023 Summer Math Institute

June 25 – June 30 Residential Camp for 10th – 12th graders

June 25 – June 30 Residential Camp for 7th – 9th graders

The League plans to offer two one-week programs of the Summer Mathematics Institute in 2023. So far, it's full speed ahead!!

One would be for students entering grades 7-9 in fall of 2023. **The topic is yet to be determined.**

The other would be for students entering grades 10-12 in fall of 2023. **The topic is yet to be determined.**



MN State High School Math League

2023 State Tournament T-shirt Design Contest

Prize: **\$50 VISA Gift Card and a Free T-shirt**

How to enter:

Submit a one-color design for the t-shirt front.
The design should include the words:

MN State High School Math League
State Tournament
March 13, 2023

- Email your design by **Feb. 9th** to: mathleague@augsborg.edu
- Accepted file format: pdf only
- Include your name, grade and school in the email submission.
- Winner will be notified by Feb. 17th via email.

Email mathleague@augsborg.edu with questions



MN State High School Math League Math Team Video Contest

1st place: \$200 to school's math team
2nd place: \$150 to school's math team
3rd place: \$100 to school's math team

Video Guidelines:

Produce a 90 second video explaining why you like to be involved in the Math League. Videos might include: student interviews, teacher endorsements, sample problems, or video of practices/meets.

Video Entry Submission:

Videos are due to the Math League Office
(mathleague@augsborg.edu)
by *March 1st, 2023.*

- Videos contest entries must be sent and approved by the school math team coach.
- Winning schools will be notified by March 7, 2023.
- Winning video will be shown at the State Tournament on March 14, 2023, uploaded to the Math League Facebook page, and may be used for other promotional purposes.

Questions? Email mathleague@augsborg.edu

The Roberts Award Scholarship

The Roberts Award Scholarship(s) were established in honor of the League founder, Dr. Wayne Roberts of Macalester College.

The Scholarship(s) are offered to help offset the costs for students interested in attending an out-of-state math opportunity. They are offered once each year. A set amount of funds will be available each year, and multiple awards are possible.

Deadline to apply for this season is April 30, 2023

Applications can be found on our web site at: http://mnmathleague.org/?page_id=1033

Problem Corner

an effort to spur conversation

If you'd like to contribute a problem or send in a solution, email tomyoungmathman@gmail.com

Student solutions encouraged!

Newsletter #34 Puzzler:

(2019 European Cup Junior division problem 1)

Every positive integer is marked with a number from the set $\{0, 1, 2\}$ according to the following rule: if a positive integer k is marked with j then the integer $k + j$ is marked with 0. Let S denote the sum of the marks of the first 2019 positive integers. Determine the maximum value of S .

Proposed by Ivan Nova

https://artofproblemsolving.com/community/c3248_european_mathematical_cup

Solution:

Consider an arbitrary marking scheme which follows the given rule.

Let a denote the number of positive integers from the set $\{1, \dots, 2019\}$ which are marked with a 2, b the number of those marked with a 1, and c the number of those marked with a 0.

We have $S = 2a + b$. For every positive integer $j \in \{1, \dots, 2017\}$ which is marked with a 2, the number $j + 2$ is marked with a 0.

This implies that the number of positive integers less than 2017 marked with 2 is less than or equal to c .

Hence, this implies $a \leq c + 2$. We then have $S = 2a + b \leq a + b + c + 2 = 2019 + 2 = 2021$.

Consider the following marking scheme: 210|210|210| 2200|2200|2200| . . . |2200 |22|0000 . . .
←502 blocks of 2200→

Here the i -th digit in the sequence denotes the mark of positive integer i . For this marking, $S = 2021$, and therefore 2021 is the maximum possible value of S .

Newsletter #35 Puzzler: <https://www.hitbullseye.com/puzzle/best-math-puzzles.php>

Q.1. A number of 5 digits have the following properties:

The number comprising the leftmost two digits is divisible by 2, that comprising the leftmost three digits is divisible by 3, the leftmost four by 4, the leftmost five by 5, . Each digit in the number is different i.e. no digits are repeated. The digit 0 does not occur in the number i.e. it is comprised only of the digits 5-9 in some order. How many such numbers are possible and find their value/values?.