

Math Wrangle – What to Bring

American Mathematics Competitions

August 8, 2012

1. The Math Wrangle rules in this book are intended to be guides, not absolute requirements to be followed exactly. Be flexible and adapt the rules to your students and your circumstances. This book includes a couple of variations on the “standard” Math Wrangle to illustrate what others have done with the general idea of competitive problem solving and presentation.
2. In the preparation phase when the students are solving the problems in order to present them later, it may be useful to remind or even emphasize to students that they may work collaboratively to solve the problems. One difference between a Math Wrangle and a traditional mathematics competition is the team aspect allowing for collaboration in contrast to individual problem solving.
3. In the preparation phase when the students are solving the problems in order to present them later, the organizers may allow students to use calculators, computers, reference books, formula sheets or other external aids. However the only aid allowed in the presentation phase should be the student’s notes. A difference between a Math Wrangle and a traditional mathematics competition is that the Wrangle emphasizes problem presentation and the need for the student to thoroughly understand the solution. Finding a solution in a timed situation may be easier with a calculator or computer.
4. Have the problems copied for the audience, or project the problem set on a screen or wall. Then the students will not have to repeat the problems. Also, the exact formulation of the problem is available for the judges and audience to compare to the presented solution. Projecting

the problems will require a separate projector, in addition to the one used for the presentations.

5. Have copies of the “official” solutions available to hand out to participants and the audience *after* the Wrangle is over. Have copies of the official solutions available for the judges, even during the preparation phase so the judges can quickly familiarize themselves with the problems and solutions. After the Wrangle, emphasize the learning opportunity the solutions provide with concise, elegant written methods, sometimes even using neat tricks or special insights.
6. In the preparation phase when the students are solving the problems in order to present them later, at the organizer’s discretion the students may write the solution on overhead transparencies. This improves the speed and efficiency of the presentation.
7. In coaching students for a Math Wrangle, an important skill to develop is board organization, or equivalently how to use an overhead transparency effectively. Writing on a blackboard or whiteboard should proceed top to bottom, left to right. Writing on an transparency should proceed top to bottom. Avoid crossing out, scribbling over, over-writing, writing in corners, and other bad habits that make the presentation messy and hard to follow.
8. Training and practice are essential. Even good students usually aren’t prepared to speak publicly about mathematics, especially hard mathematics or problems that are unfamiliar. Emphasize and coach all the usual public speaking skills such as eye contact, speaking clearly and audibly to a roomful of spectators, logical order of arguments and not blocking the board or screen.
9. Have the presenter and rebutter standing during the rebuttal and when the judges are addressing questions to both participants.
10. Since Math Wrangles are new and unfamiliar to most participants and audience members, the organizer should provide a quick sketch or overview of the Wrangle procedures.
11. A job of the timekeeper is also to post the scores and clear the board or overhead projector in preparation for the next round. This is typi-

cally done in the minute or two while a team prepares a response to a challenge.

12. For an efficient running of a Wrangle, plan on having at least two “adults”, one a time-keeper, the other a judge. Having a panel of judges is desirable if enough capable individuals are available.
13. In order to keep the Wrangle running efficiently and effectively, it may be necessary to impose a sort time limit (say two minutes) for the judges to reach a conclusion.