

Math Wrangle

MathAmigos & SFPS Teacher Workshop

Milagro Community School, 12 November 2022

Session Leaders: James Taylor, MathAmigos jtaylor505@gmail.com & Geoffrey Moon
gmoon@sfps.k12.nm.us

Why math wrangles?

In a limited way, math wrangles are a kind of competition. In other ways, they are richer, deeper ways to engage students in both mathematical thought and communication. And unlike competitions, nearly all students find math wrangles *fun*!

A math wrangle is a *mathematics debate*. This is not as strange as it sounds. In its standard form, teams of students go off into rooms to study a set of eight problems, then return to the debate setting and the coin toss. The winning toss permits the team to challenge the opponents to solve one of the problems. That team may accept, and a member presents their solution, deals with any rebuttal to their solution, and judges award points. There is more to it, but in my experience students *love* the experience. Mounting a team requires training and practice, as does any debate program.

The benefits? Not only do students get to solve hard problems, but they do it in a competitive team setting. In a wrangle, no one student may present a solution more than once – everyone on the team must understand the solutions. Students must listen carefully to the opposing team's presented solutions, since someone on their team will have to critique that solution for correctness and thoroughness of presentation. Each student must learn to present a mathematical solution clearly and using proper mathematical language. To not do so risks losing points to the opposing team or to the judges.

Getting started

- More detail about format:
 - Challenges and tossing challenges back. 7 & 10 points. Judges' role. The presenter by default gets the most points unless incorrect, etc.
- We have four slightly experienced wranglers:
 - Malcolm, Jenifer, Jackie, and Ximena
- You'll form 2 teams of 5, a pair of each of the above partnered with 3 more or you!
- Each team will have 25 minutes to:
 - solve the problems
 - prepare solutions
 - discuss presentation
 - discuss strategy
- No individual may present more than once!

MathAmigos

Good luck!