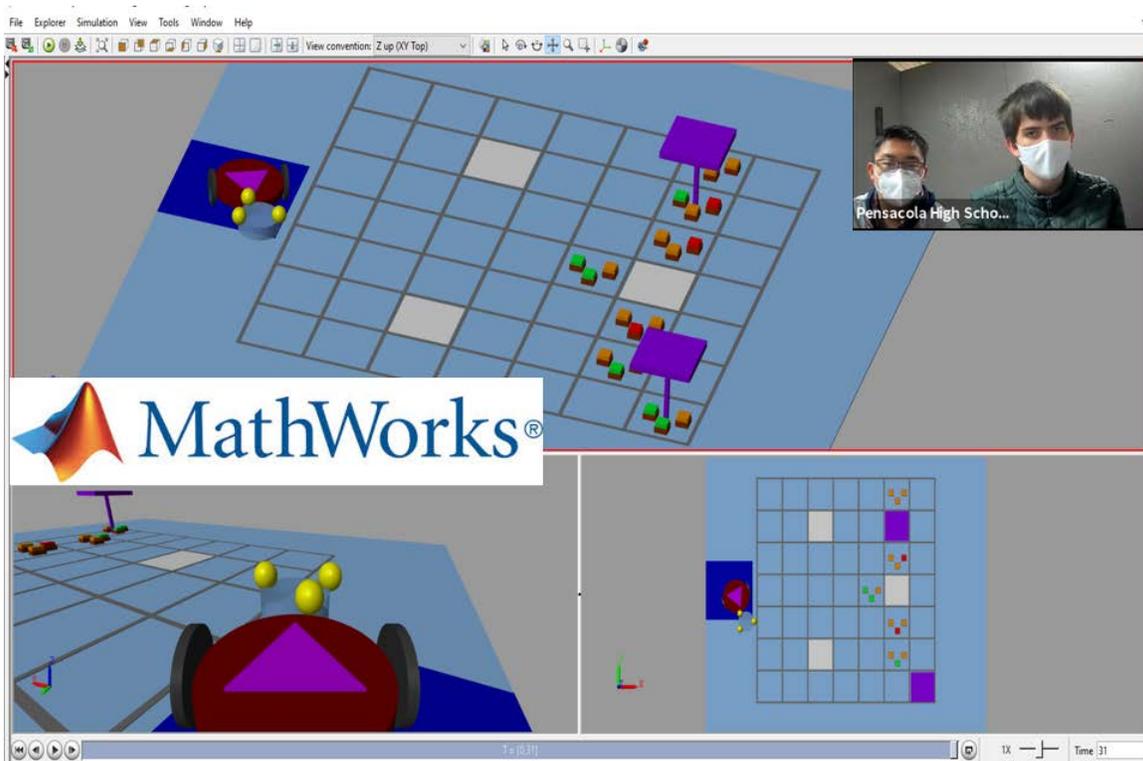


# DEMOMAZE

 BEST ROBOTICS

We are excited to be offering **BEST Online**, a new comprehensive program that will challenge students in many of the skills they learn during a classic BEST competition. This is no normal season, as we all know. BEST Online is a program that we are confident can be delivered regardless of location or restrictions. As the situation with the virus changes often, we are ready!



## What is BEST Online?

It is our fully online delivery method for the BEST robotics program. All activities are performed online. This delivery method allows us to be confident in delivering a quality program that will not be influenced by location or restrictions. The activities are designed such that they can be performed by students collaborating in person or remotely, depending on your situation. It includes all the activities that you are familiar with in the classic BEST competition and several additional online skills challenges that will expand the students' knowledge and their skill levels.

## **How is the BEST Online competition unique?**

### **Schedule/Timeline**

The competition timeline has been extended to 8-weeks from Kickoff to Game Day. This extension is to allow more flexibility for our hubs in scheduling and to provide teams with more time to complete the additional skills challenges presented.

### **Designing/Building the Robot**

There are no robot kits, no physical field, and no robot construction. Your team **MUST STILL** design a robot to solve the game "problem". Your team will present final details of their robot design to the judges in a Critical Design Review (CDR) held in the final week of the competition. Teams are allowed to perform physical prototyping, as permitted by your situation, and any modeling (physical, computer, mathematical) that you desire to help in explaining your robot design.

### **Virtual Robot on a Virtual Game Field**

Your team will demonstrate robot performance through our unique Autonomous Programming Challenge. This challenge consists of programming a virtual robot to complete tasks on a 3D virtual game field, very similar to the *Demo Daze* physical field. All tasks must be completed autonomously; there will be no driver-controlled operation of the virtual robot. The same Demo Daze game field is simulated in a virtual environment, with some unique objectives and some additional challenges not seen in the physical game. New sensors are introduced that take your virtual robot beyond the physical robot capabilities. But don't think this is just playing a simple video game....it is much more challenging! We will show you how to stream this activity so that parents, teachers, mentors, friends can watch your team's skills from anywhere! No need to travel! Grandpa can watch from North Dakota.

### **Familiar BEST Activities**

The same BEST Robotics activities you are familiar with will continue in our BEST Online competition.

*Engineering Notebook* - no change to this traditional deliverable documenting your engineering process, industry research and game strategy.

*Marketing Presentation* - same criteria as in the Classic competition but it will be hosted as an online meeting with judges.

*Virtual Team Exhibit* - your team exhibit has gone virtual! Learn how to turn your exhibit into an online showcase of your publicity and community relations activities. We even have a way for your team to video chat with the public at the times you choose.

*Student Interviews* - student interviews with judges will be accomplished at scheduled times through an online meeting with the team.

### **Skills Challenges**

Additional skills challenges are included in the BEST Online competition that will test your students' skills and knowledge and enhance their overall experience. Each is an exciting new opportunity to expand your students' education.

*BESTMania IQ Challenge* - So you think your students are pretty smart, eh? Let them try the weekly BESTMania IQ Challenge, collect points for their team and learn a few new things along the way. Lots of twists and turns and ways to boost their score each week. They can also earn points all week long through the MathZing Prep challenges; SAT and Grade8 math prep for points! Join the games at <https://www.mathzing.com/bestmania.php>.

*BEST Minecraft Challenge* - Yep, you guessed it, a Minecraft game modeled after our 2021 game, Demo Daze! Get online, compete as a team, beat the clock to score as many points as you can. Solve puzzles and learn more about the game theme and real-world implications as you try to achieve milestones and create new materials. Anyone can play, but your game time is limited so play wisely!

*Robot Modeling Challenge* - Take your team's robot design to the next level. Model it in a 3D environment where you can simulate its movements. Maybe your students are skilled enough to demonstrate it in action on the Demo Daze virtual game field! Import from CAD tools or model it from scratch in Mathworks Simscape Multibody environment. Take your time, do as much as you can, earn points for each accomplishment.

*Engineering Drawings Challenge* - Many teams already use Computer Aided Design (CAD) in the development of their robot. Let them take it one step further and create masterful drawings that will win this award! Engineering drawings are important throughout industry. Learning how to produce proper drawings will be an incredible boost to their resume.

*Website Design Challenge* - Your students can learn how to design a website and earn points for the skills they demonstrate. They can use this platform to learn how to program in a variety of languages including HTML, CSS, Java, Python, and others. Help them tap into their artistic side to create a visually appealing and functional website. Website design is a great skill to have in their portfolio. It's all about the design!

*Video Design Challenge* - Video is a common tool we use every day it seems. All our mobile devices have video cameras. But there is an art (and great skill) in creating a good video. Students can learn about the basics of photography and videography as they develop a custom video on one of our select topic areas. They could be crowned Master of Video Design!

### **What do I do now?**

Find a hub offering BEST Online and register your team to participate at the [BEST National Registry](#).

BEST Robotics is working tirelessly to provide our students with the best opportunities and education possible during these difficult times. We encourage everyone to not let this difficult time change that. Adapt and overcome...be a part of the solution!



<http://www.bestrobotics.org>

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