

MOAA 2020  
The Third Annual  
Math Open At Andover

A MIDDLE SCHOOL MATH COMPETITION  
AT PHILLIPS ACADEMY ANDOVER  
<https://www.andovermathopen.com/moaa2020>

OCTOBER 10TH, 2020

## Schedule of Events

Time (in ET)	Event	Location
10:30-11:00	Opening Ceremony	<a href="https://andover.zoom.us/j/92522173660?pwd=R0lzV1kzZG43SG1vZFMxVlJHM2VqZz09">https://andover.zoom.us/j/92522173660?pwd=R0lzV1kzZG43SG1vZFMxVlJHM2VqZz09</a> Passcode: 017716
11:15-12:00	General Round	Online portal
11:00-12:00	Talk with Po-Shen Loh (for parents)	<a href="https://andover.zoom.us/j/92522173660?pwd=R0lzV1kzZG43SG1vZFMxVlJHM2VqZz09">https://andover.zoom.us/j/92522173660?pwd=R0lzV1kzZG43SG1vZFMxVlJHM2VqZz09</a> Passcode: 017716
12:15-13:00	Theme Round	Online Portal
13:00-14:00	Lunch Break	N/A
14:00-15:45	Speakers Session	<a href="https://andover.zoom.us/j/97077953145?pwd=azM4dFRZdkVOTUEvN1VyMXdGdzJUT09">https://andover.zoom.us/j/97077953145?pwd=azM4dFRZdkVOTUEvN1VyMXdGdzJUT09</a> Passcode: 017716
16:00-17:00	Gunga Bowl	Google Forms link found on online portal
17:15-18:30	Problem Discussion with Prof. Po-Shen Loh*	Daily Challenge Website
18:30-19:00	Closing Ceremony	<a href="https://andover.zoom.us/j/97952265819?pwd=RDRNL1huUEpwbE9ueXpoWUJJWC9SQT09">https://andover.zoom.us/j/97952265819?pwd=RDRNL1huUEpwbE9ueXpoWUJJWC9SQT09</a> Passcode: 017716

**\*Instructions for signing up for Po-Shen Loh's Problem Discussion Session are at the end of the brochure**

If you are having technical difficulties at any point during the competition, please join our **Help Desk Zoom Room** (<https://andover.zoom.us/j/97778054477>) to get assistance from board members.

## Discord Hub

Students are able to interact with other participants online using our Discord server found at <https://discord.gg/f87E8Jt>. We will be posting regular updates and announcements through the server, and sponsors will also be hosting booths during the competition in the Discord server. More information about sponsor booths will be announced on the website and Discord server in future updates.

# Discord Sponsor Booths

## Daily Challenge Information Session @ 1pm ET

Daily Challenge will be hosting an information session on their Discord voice channel for anyone who is interested in learning competition math with Prof. Po-Shen Loh at **1pm ET** on October 10th, 2020.

Their representative Sonya Hammer will take you on a tour of understanding why Daily Challenge with Po-Shen Loh is the best online math course for middle school students from perspectives such as Prof. Loh's design intention, overarching goal, course series structure, and learning material presentation format.

Note: To encourage more students to explore math at a younger age, Daily Challenge was primarily created for students at the AMC/MATHCOUNTS Chapter level.

## Areteem Sponsor Booth @ 1pm ET

[\(From their website\)](#)

“Areteem Institute is an educational institution that develops and provides in-depth and advanced math and science programs for High School, Middle School and Elementary School students and teachers

With the guidance from experienced professors with infusing passion and enthusiasm, students are encouraged to explore deeper by identifying an interesting problem, researching it, analyzing it, and using critical thinking approach to come up with multiple solutions.

The programs are ideal for students who wish to win in Math Competitions (AMC, AIME, USAMO, IMO, ARML, MathCounts, Math League, Math Olympiad, ZIML, etc.), Science Fairs (County Science Fairs, State Science Fairs, national programs like Intel Science and Engineering Fair, etc.) and Science Olympiad, or purely want to enrich their academic lives by taking more challenges and developing outstanding analytical, logical thinking and creative problem solving skills. “

Come to their sponsor booth to learn more.

# Competition Format

The competition will consist of three team rounds. Team members may freely collaborate with the members of their team, but not the members of any other team. The problems on each round can be solved using only middle school mathematical techniques and every problem is computationally feasible without calculators. The use of any external source or aid, including calculators, online resources, computer programs, dictionaries, notes, or coaches is prohibited. All answers are non-negative integers and no answer will have a value greater than 1,000,000.

## General Round

A team competition, the General Round is a 20 question test to be completed in 40 minutes.

## Theme Round

A team competition, the Theme Round is a 20 question test to be completed in 40 minutes.

## Gunga Bowl

Inspired by the Harvard MIT Mathematics Tournament's Guts Round, the Gunga Bowl is a fast-paced race between teams - with a live scoreboard and timer. The Gunga Bowl is composed of 9 rounds of 3 problems (with point values) each, to be completed in 60 minutes. Each round can only be accessed after completing the previous round, with the goal to get as many points as possible by solving problems correctly.

## Competition Rules

No electronic devices or calculation aids (including calculators, phones, online resources, and computer programs) are permitted on any portion of the MOAA.

No mathematical texts or notes of any kind are permitted. Rely on your brain! Compasses, protractors, rulers, straightedges, graph paper, blank scratch paper, and writing implements are generally permitted, so long as they are not designed to give an unfair advantage.

Integrity is of the utmost importance in any competitive event. Any team discovered to be providing or receiving unauthorized aid by any means on any portion of the competition will be immediately disqualified and permanently banned from future editions of MOAA.

Any individual that interferes with or jeopardizes the fairness of the competition - including the grading and awarding process - may be disqualified. Any other participants affiliated with the individuals, such as their teammates, may also be disqualified.

# MOAA Contributors

**Tournament Directors:** Christina Li, Jeremy Zhou, William Yue, Nathan Xiong

**Associate Board:** Jessica He (Director of Registration), Arnav Bhakta (Director of Outreach), Jeffrey Shi (Webmaster)

**Faculty Advisor:** Mr. Khiem DoBa

**Invited Speakers:** Vivien Mallick (Director of Admission Operations at Phillips Academy), Po-Shen Loh (USA IMO Coach; Founder of ExpIi), Kevin Wang (Director of Areteem Institute), Anna Parfenov (Principal, RSM Andover), Justin Chang (MOAA Co-founder, RSM alumnus), Sofia Smirnov (RSM alumna, Andover '22), Kim Savery (Kumon)

**Problem Contributors:** Nathan Xiong, William Yue, Andrew Wen, Jeffrey Shi, Jessica He, Jeremy Zhou, Andy Xu

**Website Programming & Design:** Jeremy Zhou, Jeffrey Shi, Christina Li

**Brochure:** Christina Li, Jessica He, Jeffrey Shi

**Logo:** Stephanie Yang

## Acknowledgments

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Additional thanks to the Phillips Academy Math Department.

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# Sponsors

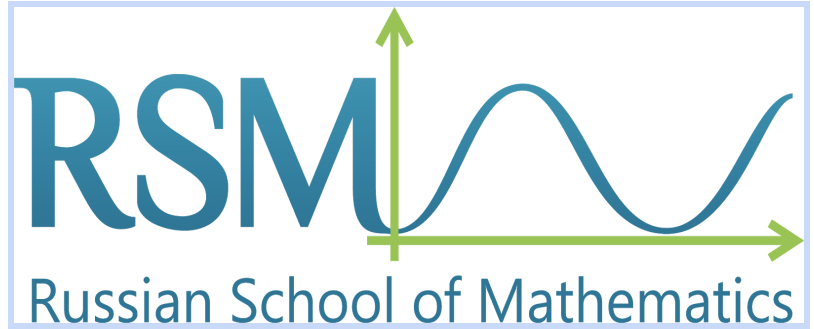


Daily  
**Challenge**

with Po-Shen Loh



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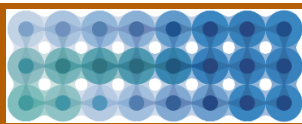
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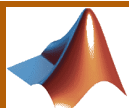
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**AoPS**

Art of Problem Solving

# —For Students—

## Before Competition Day:

1. Make sure that Zoom is downloaded
2. Have your parents help you sign up for Prof. Po-Shen Loh's Problem Review Session.   
(instructions at back of brochure)
3. **Make sure your team captain can log in** to our website portal - this is very important as answer submission will be online. Email [registration@andovermathopen.com](mailto:registration@andovermathopen.com) with any questions.
4. Decide on a way to collaborate during competition day (Zoom, FaceTime, etc.). The **MOAA will NOT be setting up zoom rooms for teams**, so you must decide on a way to communicate yourself.

## Instructions for Viewing Opening/Closing Ceremonies + Speaker Session

1. Click on the Zoom link at the specified time of the event.

## Contest Instructions for General and Theme Rounds

On the day of the contest, before General Round begins:

1. Team captain logs into the team portal on the website.
2. Team captain signs the honor code agreement.

At the start of each round (11:15am and 12:15pm, respectively):

3. The password-protected PDF copy of the round's problems is released under MOAA 2020 website page and via email.
4. Team captains distribute the password (found in submission portal at the start of the round) to their team members. The password will also be emailed to all team members.
5. Team collaborates together to solve problems.
6. **Only the team captain** types answers into submission form on the portal and must click submit before time is up.

## Contest Instructions for Gunga Bowl

1. Team captain logs into the team portal on the website.
2. At 4:00pm ET, the Google Forms link to the first set of Gunga Bowl problems is released.
3. Click on link, enter unique team ID (found on team portal), solve the first set of problems found under MOAA 2020 page, and submit answers.
4. Click on the Google Forms link to the next set of Gunga Bowl problems, which is found on the page after submission.

5. Repeat steps 3 and 4 until the 9th set is submitted or time runs out (at 5pm ET).

## Contest Times

**General Round:** 11:15am -12:00am ET (40 min and 5 min grace period for submission)

**Theme Round:** 12:15pm -1:00pm ET (40 min and 5 min grace period for submission)

**Gunga Bowl:** 4:00pm - 5:00pm ET (1 hr)

## —For Parents—

### Before Competition Day:

1. Make sure that Zoom is downloaded
2. Sign up for Professor Po-Shen Loh's (US IMO Team Coach) Problem Discussion Session. ([Instructions below](#))

### Instructions for Viewing Opening/Closing Ceremonies, Speaker Session, and Prof. Po-Shen Loh's Parent Talk

1. Click on the Zoom link at the specified time of the event.

## [Signing up for Prof. Po-Shen Loh's Problem Review Session](#)

### For parents who don't have an account on Daily Challenge's website yet:

**Step 1:** [Create an account](#) on the Daily Challenge with Po-Shen Loh website.

Fill in the information and click "Submit" on the account creation page.

The parent email will receive a message about COPPA within 5 minutes.

**Step 2:** Click the link in the COPPA email and pay 33 cents for age verification. An email with your account and password information will be sent to the parent and account email. (Parent and account email could be the same)

**Step 3:** Log in your account using the information sent in the most recent emails, enroll in this [special live course](#) (click enroll for free).



**Step 4:** On the day of livestream, log in your account and go to "My Dashboard", click on the course "Problem Review Session for MOAA" and follow the prompts to watch the online talk.

**For parents who already have a Daily Challenge account:**

**Step 1:** Log in your account and enroll in this [special live course](#) (this course is not showing on the website publicly because it's private, click enroll for free).

**Step 2:** On the day of livestream, log in your account and go to "My Dashboard", click on the course "Problem Review Session for MOAA" and follow the prompts to watch the online talk. If they have any questions about account creation and course enrollment, please email [support@poshenloh.com](mailto:support@poshenloh.com) for help!