



Special note: Thank you for your interest in Engineering Academy! This is the paper application for the Cincinnati Engineering Academy starting in January 2024 (Cohort 3).

We highly recommend that you apply using our online application. To access the application, you will need to create an account at <https://www.nextengineers.org/user/register>.

For more information on the online application, please visit <https://www.nextengineers.org/how-apply-engineering-academy>. If you are experiencing any issues accessing the application, please e-mail NextEngineers@fhi360.org.

We look forward to receiving your application by the **November 27** deadline.





Next Engineers: Cincinnati Engineering Academy Paper Application for Cohort 3

About Next Engineers: Cincinnati Engineering Academy

Are you curious about the world and how it works? Do you want to make the world better by solving the problems around us? Then the Next Engineers: Engineering Academy might be for you!

What *is* an engineer? The answer may surprise you. Yes, engineers design and build cars and bridges, airplanes and batteries. But they do so much more! Engineers ask questions and solve real problems – in healthcare, in the environment, and in just about any field you can think of! Engineers love adapting and improving things. They are good at visualizing new possibilities and coming up with creative solutions.

We want **you** to become an engineer! In fact, if you graduate from the Next Engineers: Cincinnati Engineering Academy, complete the Free Application for Federal Student Aid (FAFSA), and enroll in an engineering degree program at an institution of higher education, you will receive a \$20,000 scholarship in support of your studies.

The world needs more diverse engineers to help build a world that works. If you are Black/African American, African Descent, and/or Latinx, and/or a young woman, we strongly encourage you to apply to the Engineering Academy!

Read the details below to learn more.

Overview and Schedule

The Engineering Academy is a 3-year program that can help you become an engineer through design challenges and skill-building workshops. Engineering Academy sessions take place outside of school hours (such as Saturdays) at University of Cincinnati. If you need help with transportation, it can be provided on a case-by-case basis.

The Engineering Academy schedule for Year 1 is included in the end of this document. More details will be sent to students selected for the Engineering Academy.

Cincinnati Engineering Academy is managed by University of Cincinnati and FHI 360.

Selection Process

Engineers come from various backgrounds and have many interests. This application is an opportunity for you to share more about yourself and how the Engineering Academy would be a good fit for you.

We are looking for students who:

1. Plan to graduate high school in May or June 2026;
2. Are residents of the following counties in the Greater Cincinnati Tri-state area:
 - Ohio: Butler, Clermont, Hamilton, or Warren counties
 - Kentucky: Boone, Campbell, or Kenton counties





- Indiana: Franklin or Dearborn counties
- 3. Demonstrate *academic aptitude* by meeting minimum grade requirements in math and science, listed below:
 - Received a final grade of a C+ or higher in Algebra I*
 - Received a final grade of a C+ or higher in their 9th grade science class*
- 4. Demonstrate *academic commitment* by pledging to take courses related to engineering through the end of secondary school (e.g., mathematics, physics, chemistry, earth science);
- 5. Demonstrate *qualities needed to succeed as an engineer*, including:
 - Persistence (dedication to schoolwork, commitment to fulfilling responsibilities, and/or commitment to bettering oneself or community);
 - Evidence of interest in engineering and/or participating in the Engineering Academy; and
 - A developing engineering mindset.

** If your grade is slightly below the minimum, as determined by University of Cincinnati, but your reference indicates you are academically prepared, you may be deemed to meet this requirement.*

If you meet the criteria above, based on our application review, you will be placed into a final selection pool. From there, applicants will be selected into the Engineering Academy. Final selection into Engineering Academy will not be based on gender, ethnicity, race, or physical ability. We will notify you of your selection status by **December 18, 2023**.

Application Process

The application is due by **Monday, November 27, 2023**. You may apply online or you may apply by paper using the application below.

In order to complete the application, you will need the materials listed below. Submission instructions are provided in the application.

- An electronic copy of your **transcript** or grade report that includes the 2022-2023 academic year
- An electronic **reference form**, included below (optional, but highly encouraged)
- Two short **written or video responses**

If you have any questions or need assistance with the application, e-mail GENextEngineers@ucmail.uc.edu.





Cincinnati Engineering Academy Paper Application

Instructions: This form, and supplemental materials, must be received by **Monday, November 27, 2023**. Please write legibly.

About You

*indicates required answer

First Name:* Last Name:*

Age:*

Street Address:*

City:* State:* Zip Code:*

Are you a resident of any of the following counties in the Greater Cincinnati Tri-state area: Ohio: Butler, Clermont, Hamilton, Warren; Kentucky: Boone, Campbell, Kenton; Indiana: Dearborn, Franklin?*

Yes No

Phone Number:*

Cell/Mobile Landline E-mail Address:*

What is your gender identity? (Check all that apply.)*

- | | | |
|---------------------------------------|--------------------------------------|--|
| <input type="checkbox"/> Agender | <input type="checkbox"/> Genderqueer | <input type="checkbox"/> Prefer not to say |
| <input type="checkbox"/> Female | <input type="checkbox"/> Male | <input type="checkbox"/> Gender not listed. (Please describe): |
| <input type="checkbox"/> Gender Fluid | <input type="checkbox"/> Transgender | |

How do you describe your race and/or ethnicity? (Check all that apply.)*

- | | |
|---|--|
| <input type="checkbox"/> American Indian or Alaska Native | <input type="checkbox"/> Native Hawaiian or Pacific Islander |
| <input type="checkbox"/> Asian | <input type="checkbox"/> White |
| <input type="checkbox"/> Black or African American | <input type="checkbox"/> Prefer not to say |
| <input type="checkbox"/> Hispanic, Latino/a/x, or Spanish | <input type="checkbox"/> Race not listed. (Please describe): |

How did you hear about Next Engineers: Cincinnati Engineering Academy? (Check all that apply.)

- | | | | |
|---|--|----------------------------------|---------------------------------|
| <input type="checkbox"/> Attended a presentation in community | <input type="checkbox"/> Teacher / School Representative | <input type="checkbox"/> Twitter | <input type="checkbox"/> Parent |
| <input type="checkbox"/> Attended a presentation in school | <input type="checkbox"/> Instagram | <input type="checkbox"/> Friend | <input type="checkbox"/> Other: |

Did you attend Next Engineers: Cincinnati Engineering Camp in June/July 2022 and/or 2023? Yes No

Have you ever participated in a Next Engineers: Engineering Discovery event in your school? Yes No





Your Education & Extracurricular Activities

*indicates required answer

Do you plan to graduate high school in May or June 2026? Yes No

Name of School*:

Have you taken Algebra I?* Yes No

If "Yes," what was your final grade in Algebra I?*

What mathematics class(es) did you take in school year 2022-2023?*

What was your final grade(s) for the class(es) last year?

What mathematics class(es) will you take in school year 2023-2024?*

What science class(es) did you take in school year 2022-2023?*

What was your final grade(s) for the class(es) last year?

What science class(es) will you take in school year 2023-2024?*

Do you agree to take mathematics classes (that apply to engineering) each year through senior year?*

Yes No

If "No," please explain below:

Do you agree to take physical science classes, such as chemistry, physics, earth sciences, etc., each year through senior year?*

Yes No

If "No," please explain below:

Briefly tell us how you spend time outside of school classes. Do you participate in sports, clubs, summer camps, or organizations associated with school or the community? Do you work or have responsibilities for your family? Share here:*





The following materials must be submitted by the application deadline for your application to be complete. You may attach these documents to this application before submitting it.

1. We want to know how you are doing in school, especially in math and science classes, so please **attach to the application a copy of your transcript or grade report that includes the 2022-2023 academic year**. An unofficial transcript or grade report is acceptable. If you need help getting your transcript or grade report, please see your guidance counselor.
2. We want to know if an adult in your life thinks you will be a good fit for the Engineering Academy. **Find an adult to serve as your reference for the program and ask them to complete the reference form at the bottom of this application and submit the completed form with the application**. Here are some ideas of adults who could serve as a reference for you: teacher, school counselor, mentor, coach, employer, or another adult who can tell us more about you. Your family members may **not** serve as your reference. *Submitting a reference form is optional for the completion of your application, but we highly encourage you to submit the form as it will help us get to know you better.*

Student-Response Questions

*indicates required answer

We want to know more about your interests, thoughts, and plans. We invite you to respond to two prompts. The first prompt is required. For the second prompt, you have 3 options and must choose 1. Both prompts are opportunities for you to share more about yourself with us. There are no wrong answers.

You may submit a written response, or you may submit a video of yourself responding to the prompts. You can decide on the response format that fits you best. You may attach written responses to this application OR you may record video responses and write the links according to the directions below.

Prompt 1. You must respond to this prompt: What excites you most about engineering or the Engineering Academy, and why? What do you hope to gain from your participation in the program?

Response should be 1-2 pages if written or 2-3 minutes if recorded.

Prompt 2. Choose one of three options below for a response. Response should be 1-2 pages if written or 2-3 minutes if recorded.

Option 1: Engineers often learn through failure. They ‘fail forward’ and see it as an opportunity to improve. Describe a problem you tried to solve in the past. Talk about the following things in your response:

- What was the problem?
- Why was it an important problem to try and solve?
- How did you solve/try to solve the problem?
- What failures or setbacks did you face and how did you deal with these?

Option 2: Engineers try to solve real-world problems with practical solutions that use math and science. Tell us about a problem in your community that you would like to help solve as an engineer. Talk about the following things in your response:

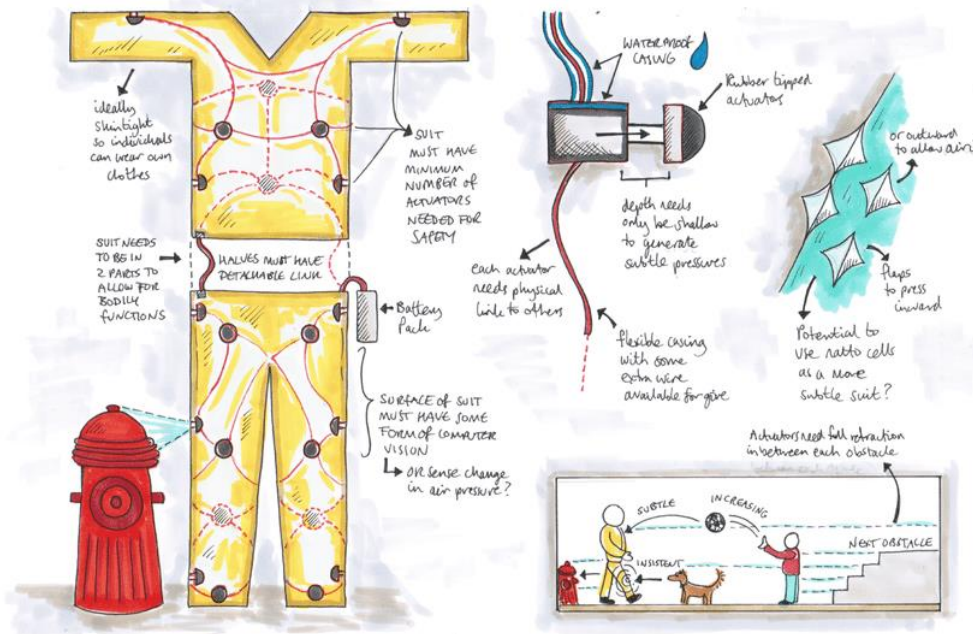
- What is the problem?
- Why do you think this is an important problem to solve?
- How would you try to solve this problem? What possible engineering solutions would you try?



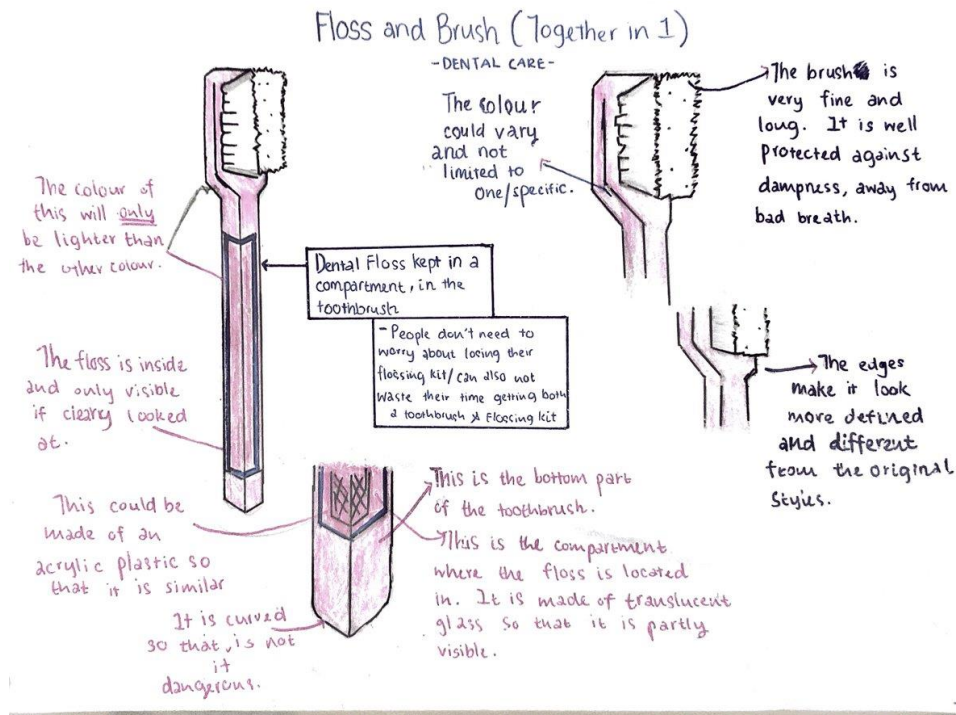
Option 3: Your task is to design the perfect lunchbox. Your lunchbox must be easy to carry and must have space for food and drink for at least one person. Here are some questions to get you thinking:

- What shape should your lunchbox be?
- How big should it be?
- How strong and/or light should it be?
- Will it keep your food and drink hot or cold? If so, how?

Tell us about your design for the perfect lunchbox by submitting one or more annotated sketches. Be sure to explain what shape you chose and why and what makes your lunchbox different from other lunchboxes you have seen before? If you like, you can record a video of yourself presenting your design and annotated sketch(s) or maybe even a prototype of your design. See examples below:



An annotated sketch of a wearable safety suit for the blind by Miriam Sturdee (https://www.researchgate.net/figure/Annotated-sketch-and-ideation-around-theme-of-wearable-safety-suits-for-the-blind_fig20_323993556)



An annotated sketch for a 2-in-1 brush and floss toothbrush by Mr G (https://twitter.com/mrcg_dt/status/1323069412589514757)

Steps to submit a video response:

1. Upload your video to a free video hosting site, such as [YouTube](#) or [Vimeo](#), or upload your file to a free file storage site, such as [Google Drive](#) or [Dropbox](#).
2. Make sure you set up the correct permissions so that the application reviewers can access your videos. For example, make sure you grant viewing access to anyone with the link.
3. Then, share a link to the video in the application so the Next Engineers team can view it.

Are you submitting response(s) via video? Yes No If yes, share your links here:

Prompt #1:

Prompt #2:

Application Tips

- Submit all documentation requested including the high school transcript, response to the two prompts, and completed reference form. (Completed reference form is optional, but highly encouraged).
- Properly review the instructions for both prompts. Ensure that you answer the entire prompt by responding to all parts of that question and meet the length specification.
- If you decided to submit a video, it is important to check that the video is complete. Check that the video did not end abruptly while you were talking. When recording your video remember to choose a quiet location that is free from distractions and loud background noise. While the video must show you speaking, and must have clear video and sound, the production value of the video will not be considered in the review.





Applicant Participation Commitment*

*indicates required answer

Students who do not attend at least 80% of Engineering Academy sessions per year and complete necessary work may not be able to complete the program. Please **thoroughly** review the Academy schedule for the 2023-24 year below, check the box, and sign below to indicate your commitment to the Engineering Academy if you are selected to participate.

Cincinnati Academy Schedule 2023-2024. Saturday sessions run 9 AM to 2 PM at University of Cincinnati*

January 27	February 17, 24	March 9, 23
April 13	May 4, 18	June 1
Monday, July 22 – Friday, July 26, 9 AM-4 PM: Engineering Academy Summer Intensive		

*Please note, this schedule is subject to change due to inclement weather or other unforeseeable circumstances. Updates will be shared with Academy students and parents or guardians. Engineering Academy is a 3-year program. Schedules for subsequent years will be similar and shared with Academy participants and parents or guardians. The schedule can also be viewed at <https://www.nextengineers.org/cities/Cincinnati>.

- If selected, I will participate in the Next Engineers: Cincinnati Engineering Academy, sponsored by GE Foundation and managed by FHI 360 and University of Cincinnati. I am committed to participating in all Engineering Academy activities (at least 80 hours/year in years 1 & 2; 60 hours in year 3). If I cannot attend an activity, I will notify the Engineering Academy staff immediately, and I will make up work missed during the absence.

Applicant Signature: _____





Parent/Guardian Section

*indicates required answer

Parent / Guardian Name:*

Address (if different from applicant's above):*

City:

State:

Zip Code:

Phone Number:*

E-mail Address:*

Commitment*: Students who do not attend at least 80% of Engineering Academy sessions per year and complete necessary work may not be able to complete the program. Please **thoroughly** review the Academy schedule for the 2023-2024 academic year below, check the box, and sign below to indicate support of your child's participation in the Engineering Academy.

Cincinnati Academy Schedule 2023-2024. Saturday sessions run 9 AM to 2 PM at University of Cincinnati*

January 27	February 17, 24	March 9, 23
April 13	May 4, 18	June 1
Monday, July 22 – Friday, July 26, 9 AM-4 PM: Engineering Academy Summer Intensive		

*Please note, this schedule is subject to change due to inclement weather or other unforeseeable circumstances. Updates will be shared with Academy students and parents or guardians. Engineering Academy is a 3-year program. Schedules for subsequent years will be similar and shared with Academy participants and parents or guardians. The schedule can also be viewed at <https://www.nextengineers.org/cities/Cincinnati>.

- If selected, my child will participate in the Next Engineers: Cincinnati Engineering Academy, sponsored by GE Foundation and managed by FHI 360 and University of Cincinnati. I am committed to supporting my child's participation in all Engineering Academy activities (at least 80 hours/year in years 1 & 2; 60 hours in year 3). If my child cannot attend an activity, I will notify the Engineering Academy staff immediately, and my child will make up work missed during the absence.

Parent Signature:*

Research Study*: As part of the Next Engineers program, we are conducting a research study to identify how the Engineering Academy may help students learn about engineering and gain new skills. All students applying to the program are potentially eligible to participate in the study, which will include a yearly survey, an interview, and a focus group discussion. More information about the research study is included below. Once you review the document, please indicate below if we may contact you regarding your child's possible participation in the Engineering Academy research study. Your response will not affect your child's eligibility for the Engineering Academy.

- Yes, I agree to being contacted about my child possibly participating in the research study.
- No, I don't agree to being contacted about my child possibly participating in the research study.
-





Application Submission

The application and supplemental materials must be received by **Monday, November 27, 2023**. You may submit the application and materials via e-mail to GENextEngineers@ucmail.uc.edu or you may mail them to the following address:

Kyle Turner
Program Coordinator, GE Next Engineers
University of Cincinnati College of Engineering and Applied Science
Office of Inclusive Excellence and Engagement
2901 Woodside Dr.
Mantei Center, 805B
Cincinnati OH 45221





Next Engineers: Cincinnati Engineering Academy Student Reference Form

About the Engineering Academy and Reference Form

Over three years, Engineering Academy students (ages 15-18) learn to think and act like engineers and prepare to advance to post-secondary education through the Academy. With over 220 hours outside of school over 3 years, the Academy includes a series of immersive design challenges, career coaching, and college-readiness workshops to equip diverse groups of youth with the skills they need to build an engineering identity and career. To learn more about Next Engineers and the Engineering Academy, visit www.nextengineers.org.

To support their application to the Engineering Academy, a student has identified you as someone who can provide greater insight into their abilities and qualities. Please complete the reference form on page 2 and include any additional comments that can provide the review committee with relevant information about the student.

The completed reference form should be returned to the applicant before the application deadline, which can be viewed at <https://www.nextengineers.org/cities/Cincinnati>.

Eligibility Criteria & Selection Process

Our goal is to admit a wide range of applicants who can succeed in a college or university engineering program. Below are the eligibility criteria that applicants must meet to be considered for selection. The applicant must:

1. Plan to graduate high school in May or June 2026;
2. Are residents of the following counties in the Greater Cincinnati Tri-state area:
 - Ohio: Butler, Clermont, Hamilton, or Warren counties
 - Kentucky: Boone, Campbell, or Kenton counties
 - Indiana: Franklin or Dearborn counties
3. Demonstrate *academic aptitude* by meeting minimum grade requirements in math and science, listed below:
 - Received a final grade of a C+ or higher in Algebra I*
 - Received a final grade of a C+ or higher in their 9th grade science class*
4. Demonstrate *academic commitment* by pledging to take courses related to engineering through the end of secondary school (e.g., mathematics, physics, chemistry, earth science);
5. Demonstrate *qualities needed to succeed as an engineer*, including:
 - Persistence (dedication to schoolwork, commitment to fulfilling responsibilities, and/or commitment to bettering oneself or community);
 - Evidence of interest in engineering and/or participating in the Engineering Academy; and
 - A developing engineering mindset.

** If the applicant's grade is slightly below the minimum, as determined by University of Cincinnati, but the reference indicates the applicant is academically prepared, the applicant may be deemed to meet this requirement.*

Successful applicants will be identified by a selection of eligible participants. Final selection into Engineering Academy will not be based on gender, ethnicity, race, or physical ability.





Reference for Applicant (write name):

Reference Name:

Reference Phone:

Reference E-mail:

Your relationship to applicant: Teacher School Counselor Coach or mentor Other. Please explain:

Provide a brief description of how you know the applicant:

On a scale of one (1) to five (5), with one being the lowest, please rate the student on the following characteristics. Please provide a *brief* example or explanation of your rating in the comment box. If you are not able to provide a rating, please mark 'not applicable' (N/A).

Characteristic	Rating (1-5)	Comment
Dedication to schoolwork		
Commitment to fulfilling responsibilities		
Commitment to bettering oneself or the community		
Academic aptitude for higher level mathematics and science courses		
Interest in Science, Technology, Engineering, and Mathematics (STEM)-related fields and/or activities		

Based on the program description and core eligibility criteria listed above, as well as your knowledge of the student, why do you think this student is a good candidate for the Engineering Academy? (Please explain in 1 paragraph.)

The completed form should be returned to the applicant before the application deadline, which can be viewed at <https://www.nextengineers.org/cities/Cincinnati>. Thank you!





Next Engineers: Engineering Academy Description of Research Study

Introduction: As part of the Next Engineers program, FHI 360 will be conducting a research study to learn about how the Next Engineers: Engineering Academy supports development in engineering. Since your child is applying to the Next Engineers program, FHI 360 is seeking your permission for your child to participate in this study. We want to make sure you understand what this study includes so you can decide if you want them to participate.

Study description: We are conducting this research study so we can identify better ways to help students learn about engineering and gain new skills. Research activities included in this study will be conducted annually and involve a student survey, a student interview, and a student focus group. Student participants will be asked about their experiences with the Next Engineers program or experience with similar classes at school. Students will also be asked about their progress through school and to share updated academic information such as what courses they are enrolled in. The survey will take around 40 minutes to complete, and interviews and focus groups will last one hour.

We are inviting all students who apply to the Next Engineers program to participate in this research. Your child's participation in these activities is completely voluntary. There are no negative consequences for your child's selection for, or participation in, the Next Engineers program if your child does not participate in the research activities. Your child may choose not to participate in all, some, or none of these research activities. Your child can also decide not to answer specific questions and/or stop participating in the research at any time. Your child does not have to provide a reason for not answering questions or for deciding to stop participating.

Compensation: As noted previously, there will be no compensation for your participation in the survey, interview or focus group if they are selected into the Next Engineers program. Again, selection into the Next Engineers program will not depend on your or your child's participation in the research study.

Participant Selection: This research is being done across multiple cities where there are Next Engineers programs. Once all student applications are submitted and reviewed, all eligible students will then be given an equal chance of being admitted into the Academy. This, unfortunately, means that some students may not be admitted to the Academy due to the limited number of available seats. Students admitted to the Next Engineers: Engineering Academy, approximately 50 students per year in each city where the program is happening, will be asked to participate in the annual survey. Another 50 to 150 students not enrolled in the Next Engineers program will also be asked to participate in the same survey. Approximately 24 students per year will be asked to participate in interviews, and 20 will be asked to participate in focus group discussions.

