Advice for Participants

Advice for coaches from coaches

**Team selection**
The best students are those who have demonstrated that they are not only good at math, but have an excellent work ethic and are up to the challenge of working all day on a problem they may find extremely difficult.

Teams should have students with a variety of key qualities, such as research capability, leadership skills, and writing skills; look for both logical and outside the box thinkers.

**Student preparation**
Show your students the videos of the winning teams presenting their solution papers or giving advice. Students tend to have more confidence in their ability to handle this competition after they see that the Challenge is “doable.”

Prepare students for the rigor and commitment of the day.

Go over past problems with your students and have them critique the winners’ solution papers. Then ask them to suggest what they would have done with the problem.

**Final thoughts**
Emphasize the importance of time management. Students often spend too much time looking for information; they need to move on to the math at some point.

Students need to be able to work on multiple aspects of the problem at one time.

Ensure that Internet filters at the team’s work location are not a problem and that students check their equipment in advance.

Advice for students from students

Basic knowledge of statistics is a great help. Using proper English and doing some practice problems from previous challenges are also helpful.

Bring an open mind along with knowledge in many different fields of mathematics, as you never know how many different approaches you can take to a problem.

Be creative and don’t hesitate to throw in seemingly outrageous ideas.

Form your teams with students who work well together, prepare well, pace yourself, and proofread.

It’s easy to get distracted. Make a plan.

The best papers every year are those that show the validity of their solutions through rigorous mathematical tests.

Try to have at least an idea of how you will divide the labor throughout the day. Before you begin, select a team captain, and maybe even a co-captain. Make sure everyone has faith in these people and agrees to go along with their leadership.

It’s likely you will get a topic that you know little to nothing about. Make sure you are ready to dig for data before starting your modeling work.

Advice from the organizers

Read the rules and guidelines carefully. The solution paper guidelines are particularly important. Things like providing a summary, not putting your team name on the paper, and uploading the correct file type are well within your control and can have a significant impact on whether or not your solution paper advances.

Read the judging perspectives for each year in the archives on the M3 website. These documents, written by an experienced judge, give unique insight into how the solution papers are scored, and provide the framework for using math-modeling as a tool to solve the Challenge problem.

Check out the winning solutions from past Challenges. These are great resources that demonstrate what the judges look for in an outstanding solution paper. Understanding what it takes to write a winning solution will give you a chance to plan ahead and develop strategies for your Challenge day.

With a little advance review of the materials freely available on the M3 website, your team can prepare for success.

Have fun and good luck!