

Nassau County Interscholastic Mathematics League

Guidelines for Coaches

Introduction

Teachers become mathlete coaches for different reasons, and have different expectations about topics such as how to manage the team, how much preparation time is needed, how many and what type of practices to run, and other issues. This guideline is intended to address some of these subjects. It is primarily directed at new coaches, but veterans should at least read it. It is decidedly not intended to impose restrictions on how a coach manages his or her team. If you are running a successful team, we applaud you! If, however, you think your team is not what it could be, you may find some useful ideas here.

There is a secondary purpose for this guideline. Some coaches were more or less told to take the math team for one reason or another. Some coaches receive woefully inadequate compensation for their time and expertise. This guide can be shown to a district's bargaining agent with the hope that when the time and effort expected from the mathlete coach are known, attempts can be made to obtain more adequate compensation. In this attempt, it may help to compare the math team to a sports team.

The methods for managing a team discussed below have been used for many years by successful coaches. Hopefully, you will find some of them useful. New coaches especially, who are unsure of what is expected of them, should get a good idea of the time and effort that the League feels is reasonable in carrying out your responsibilities. We stress again that these are guidelines, not mandates, the League does not want to dictate to or micromanage your team.

Practices

Practices should be held weekly, preferably on the same day and at the same time that the meets are held, so that the students – not always paragons of dependability! – can carve the time into their routines. Attendance should be taken and students should be encouraged to take attendance seriously. Refreshments should be served. Perhaps students can rotate the responsibility.

Many coaches find it useful to have team officers, usually chosen from veteran mathletes. They can be given many of the responsibilities of managing the team. In particular, they can run the practices. Each officer could present a number of problems relating to a topic such as number theory, combinatorics, probability, geometry, properties of functions, etc. The questions should be run by the coach prior to the practice to check for accuracy and level of difficulty. At the practice following a meet, solutions to the meet questions

should be given. An excellent addition to this would be for mathletes to generate extensions and generalizations of the meet questions. These should not be change-the-numbers extensions, but should identify and expand on the concepts underlying the meet problems. Alternate solutions to problems should be explored, and strategies for attacking non-routine problems should be developed. Occasionally, mathletes should be exposed to all-star or AMC level problems, which can increase their knowledge base and problem solving skills. The Resources section below gives sources for problems of varying difficulty.

Meets

The meets are an opportunity for students and coaches to interact with each other, as well as to attack the problems. It is good for refreshments to be served if possible, as this makes everyone feel a little more comfortable and at home. Although at times the logistics of gathering schools together for face-to-face meets can be daunting, meeting and interacting with students from other schools is one of the defining and distinguishing characteristics of the League. We would not be who we are if we gave up this practice.

Different groups have different ways of scoring the meets. Any way that assures accuracy and consistency is acceptable, but under no circumstances should a coach be alone in a room with only students from his or her school. The League believes in the integrity of its coaches, but a practice of having a coach from a different school present lessens even the appearance of impropriety, should problems develop.

Mentoring

It is a good idea to assign a veteran mathlete to each new team member. The veterans can encourage the younger students as they develop the background needed for the problems. In this way younger mathletes can, by hearing about the mentor's development over time, avoid getting discouraged by initially low scores at the meets.

Fund Raising

It may be useful to have a treasurer and to have some fund raising activities. The proceeds could be used for refreshments or other purposes. The purchase of t-shirts would improve team spirit and enhance community involvement in the team.

Public Relations

Try to get the activities of the math team known around the school and community. The sports teams are always covered in the school papers and announcements. Try to ensure the same coverage for the math team by submitting announcements or articles, hopefully written by mathletes, to the school paper. Another excellent forum, if your school has one, is the Principal's Newsletter. Since it reaches parents, it may generate community interest in the math team. This could have the benefit of increasing your stipend at contract time.

Other Activities

There are several other activities in which mathletes should be encouraged to participate. Some of them are the New York Math League (NYML), the AMC-10 and AMC-12

exams, the Nassau Mathematics Tournament (NMT), the Al Kalfus Math Fair, and the Student Symposium. See the Resources section below for specifics. Mathletes should also be made aware of the All Star Team and its two competitions, NYSML and ARML. The mathletes should be given a calendar showing these events at the beginning of the season.

Resources

Problems

- The League is currently updating the Mathlete Problem Book series. Volume 4 should be available in the not too distant future. Past volumes can be obtained by contacting Scott Drucker, Executive Secretary. He can be contacted at nciml.trim.net.
- Problems from past Math Tournaments are available from Nat Janof.
- For regular season level problems, a good source is the NYML problem books. See below for more information on NYML. There are currently four volumes available, priced at \$12.95 each. They can be ordered online at www.mathleague.com. You can also print out an order form at the website and order through the mail.
- Past AHSME, AMC-10 and AMC-12, AIME, USAMO, and IMO problem books are available from the Mathematical Association of America (MAA). Visit the MAA Bookstore section of their homepage www.maa.org, and go to the problem solving section. At last count there were 29 problem books listed.
- Past ARML and NYSML problem books are available at ARML. If you would like to order the latest edition, talk to one of the officers. Recent year's questions are available at ARML's website, www.arml.com.
- If anyone has another source of good questions, call David Phillips at 742-8365, email dphilli6@optonline.net.

Other Activities

- NYML, New York Mathematics League. NYML runs a mail-in contest for high schools, junior high schools, and elementary schools. Information is available at their website www.mathleague.com.
- Al Kalfus Math Fair. The Al Kalfus Math Fair, held each March and May at Hofstra University, is a competition in which students present research papers and compete against others in their grade. The winners of the preliminary round compete against each other in the final round. For more information, contact Joe Quartararo at 631-584-2016.
- The Mandelbrot Competition. The Mandelbrot Competition is a mail in competition consisting of four individual tests and four team tests. The four parts are held throughout the school year. More information can be found at their website www.mandelbrot.org.

- Visit the website www.bcpl.net/~lmoskowi/math.html for a directory of math contests.
- The Student Symposium, sponsored jointly by NCMTA and NCAMS, is a series of workshops presented by math teachers or supervisors, where students can learn about topics not covered in their classes. The Symposium rotates each year between grades 5 to 8 and 9 to 12. For more information contact NCMTA president Sal Scire at mathmedic@aol.com.

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