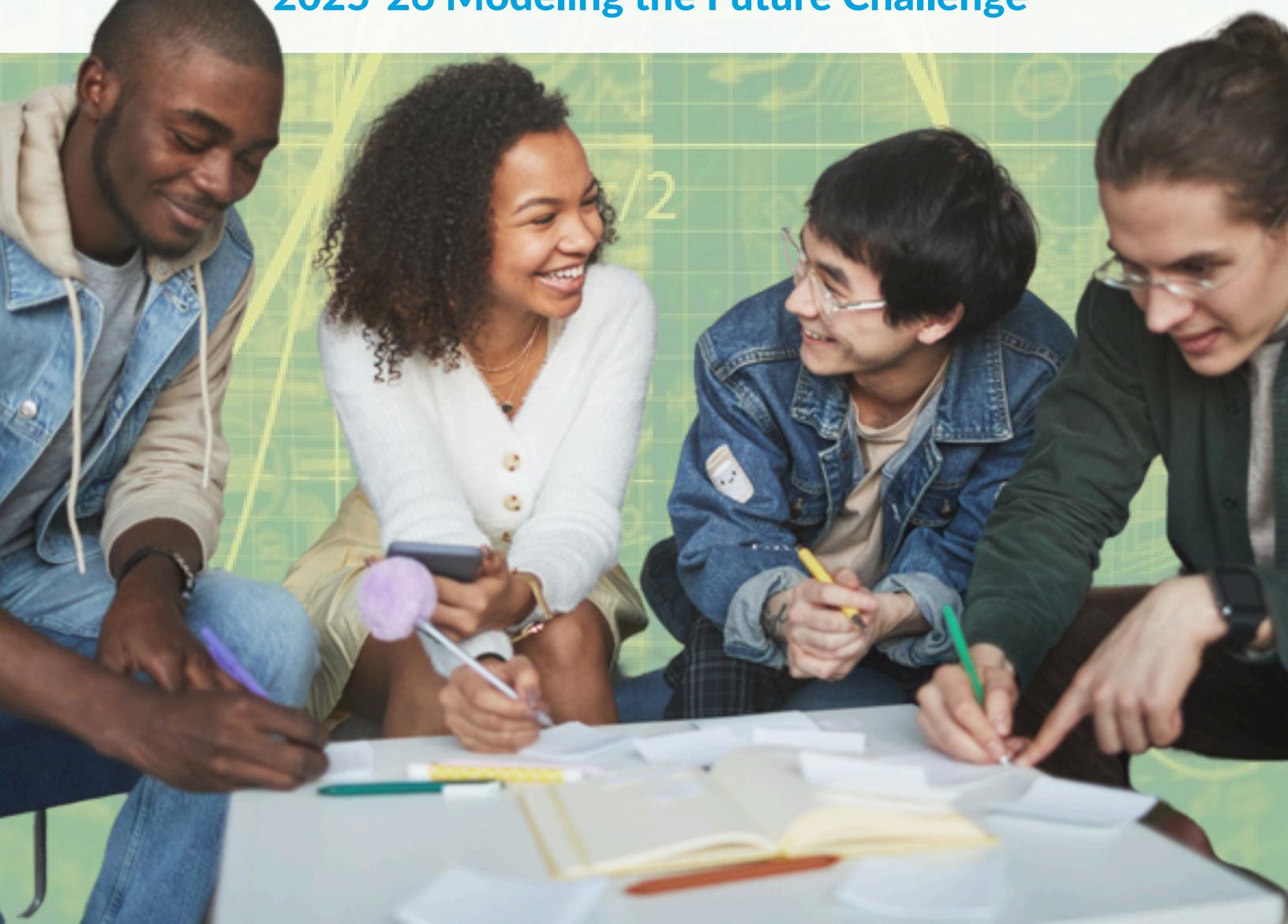




# Scenario Phase Guide

2025-26 Modeling the Future Challenge





A Program of The Actuarial Foundation

## Modeling the Future Challenge

### Welcome to the 2025-26 MTFC Scenario Phase!

The Modeling the Future Challenge (MTFC) is one of the premiere competitions for high school students in the USA focusing on mathematical risk analysis. The long-form competition structure allows for deep problem/project-based learning experiences, authentic audience with actuarial mentorship, math modeling and risk analysis, and opportunities for various modes of communicating results.

You have embarked on an exciting endeavor that will challenge your mathematical range, critical thinking, and creativity. To help you through the process, the MTFC management team has created a number of resources for you. You can find most of these resources on the Challenge website under the Resources page.

To complete the MTFC Scenario Phase, you are required to submit a Scenario Quest Response and a Team Project Proposal using the ICS Competition Management Platform that your team used to register. Details on the submission requirements for the Scenario Phase are included in this guide.

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Congratulations on taking the first step into the world of risk analysis and mitigation - skills that you will be able to use for the rest of your life. We look forward to supporting you throughout this process and watching you Model the Future!

# Overview: 2025-26 Challenge Milestones

The MTFC takes place over the 2025-26 academic year in three phases with virtual events, submissions for each phase, supplemental resources, and support provided by Challenge staff and actuarial volunteers. Expanded details on each phase can be found in the following pages.



# Structure & Overview of the MTFC

## PHASE 1: SCENARIO PHASE (SEPTEMBER – EARLY DECEMBER)

In the Scenario Phase, teams of 1-5 high school students complete and submit the Scenario Quest. The Scenario Quest is structured into 5 sections (corresponding to each step of the Actuarial Process), includes prompts on a given scenario and provided data set (diabetic claims and prevalence trends). Teams also complete a short Project Proposal by responding to prompts on a project topic of their choice. Teams must receive a passing score (based on completion & thoroughness) on the Scenario Quest and Project Proposal to move on to the next phase of the MTFC.

Teams passing the Scenario Phase are recognized as Modeling the Future Challenge Semi-Finalists and move on to the Project Phase to fully develop the project topic they identified in the Scenario Quest.

### 2025-26 Scenario Topic

**Mitigating risks to  
corn farmers in Iowa**



## PHASE 2: PROJECT PHASE (LATE DECEMBER – EARLY MARCH)

Teams qualified for the Project Phase conduct their own MTFC research project using real-world data and math modeling to analyze risks and make recommendations on risk management. **The MTFC is again using an open-theme for the 2025-26 program where students can define their own project!** Teams are strongly encouraged to use their Scenario Phase Project Proposal for their project topic (i.e. not the Iowa corn topic).

*Although teams have identified a project topic prior to the Project Phase as part of their Scenario Phase submission with their Team Project Proposal, they are permitted to change the topic (in part or in whole) at any time without penalty.*

On the MTFC website, publicly accessible datasets have been identified within a variety of research areas. Teams are not required to use any specific datasets, and can identify their own topics and datasets beyond those we provide as references.

In the Project Phase, teams work with an actuarial mentor to provide high-level guidance on their project. Mentors meet virtually with teams two to three times during the project period. Teams submit their research report at the conclusion of this phase to be eligible for the Finalist spots, Finalist Regional prizes, National Symposium, and scholarship awards.

### Project Phase Update

- ✓ Student Finalist Swag from University Partners



## PHASE 3: PRESENTATIONS (LATE MARCH – EARLY MAY)

Teams selected as Finalists will have approximately two weeks to revise their papers and submit their videos. The Finalist teams will have a chance to address actuarial judges questions on their project report live for the virtual MTFC National Symposium.

*At the virtual Symposium, teams meet other like-minded students, mix with professional actuaries, and compete for the final MTFC scholarship awards including \$55,000 in college scholarships.*



# Scenario Phase Timeline Overview



## MILESTONE:

**Challenge Registration Opens**  
Monday, August 25, 2025  
via ICS Dashboard

August



## LIVE EVENT:

**2025-26 Challenge Launch**  
Monday, September 8, 2025  
6:00-7:00 PM Eastern via Zoom

[Zoom Link](#)

September



## LIVE EVENT:

**Scenario Phase Workshop**  
Wednesday, October 8, 2025  
6:00-7:00 PM Eastern via Zoom

[Zoom Link](#)

October



## MILESTONE:

**Challenge Registration Closes**  
Sunday, November 9, 2025

## LIVE EVENT:

**Student Office Hours Scenario Phase Submissions Q&A (Optional)**  
Wednesday, November 19, 2025  
12:00-2:00 PM Eastern via Zoom

[Zoom Link](#)

November



## SCENARIO PHASE SUBMISSIONS DUE:

Submit Scenario Response, Project Proposal, and Participation Waivers  
Monday, December 8, 2025 on ICS Dashboard  
by Noon Pacific (**note the mid-day deadline!**)



## LIVE EVENT:

**Semi-Finalist Announcement**  
Monday, December 15, 2025  
6:00-7:00 PM Eastern

[Zoom Link](#)

December



In this webinar, teams will be oriented to the Challenge with inspiration and perspective on risk mitigation from various experts.



In this webinar, teams will be oriented to the MTFC Scenario Phase and familiarized with the MTFC Scenario Guide and materials, Submission Guidelines, information on this year's Scenario theme, and tips on brainstorming your own project topic. This webinar will be recorded and shared with Scenario Phase teams.

After teams have submitted their MTFC Scenario Response and Team Project Proposal, the Challenge staff will evaluate those submissions based on completion and thoroughness. The qualifying teams selected as Semi-Finalists to move forward in to the Project Phase of the Challenge will be announced at this webinar along with important Challenge next step announcements. This webinar will be recorded and shared with teams.

# Scenario Phase Submissions

There are **THREE** total submission items for Phase 1: Scenarios in the MTFC that are used to determine advancement to Phase 2: Project Phase of the MTFC. See the [ICS Dashboard](#) for submission spots and templates.

- **Scenario Quest Response** (1 Scenario Quest completed for the entire team; Topic: Corn Farming)
- **Project Proposal** (1 Project Proposal completed for the entire team; Topic: Team Choice)
- **Participation Waiver** (1 waiver completed for each team member & their coach)

All files can be found on the ICS Dashboard: [competitionsciences.org](#) → Dashboard → My Teams → Select your team → Rounds & Submissions → Round 1: Scenario Phase.

## Scenario Quest Response

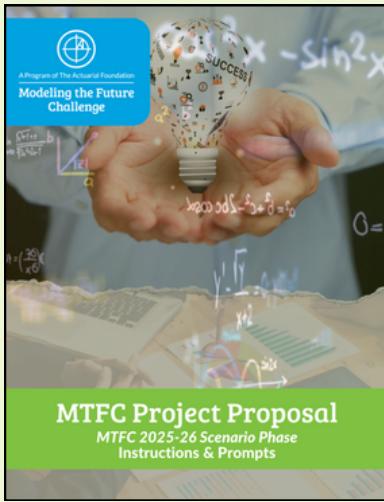


**Scoring:**  
60 points total

The **response to the Scenario Quest prompts** should be clearly numbered, organized in order, and compiled into a single file to be submitted on the ICS Dashboard.

- Suggested length: Each prompt includes response length instructions.
- A Google Doc template document for submissions can be found on the ICS Dashboard. Its use is not required but is an additional resource for teams who choose to use it.

## Team Project Proposal



**Scoring:**  
15 points total

The **response to the Project Proposal prompts** should be clearly numbered, organized in order, and compiled into a single file to be submitted on the ICS Dashboard.

- Suggested length: 1-3 pages, each prompt includes response length instructions.
- A Google Doc template document for submissions can be found on the ICS Dashboard. Its use is not required but is an additional resource for teams who choose to use it.

## Participation Waiver

I have read the above Participation Agreement and agree to be bound by its terms. Participants under 18 years of age must have this Participation Agreement also signed by a parent or legal guardian.		
<b>Section A:</b> To be completed by all Participants (Coach, Student, etc.) First and Last Name of Participant (print): <input type="text"/> Signature of Participant: <input type="text"/> Date: <input type="text"/>		
<b>Section B:</b> To be completed by Participant's Parent/Legal Guardian (if Participant is under 18 years of age) First and Last Name of Parent/Legal Guardian (print): <input type="text"/> Signature of Participant's Parent/Legal Guardian: <input type="text"/> Date: <input type="text"/>		
<b>Section C:</b> Contact Information of Participant (to be completed by all Participants (coach, student, etc.)) Street Address: <input type="text"/> City/State: <input type="text"/> Zip: <input type="text"/> Phone: <input type="text"/> Email Address: <input type="text"/>		
<b>Section D:</b> Modeling the Future Challenge Team Information (to be completed by all Participants) MTFC Team Name: <input type="text"/> MTFC Team Coach's Name: <input type="text"/> MTFC Team 5-digit ID Number: <input type="text"/> MTFC Team Coach's Email: <input type="text"/> Current Grade Level of Student Participant: ("NA" if not applicable) <input type="text"/>		

**Scoring:**  
Completion Required

The **MTFC Participation waivers** should be completed by **EACH** team member **AND** adult coach.

- Participants under age 18 are required to have a parent/guardian signature.
- The waiver can be uploaded as a picture or PDF.

All Scenario Phase Submissions Deadline:



Monday, December 8, 2025  
Noon Pacific  
(note the mid-day deadline!)



Questions?  
[challenge@mtfchallenge.org](mailto:challenge@mtfchallenge.org)

# MTFC Resources



## MTFC Resource Library: [mtfchallenge.org/resources](https://mtfchallenge.org/resources)



The MTFC Resource Library has a wide variety of free resources that assist teams in orienting to the Challenge, 5 steps of the Actuarial Process, and navigating each phase of the Challenge (especially during Phase 1: Scenario Phase!).

Official 2025-26 Challenge materials with submission instructions can be found after registration: [mtfchallenge.org/register](https://mtfchallenge.org/register).

### The MTFC Resource Library includes:

- The Actuarial Process Guide (APG), the primary resource for the MTFC. This robust guide lays out the core structure of how to successfully identify, analyze, and manage risks to conduct a successful MTFC Project.
- A Resource Library page dedicated to each of the 5 steps of the Actuarial Process. Each page is structured with sections for:
  - **Orient** - A short orientation video and slide deck introducing each step and a variety of one-page resources highlighting skills or expanding on the material from the APG.
  - **Observe** - Example Scenario Quest (with answer key and data) and Sample Project Proposal for teams to explore as they prepare to tackle the Scenario Phase submission materials for the current Challenge.
  - **Onward** - Additional videos, examples, and resources that correspond to each step of the Actuarial Process.
- Additional resources include example project topics, a curation of reputable data sources across a variety of topics and more!

## Mentorship & Live Events: [mtfchallenge.org/all-events](https://mtfchallenge.org/all-events)



Regular, live, virtual events are held throughout the MTFC to orient and support teams through each phase of the Challenge. Events include college and career connections with speakers from professional actuaries, university professors and actuarial science undergraduates, and other professionals in related risk management fields such as NASA and FEMA.

In the Project Phase, teams who advance as Semi-Finalists will be given the opportunity to meet virtually with volunteer actuaries who can assist teams with their risk modeling projects.

# Scenario Phase: Coach Role



The MTFC Coach can be a teacher, parent, or other invested adult.

Expertise in mathematics or actuarial science is not required. The main role of the MTFC coach is to serve as the point of contact between the student team members and the Challenge and facilitates their team's successful completion of the required tasks for a phase of the Challenge in adherence with the Challenge Rules ([mtfchallenge.org/rules-and-eligibility](http://mtfchallenge.org/rules-and-eligibility)).

## COACH ADMINISTRATIVE TASKS

- Register team(s) & supervise Challenge milestones & submissions (**required**)
- Serve as point of contact between teams & Challenge staff (**required**)
- Attend live Challenge webinars (**recommended**)
- Attend both virtual mentor meetings with teams in Project Phase (**required**)
  - NOTE: A coach can have a parent attend a virtual mentor meeting in their place if they are coaching multiple teams and times overlap.



## COACH ROLE & TIME COMMITMENT ESTIMATES

Coaches have a variety of ways that they can approach the MTFC with their teams as a “hands-off” point of contact, casual facilitation with teams participating in extra-curricular or optional settings, or active facilitation incorporating the MTFC into their courses or classroom curriculum. In each case, the MTFC Coach provides the opportunity for teams to participate and supports their successful completion of the project, but the modeling work is entirely completed by the MTFC student team members themselves.



**Casual facilitation:** estimate a minimum of 3-8 hours of coach time over the year.

*This approach works well only for highly self-motivated teams.*



**Active approach:** estimate a minimum 10-20 hours of coach time over the year.

*This will require at least one hour per week during the project phase.*

## TEACHER & COACH MTFC COMMUNITY OF PRACTICE

The MTFC Community of Practice (CoP) is an informal group of coaches that collaborates by exchanging best practices and generating new insights and initiatives to enhance the Modeling the Future Challenge. Feedback from attending teachers and coaches results in the action plan for creating math modeling videos in collaboration with mentors, coordinating with experienced coaches in sharing their best practices with timelines, strategies, and implementation materials, and updating the Challenge's resource library materials including scaffolding guides and creating pacing guidelines to help coaches plan and stay on track in the phases.

Have ideas to share? Want to connect with other coaches? Reach out! [challenge@mtfchallenge.org](mailto:challenge@mtfchallenge.org)



## Scenario Phase: Sample Suggested Pacing Guide

Timeframe	Challenge Milestone	Suggested Pacing 2025-26 MTFC Scenario Phase
<b>Week #1</b> 9/8 - 9/12	<b>September 9 - Registration Opens &amp; Virtual Challenge Launch Webinar</b>	<ul style="list-style-type: none"><li>• Register team</li><li>• Attend Challenge Launch Webinar or watch recording</li></ul>
<b>Week #2</b> 9/15 - 9/19		<ul style="list-style-type: none"><li>• Explore MTFC Resource Library (Start Here)</li><li>• Read Actuarial Process Guide (APG) Overview</li></ul>
<b>Week #3</b> 9/22 - 9/26		<ul style="list-style-type: none"><li>• Coach attends CoP workshop (<i>Recommended</i>)</li><li>• Read Step 1: Project Definition in APG</li><li>• Explore Step 1 on Resource Library, complete/read Step 1 in the Practice Flooding Scenario &amp; Sample Project Proposal</li></ul>
<b>Week #4</b> 9/29 - 10/3		<ul style="list-style-type: none"><li>• Read Step 2: Data ID &amp; Assessment in APG</li><li>• Explore Step 2 on Resource Library, complete/read Step 2 in the Practice Flooding Scenario &amp; Sample Project Proposal</li></ul>
<b>Week #5</b> 10/6 - 10/10	<b>October 9 - Virtual Scenario Phase Workshop</b>	<ul style="list-style-type: none"><li>• Read Step 3: Math Modeling in APG</li><li>• Explore Step 3 on Resource Library, complete/read Step 3 in the Practice Flooding Scenario &amp; Sample Project Proposal</li></ul>
<b>Week #6</b> 10/13 - 10/17		<ul style="list-style-type: none"><li>• Read Step 4: Risk Analysis in APG</li><li>• Explore Step 4 on Resource Library, complete/read Step 4 in the Practice Flooding Scenario &amp; Sample Project Proposal</li><li>• <b>Brainstorm team project proposal topic idea</b></li></ul>
<b>Week #7</b> 10/20 - 10/24		<ul style="list-style-type: none"><li>• Read Step 5: Recommendations in APG</li><li>• Explore Step 5 on Resource Library, complete/read Step 5 in the Practice Flooding Scenario &amp; Sample Project Proposal</li><li>• <b>Conduct some background research on team project topic</b></li></ul>
<b>Week #8</b> 10/27 - 10/31		<ul style="list-style-type: none"><li>• <b>Complete Step 1 in 2025-26 MTFC Scenario Quest Response</b></li><li>• <b>Complete Step 1 in 2025-26 MTFC Team Project Proposal</b></li></ul>
<b>Week #9</b> 11/3 - 11/7	<b>November 10 - Registration Closes</b>	<ul style="list-style-type: none"><li>• <b>Complete Step 2 in 2025-26 MTFC Scenario Quest Response</b></li><li>• <b>Complete Step 2 in 2025-26 MTFC Team Project Proposal</b></li></ul>
<b>Week #10</b> 11/10 - 11/14		<ul style="list-style-type: none"><li>• <b>Complete Step 3 in 2025-26 MTFC Scenario Quest Response</b></li><li>• <b>Complete Step 3 in 2025-26 MTFC Team Project Proposal</b></li></ul>
<b>Week #11</b> 11/17 - 11/21	<b>November 20 - Virtual Office Hours for Teams</b>	<ul style="list-style-type: none"><li>• <b>Complete Step 4 in 2025-26 MTFC Scenario Quest Response</b></li><li>• <b>Complete Step 4 in 2025-26 MTFC Team Project Proposal</b></li></ul>
<b>Week #12</b> 11/24 - 11/29	Thanksgiving Holiday	<ul style="list-style-type: none"><li>• <b>Complete Step 5 in 2025-26 MTFC Scenario Quest Response</b></li><li>• <b>Complete Step 5 in 2025-26 MTFC Team Project Proposal</b></li></ul>
<b>Week #13</b> 12/1 - 12/5		<ul style="list-style-type: none"><li>• <b>Proofread &amp; finalize 2025-26 MTFC Scenario Quest Response</b></li><li>• <b>Proofread &amp; finalize 2025-26 MTFC Team Project Proposal</b></li></ul>
<b>Monday, 12/8 Noon Pacific</b>	<b>All Scenario Phase Submissions Due on ICS Dashboard by Noon Pacific</b>	<ul style="list-style-type: none"><li>• <b>Submit MTFC Scenario Quest Response, Team Project Proposal, &amp; Participation Waivers</b></li><li>• <b>Note that this is a mid-day submission deadline, plan accordingly!</b></li></ul>
	<b>December 15 - Virtual Semi-Finalist Announcement</b>	<ul style="list-style-type: none"><li>• <b>Celebrate &amp; reflect!</b></li><li>• <b>Note: Project Phase Workshop for Semi-Finalist Teams held on 12/17</b></li></ul>

# Looking Ahead: The Project Phase



## What can your team expect if you advance as a Semi-Finalist?

That's a great question! In the Project Phase, your team will develop your risk modeling project within the 5-step structure as outlined in the Actuarial Process Guide. You'll have a Project Phase Guide that outlines the structure (and rubric) for your Project Report. Throughout the Project Phase, you'll create an infographic that summarizes your project's risks, meet with actuarial mentor(s) virtually and write your Project Report.

## Project Phase Regions

Semi-Finalist teams across the country will be divided into regions for the Project Phase of the Challenge. Team project reports will be judged using the rubric provided in the Project Phase Guide at a regional level.

Three Finalist teams will be selected per region and will move on to the Final Phase to compete for scholarship awards. Teams will be notified via the ICS Dashboard at the start of the Project Phase which region they will be competing in. The regions are denoted in the map shown on the right.

The 15 Finalist teams advance to the Finalist Phase to compete at the National Symposium for the Scholarship Prizes.

Additional special category awards (such as the Climate Resilience Award) are in the works with additional requirements - more details to come!

## Mentorship

One of the key features of the MTFC is the option to meet up to 3 times virtually with actuarial mentors in the Project Phase. These mentors offer advice on how to shape your project and the risks you've identified, how to identify and analyze data or build math models, conduct a risk analysis, and draw conclusions. While it is not required to meet with mentors, teams find the help from the mentors to be invaluable in completing their projects!



## Finalist Team Swag Prizes

Teams selected as Modeling the Future Challenge Finalists will be announced during a virtual Regional Finalist Event supported by MTFC Regional University Partners. When announced, all team members will be recognized at the virtual ceremony. **The 15 Finalist teams will be sent swag prizes from The Actuarial Foundation that include materials from the Regional University Partners!**



# Looking Ahead: Challenge Winner Awards

Teams selected as Modeling the Future Challenge Winners will be announced during the Closing Ceremony at the Virtual National Symposium on May 1, 2026. When announced, all team members will be recognized at the virtual ceremony.

Awards will be provided for official team members noted on the team registration information. Awards will be divided between team members equally and will be distributed directly to each student's college of choice. Students do not need to know their college at the time of the Symposium. They will be able to contact The Actuarial Foundation at any time within the next two years to complete a form designating their college or university of matriculation.

## The 2025-26 Modeling the Future Challenge awards include:

### Helen Galt Educator Awards



**\$1,000 Top Coach Award:**  
awarded to the coaches of  
the top 4 teams



**\$1,000 School Support Grant:**  
awarded to the educator with the  
most Semi-Finalist teams with  
complete reports

### MTFC Winner Awards



**1st Place:**  
\$25,000



**2nd Place:**  
\$15,000



**3rd Place:**  
\$10,000



**4th Place:**  
\$5,000



- Following the Closing Symposium & Awards Ceremony, winning teams will be contacted by The Actuarial Foundation with scholarship forms.
- Winning teams will receive printed certificates in the mail (mailed to coaches) in the week following the Closing Symposium.
- The 1st and 2nd Place Winning Teams' project report will be published in the Society of Actuaries Actuarial Research Clearing House (ARCH) journal: [soa.org/research/arch](http://soa.org/research/arch).

# Stay Tuned: Climate Resilience Award

The Climate Resilience Award was piloted within the 2024-25 Modeling the Future Challenge and tasked America's high school students to help communities become more resilient to natural disasters and climate change related risks to people and property. Guided by their teachers and mentored by the nation's actuaries, data scientists, and climate science experts, students identified community or regional climate risks, analyzed data, developed mathematical models, and made informed recommendations on how to best mitigate or manage risks to the community.

**Teams that wanted to compete for the 2024-25 Climate Resilience Award were required to:**

- Conduct a project that analyzed climate change related risks to a community or local region and identified actionable recommendations to mitigate or manage those risks.
- Submit a short addendum to their MTFC Project Reports responding to several implementation related prompts about how they would consider taking their project beyond the analytical into real-world implementation

**Keep an eye out for exciting new opportunities to get involved with the Climate Resilience Award this year!** For more information: [mtfchallenge.org/climate-resilience-award](http://mtfchallenge.org/climate-resilience-award).

**2024-25**

**MTFC Climate Resilience  
Award Sponsored By:**



## 2024-25 CLIMATE RESILIENCE AWARD WINNER

**Student Winner:** William Guo

**School:** Illinois Mathematics and Science Academy, Inverness, IL

**Coach:** Jenna Lee

**Project Title:** *Urban Heat in Chicago: Modeling Future Risks and Resilience*



### 2024-25 CRA Winning Project:

William Guo's project focused on the elevated temperatures in Chicago's urban core, which can be up to 10 degrees higher than surrounding rural areas. With climate change increasing the frequency of heatwaves, Chicagoans face heightened respiratory and heat-related health risks.

William proposed risk mitigation strategies including expanding the city's tree canopy, implementing green roofs and walls, and adopting cool pavements. As the recipient of the Climate Resilience Award, William participated in a paid, part-time internship where he refined his implementation strategy and presented in-person at a Resilience Cities Network event and virtually to other community stakeholders and experts in the field.

# Challenge Sponsors

## PIONEER SPONSOR



## FOUNDING SPONSOR

**Roy & Georgia Goldman**



A Program of The Actuarial Foundation

**Modeling the Future  
Challenge**

The mission of The Actuarial Foundation is to unleash the power of math education and transform futures by leveraging the talents and resources of the actuarial community. Its vision is a future where everyone experiences confidence and opportunities available through math proficiency.

The Modeling the Future Challenge is the cornerstone educational program of the Foundation and is rapidly becoming one of the premier academic competitions for high school students; however, this would not be possible without the commitment of countless volunteers from throughout the actuarial industry, sponsors, and partner organizations.

Thank you for your commitment of your time, expertise, and funds to help high school students find the excitement in using math to model the future!

For questions about the MTFC or Scenario Process email

[challenge@mtfchallenge.org](mailto:challenge@mtfchallenge.org)

