Making Your Math Team Successful

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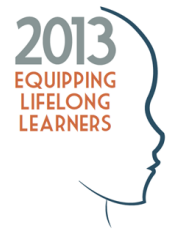

Outline

2013 EQUIPPING LIFELONG LEARNERS

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Meetings and Practices

Suggestions:

- Meet at least once a week
- Start as soon as possible in the school year
- Provide snacks on a random basis
- Open meetings to everyone
- Have students prepare topics to teach
- Always get students to explain problems
- Use old contests and tournaments
- Do NOT turn it into “quiet test time”

Meetings and Practices

What I do:

- Two meetings each week plus a make-up meeting
- Start on second week of school
- Cookies!
- First two months: teaching
- Rest of year: practice, contests, teaching
- JV and Varsity meet together

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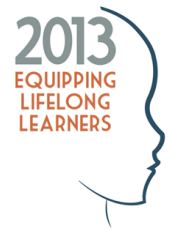
Contests: AMC

AMC – $19 per 10

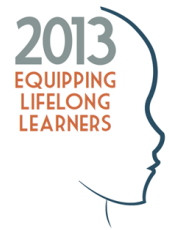
- The premier national math contest
- AMC10/AMC12, each offered twice
- All previous contests available in books
- AMC $\rightarrow$ AIME $\rightarrow$ USAMO
- Deadline to register is in November
- `amc.maa.org`



Contests: KSU

Kennesaw State University Contest – FREE

- The most important state-level contest
- Two parts:
  Part 1 is Oct 30 (25 multiple choice)
  Part 2 is Jan 28 (5 proofs)
- Awards ceremony in April at KSU
- Deadline to register is October 21
- `math.kennesaw.edu/happening/events/competition`



Contests: Math League

Georgia Math League – $75 per year

- The premier state-level math contest
- Contest has already begun
- All previous contests available in books
- Same contest across the nation; each state gives its own awards
- `mathleague.com`

Contests: Mandelbrot

Mandelbrot Contest – $35 for email delivery

- Five rounds of general problem-solving
- Deadline to register is October 29
- `mandelbrot.org`

Contests: PurpleComet

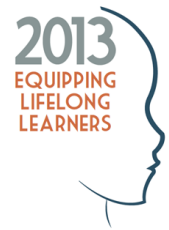
PurpleComet! Math Meet – FREE

- Team-oriented, 90-minute contest in April
- Problems retrieved and solutions submitted on-line
- `purplecomet.org`

Contests: Mu Alpha Theta

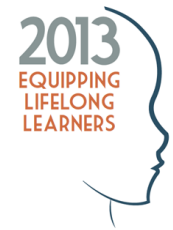
Mu Alpha Theta's Log 1 Contest – FREE

- Three rounds, each on a specific topic
- This year's topics:
  Round 1 - Sequences/Series or Functions
  Round 2 - Matrices/Vectors or Equations/Inequalities
  Round 3 - Miscellaneous topics
- Tests downloaded, results uploaded
- Participants must be members of MAΘ
- Deadline. . . ? First contest is in December
- `mualphatheta.org`



There Are Many Tournaments!

- North Fulton
- UGA
- Rockdale Magnet
- Mercer
- Luella HS
- Lassiter HS
- Vestavia HS (AL)
- Grissom HS (AL)
- GSW
- AASU
- CSU
- Augusta Regents
- MGSC
- Greater Atlanta Christian
- St. Valentine's Mathacre
- Georgia Tech
- UWG
- Georgia Southern
- College of Charleston (SC)
- Clemson (SC)
- Furman (SC)
- CVCC
- Walton MathFest



Which Contests Should We Do Then?

"Classroom" versus "Problem-Solving"

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"Classroom" versus "Problem-Solving"

"Classroom" MAΘ, Rocket City Math League

"Problem-Solving" AMC, Mandelbrot, PurpleComet

Half-and-half KSU, Math League

Which Tournaments Should We Do Then?

"Classroom" versus "Problem-Solving"

"Classroom" Mercer, GSW, CSU, MGSC, UWG, Ga Southern

"Problem-Solving" Fulton, Rockdale, Lassiter, UGA, Furman

Half-and-half AASU, Luella, Vestavia, Georgia Tech, Clemson

Outline

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Coaching is Key

- Pair students with appropriate tournaments/contests
- Pair students with appropriate “teachers”
- Don’t ever discourage
- Work the problems the students work as they work them
- Get to know the students!

Math Team Points – a Reward System

- Keep a spreadsheet to record:
  - attendance
  - contest results
  - tournament results
  - practices
  - anything else
- Use the data to make decisions and give awards

`Math Team Points Page`

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Run Contests of Your Own

- Easily adapt old tournaments/contests to create your own
- Offer prizes to encourage students
- “Rockdale Magnet Math Contest”

Rockdale Contest Round 2

Math Team Contest Problems

SECOND ROUND

2.1 In right triangle ABC, angle C is the right angle. The altitude from C is constructed to side AB, where it intersects it at D. Given that $AD = 9$, and that $DC = 12$, find the area of triangle ABC.

2.2 Compute the following sum: $1^2 - 2^2 + 3^2 - 4^2 + \cdots - 100^2$.

2.3 $ABCDEF$ is a regular hexagon of side length 8. A new regular hexagon $GHIJKL$ is constructed by connecting the midpoints of consecutive sides of $ABCDEF$. What is the area of the new hexagon $GHIJKL$? Give your answer in simplified radical form.

2.4 The physicists at Imaginary Equipment Inc. have developed a superball that bounces up 99.99% of the distance from which it was dropped, on any surface. In the laboratory, the scientists accidentally left it bouncing straight up and down and forgot about it. Assuming that nothing impeded its bouncing, and that it was initially dropped at a height of 4 inches, how many inches will this ball travel? Round your answer to the nearest integer.

2.5 Triangles ABC, DEF, and GHI are all similar to each other. Triangle GHI is a right triangle, with angle G being the right angle. In triangle DEF, $DE = 15$ and $EF = 17$. If the area of triangle DEF is half of the area of triangle ABC, and the area of triangle ABC is eight times that of triangle GHI, what is the

Seminars

- Teach fascinating topics not in the curriculum
  - Modular arithmetic
  - Counting paths and combinatorics
  - Binary/octal/hexadecimal
  - Advanced geometry (Stewart's theorem, etc)
  - Pigeonhole principle
  - Graph theory

YOU Keep Interest Alive!

- Have a plan and execute that plan

YOU Keep Interest Alive!

- Have a plan and execute that plan
- Be excited
- Be enthused
- Be encouraging
- Be accepting when kids can't or won't show up
- Be fun

Thank you!

This presentation, with active hyperlinks, will be posted at

`http://www.drchuckgarner.com`

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