



## **MIT-THINK SCHOLARS PROGRAM**

### **BRINGING HIGH SCHOOL STUDENTS' IDEAS TO LIFE**

#### **MIT THINK Scholars Program 2020-2021: Complete Guidelines**

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##### **Overview**

The MIT THINK Scholars Program is an educational outreach initiative that promotes science, technology, engineering, and mathematics by supporting and funding projects developed by high school students. The program is run by a team of undergraduate students at the Massachusetts Institute of Technology (MIT) and sponsored by technology companies and educational organizations as part of MIT TechX. The program is open to all high school students residing in the United States. Students apply to the program by submitting a proposal for any novel science, technology, or engineering idea.

For the 2021 competition, we will review applications in two rounds: an initial proposal review and video interview for selected semifinalists. Up to six finalists will then be chosen to receive a virtual trip to MIT, meetings with professors, and mentorship and funding to implement their project proposals. Finalists will be designated as MIT THINK Scholars upon successful completion of their projects.

##### **Finalists Receive:**

- All expenses paid trip to MIT that includes:
  - Presentation of research proposals
  - Meeting with MIT professors in the student's area of interest
  - Personalized tours of MIT research laboratories
  - Attending MIT's spring tech symposium
  - Opportunity to attend MIT classes and experience MIT student life
- Budget of \$1000 to implement project
- Weekly mentorship meetings with MIT student mentors

## Timeline

Application Deadline	Jan. 1, 2021
Finalist Decisions	Mid-Late Jan. 2021
Virtual Trip to MIT	Feb. 2021
Expected Completion of Projects/Trip to MIT if conditions permit	Late May 2021

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## Eligibility Requirements

- You must be a full-time high school student (i.e. attending a public, private, or home school) at the time of your application
  - You must be a US resident during the 2020-2021 academic year
    - US citizenship is not required; US citizens living outside the country are not eligible
  - One submission per applicant
  - One or two students per project
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## Application Process

The process for entering the MIT THINK Competition is as follows:

- **Register:** create an account using your email address and enter the required personal information
- **(Optional) Find a partner:** you can work alone or with one partner
- **Submit your proposal:** upload your project proposal, making sure to follow the instructions outlined below in Proposal Guidelines

*The THINK Team will open the application portal at [think.mit.edu](http://think.mit.edu) during the fall semester.*

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## Proposal Guidelines

Please adhere strictly to the format given here. Make sure to clearly address each required component in your PDF submission. Failure to follow this format may result in an invalid application. Teams should work together to write a single project proposal.

Use 12-point Times New Roman or Arial font, double spaced (1.5 not allowed), 1 inch margins, and no more than 10 pages. Please cite all references and include a list of references at the end of the project proposal. All images and diagrams that you did not create yourself should also be

cited. Include any tables and figures in the body of the text. References will not count against the 10 page limit.

The project proposal should be divided into sections for readability. The following format is suggested: a title and abstract to begin the proposal, a first section for motivation and your approach or solution, a second section for project logistics and organization, and a third section for personal interest (as detailed further below). Following the suggested format will help ensure that you include all required information and aid the THINK Team in the judging process. Make sure to cover each of the bullet points listed here:

### 1. Project Title

- **Name:** your name(s), school
- **Mentor (optional):** name, email address, affiliation (university, school, company, etc.)

### 2. Abstract

Write an interesting, complete, and concise abstract of up to 250 words summarizing your project. In paragraph form, please describe the following aspects of your project:

- **Motivation:** What is the problem you are trying to solve? Why is this an important problem to address?
- **Goals:** What are the desired outcomes of your project?
- **Approach:** How do you plan to implement your project proposal?

### 3. Idea

- **Problem:** Clearly identify the need or problem you are trying to solve. Then, explain any background information (citing existing scientific literature as needed) to provide context, including relevant scientific theory.
- **Current Work:** Identify current state-of-the-art approaches or solutions and explain why they are insufficient.
- **Solution:** Describe your proposed solution and how it will address the need or problem. Compare your idea to existing solutions and explain how your solution improves upon the current technology.

#### 4. Plan

- **Approach:** Walk through the steps involved in implementing your project proposal. Convince us that your project is technically feasible, using diagrams and showing calculations as necessary.
- **Resources:** Specify the resources (i.e. materials, mentorship, and funding) you will need to obtain during the process of implementing your project. How will you acquire these resources? Are you planning on working with a local mentor in addition to mentorship from the THINK Team?
- **Goals:** Establish milestones and completion criteria for your project. How will you test and evaluate your project? What are its performance specifications (if applicable)? If you are working with a partner, discuss how you plan to divide the work and responsibilities and explain how you will facilitate collaboration.
- **Risks:** Identify at least three issues you might encounter during implementation. How will you mitigate these risks? Propose specific strategies or solutions that you could employ, should you encounter these issues.
- **Timeline:** Identify key deliverables and deadlines. How will you document the implementation process between these milestones?
- **Current Progress and Need for Funding:** Describe any previous work you have done on this topic. What have you achieved so far, and what remains to be done? How will funding from the MIT THINK Scholars Program allow you to achieve your proposed goals?
- **Project Budget:** Provide a detailed budget in table form. List each item, amount to be purchased, cost, and links to suppliers if you can find them. If you are unable to find exact costs or have materials with variable costs depending on project implementation, estimate to the best of your ability. Please ensure that your total costs do not exceed the program budget of \$1000 per finalist.

#### 5. Personal

- **Interest:** Tell us about your academic background as well as your personal interest in this project. We want to know where you are coming from, what previous research experience (if any) you have, and why you are interested in your area of research.
- **Qualifications:** Describe the skills you currently have as well as the skills you will need to learn to complete this project.

## 6. References

- Cite all consulted sources using the APA format. Include both in-text citations and a References page at the end of the project proposal. The References section will not count against the 10 page limit.

Important note: make sure to address every bullet point in this outline. In particular, you *must* address how your project would benefit from funding and mentorship from MIT THINK. Proposals which do not explain what the applicant(s) will gain from the program will not be selected to advance in the competition.

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## **Judging Criteria**

A panel of MIT undergraduates (the MIT THINK Team) will review applications based on the following criteria:

- **Impact:** How relevant, important, or interesting is the identified problem?
  - **Innovation:** How novel or creative is the proposed solution? How does it improve upon existing solutions?
  - **Clarity:** Are the goals, methods, and timeline clearly defined? Can the results be clearly evaluated? Is the discussion of the problem, existing technologies, and proposed solutions accurate and complete?
  - **Feasibility:** Can the stated goals be completed within the cost and resource constraints? Can the project be implemented within the one semester timeframe?
  - **Benefit:** How much will this project benefit from THINK funding and mentorship?
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## **Finalists' Trip**

Up to six projects will be selected as MIT THINK finalists; these students will participate in the MIT THINK Scholars Program. Finalists will be invited to participate in a virtual MIT Finalists' Trip. During the trip, finalists will meet the THINK Team, meet with MIT professors who share their research interests, and tour MIT's campus and laboratories (virtually). All finalists will be given funding (up to \$1000) and mentorship to complete their projects. Upon successful project completion and submission of a final report and presentation of their final project among their peers, finalists will be honored as MIT THINK Scholars for the 2021 competition. If conditions permit, we may have an in-person trip to MIT at the end of the program.

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## **Project Implementation and Mentorship (for Finalists)**

While you implement your project, we will maintain an active relationship with you. We will provide you with funding, mentorship, and networking opportunities with sponsors, MIT students, faculty, and alumni. In return, we expect that you document the whole process in the form of progress reports, photos, and videos. Documentation should show the successful completion of milestones and goals, and any difficulties or challenges encountered along the way. Your project experience will be shared with our sponsors and the MIT community. In addition, we will hold regular phone or web conferences to check on your progress, provide advice, and teach you some useful skills. By the end of the spring semester, you will be expected to submit a detailed final report documenting your project from start to finish.

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## **FAQs**

### **When is the application due?**

11:59pm ET on Jan 1, 2021.

### **Can my proposal be longer than 10 pages?**

Unfortunately, no. Additional pages can only contain references.

### **I am in a team of two. How do we create an account for two people?**

Create separate accounts, fill in the application information individually, and submit the same proposal at the end.

### **I am an International Student. Can I still apply?**

Unfortunately, we currently only accept applications from high school students living in the U.S.

### **Who judges these applications?**

The THINK Team.

### **How will I know if I won?**

Semifinalists will receive an email invitation for an interview mid-January. The final results (semifinalists and finalists) will be posted on our website later that month.

### **Where can I send my other questions?**

Please send all questions to [think@mit.edu](mailto:think@mit.edu).

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## **Program Vision**

Dear Students and Teachers,

The MIT THINK Scholars Program was launched in 2008 by a group of MIT undergraduates. The competition's name stems from our vision to promote **T**echnology for **H**umanity guided by **I**nnovation, **N**etworking, and **K**nowledge.

THINK's vision is to make science and technology research and development accessible to all motivated high school students.

Our philosophy is that although students at the high school level may not have the experience or resources of a professional researcher, many of them certainly have the creativity and passion to make significant contributions to science and technology. We hope to share with these students the resources and connections that we have at MIT and in industry.

Rather than simply recognizing high school students who have completed projects, we would like to support and encourage students who wish to implement new ideas. Accepted students will receive seed funding, mentorship from the THINK team, and advice from MIT professors and industry professionals.

The human aspect is where THINK differs from typical competitions. In a results-oriented world, the process is often overlooked, even though it is typically the most challenging and arduous part of a project. This is where the guidance and support of others can be immensely beneficial to an aspiring scientist or engineer. We hope to provide students with an external support network that will guide them in their endeavors.

Over ten cohorts of MIT THINK Finalists have now participated in the program. Year after year, finalists have described the experience as transformational and profoundly rewarding. Several alumni have gone on to attend MIT, both as undergraduates and graduate students, and some have later served on the THINK Team.

We hope THINK will be an inspirational experience that helps nurture the next generation of young innovators, providing them with the support they need to turn their ideas into reality.

- *The MIT THINK Team*