



MICRO-G NExT
Neutral Buoyancy Experiment Design Teams

Micro-g NExT FAQs

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Lessons Learned from Former Micro-g NExT Participants

Are you interested in taking the Micro-g NExT journey? Want to know what advice past participants would give about their experience? Click the links below to view videos of past participants sharing their advice from a student's perspective. The topics include how to collaborate with teams, the importance of managing timelines, how to build a successful team, and the impact Micro-g NExT can have on your future. These lessons learned from previous participants will help make your upcoming journey with Micro-g NExT more successful!

- [Teams are structured in various ways.](#)
- [Teams successfully manage deadlines through effective planning and coordination.](#)
- [The makeup of a successful team includes students from all areas of study.](#)
- [Micro-g NExT has helped students learn a variety of skillsets.](#)

FAQs: General

1. What expenses does NASA cover?

Teams selected to participate in the Micro-g NExT opportunity are not granted a monetary award. NASA assumes responsibility for costs involved with prototype testing in the Neutral Buoyancy Laboratory (NBL). Each team is responsible for all other costs, including travel to Houston and the cost of building the prototype.

2. How will my team interface with NASA?

Your team will have multiple interfaces at NASA, each of which serves a different function. Your primary interface will be the Micro-g NExT Coordinators.

3. How much time should I anticipate spending on this project?

Time requirements will vary from team to team. Expect to spend a large portion of your time on design, creation, and outreach. If your team is struggling with time management, please work with your faculty advisor to set a feasible timeline.

4. How many teams will NASA select to test their prototypes in the NBL?

The number of teams selected is not predetermined but is based on the quality of submitted proposals.

5. Can we submit a design for more than one tool?

Each team may submit a proposal for only one of the Micro-g NExT challenges.

6. Can we submit more than one proposal from the same school?

Yes, you can submit more than one proposal from the same school. However, students may only belong to a single team.

7. Do we need to submit a prototype with the proposal?

We do not require a prototype to be submitted with the proposal. However, any prototyping you include in your submissions will add to the quality of your proposal.

8. If selected, what is the first step?

We require your team to attend a 1-hour orientation session with the Micro-g NExT coordinators. It is mandatory for all team members and faculty advisors attend this virtual session.

9. Can teams comprise students from multiple schools?

Absolutely! We encourage collaboration and interdisciplinary teams.

10. Can returning teams participate?

Returning teams may participate. However, teams may only have two returning members travel to Houston.

11. Do team members who have previously submitted a proposal, but were not selected, constitute a returning member?

No, returning members refers to team members who have previously participated on a team that advanced to Phase II of Micro-g NExT and attended the prototype test week.

- 12. My choice for faculty advisor is not a U.S. citizen. Are they still able to work with my team?**
Yes, they can still act as your advisor. However, they will be unable to travel to Houston for the test week. **Any person participating in the Test Week in Houston must be a U.S. citizen or Legal Permanent Resident.**
- 13. Are there hardware requirements and/or standards my team should be aware of before testing in the NBL?**
You can access requirements for hardware that will be tested in the NBL in the Proposal Guidelines document.
- 14. Do I get to dive with my team's prototype during testing in the NBL?**
Professional NBL divers will test the tools, and students will direct the divers from the Test Conductor Room of the NBL facility.
- 15. What do you consider STEM engagement?**
STEM engagement may consist of a presentation to a school group, a symposium, or another similar event. You may also incorporate a social media plan into your outreach.
- 16. When will we hold the STEM engagement component?**
Your STEM engagement component can occur prior to test week, but as some outreach components will include testing results, some outreach could occur after your team's test week.
- 17. The STEM engagement portion of my project involves development of K-12 curriculum for classroom use. Are there any suggested components I need to incorporate?**
The following websites might be useful when looking to incorporate NASA missions into the curriculum:
- [For Educators - NASA](#)
 - [Learning Resources - NASA](#)
- 18. How should we document STEM engagement in the proposal?**
Include a description of activities you plan to carry out. The description should include the purpose of the activity, the intended audience, the expected number of participants, and the perceived impact of the activity. It helps to have a letter of support from organizations you plan to work with in your outreach efforts. We advise that you begin making connections now.
- 19. Does the STEM engagement need to be related to the tool?**
No, it does not need to be directly aligned to your tool or the challenge. It can be anything STEM related, aerospace-related, NASA related, etc.
- 20. Do you require that we provide specific dates and times for all our STEM engagement lessons? Are we able to add additional STEM engagement lessons after we submit the proposal? Finally, is there a due date for STEM engagement lessons?**
When submitting your STEM engagement plan, it is beneficial to have letters of support from the groups you are going to partner with. However, we understand that plans may change. You will submit the final STEM engagement report along with the final technical report roughly a month after test week.

FAQs: Technical

Please visit the [EVA Reference Website](#). It provides references you can use when considering your design. You will only be judged on your ability to meet the requirements outlined in the challenges. You are not required to meet all the requirements we've outlined on the website.

1. Who would own the intellectual property rights?

NASA hopes to potentially use some of the ideas that your team puts forward in a future space mission. Therefore, we ask that teams complete a "Statement of Rights" document. See the Proposal Guidelines for specifics regarding this topic.

2. Some requirements are vague. What should I do in this case?

Some requirements are purposely vague. We want you to do the research and provide the rationale for why you designed your device the way you did.

3. Can you combine the functions of multiple tools together to save cargo space?

That's a great thought and an important consideration for space tool development. For the purpose of this activity, we ask you to select only one **(1)** challenge.

4. Can our prototypes have detachable parts?

Yes. You can use multiple pieces of hardware to accomplish the challenge. All pieces together should fit within the given dimensions.

5. May we 3D print parts of the tool?

Yes. Though you'll want to consider the loads that your tool will encounter and ensure that the plastics used in the 3D printer can handle those loads. We do not allow any regular PLA.

6. Will we have to make a waterproof version of our tool?

You will have to make a version of your tool that operates in the NBL. We will work with you to ensure you are using approved materials.

7. Does the prototype have to be built on a 1:1 scale, or can it be smaller?

The simulation in the NBL will be full-scale, 1:1. However, we do recommend doing scale prototypes during the proposal phase to show the validity of your design.

8. What temperatures do our materials need to be able to withstand?

The actual testing will occur in the NBL, which is about 86°F. Therefore, for this effort of developing a prototype, temperature will not be a major factor.

9. What is the size of an EVA glove?

See the [EVA Reference Website](#) for glove dimensions. You can also use a ski glove as a reference. It is approximately the same thickness as an EVA glove. Remember that when a space suit glove is pressurized, its nominal position will be "hand open," and the astronaut will expend energy to close their hand.

10. Will tools need to be able to be used with either hand?

This is not a requirement, but NASA does like tools that both left- and right-handed astronauts can use.

11. What CAD program is best to model our design? SolidWorks or AutoCAD?

You can use any CAD program you'd like, or none. A 3D model is not required, though we recommend it as it is easier to understand a design that way.

12. Can we have more than two parts as detachments?

Yes.

13. If we have something on our design that fits the dimensional requirements, but upon use the part stretches outside the stated dimensions, is that allowed? Or does everything have to stick within the dimensions you gave us?

The dimensional requirement is a stowage requirement. If your tool doesn't fit into the box when stowed, consider making your device into multiple pieces. Additionally, not meeting one of the requirements does not disqualify your team. You just won't get full credit for meeting that requirement.

14. Can our design deviate slightly from proposal drawings on the actual day of testing?

Yes. As with all proposals, there may be slight modifications. However, you will need approval on all changes.

15. What is considered a sharp edge, and how can they be mitigated?

To avoid sharp edges, the minimum radii on exposed edges should be 0.04" or larger.

- This is not a hard requirement, but it is a good idea to include it as part of the design. If the hardware passes the sharp edge inspection at the NBL, it will be fine. This inspection involves a person gently running their hands over the hardware and identifying edges that need to be filed down or covered.
- **Please note that we consider exposed threads (on screws, bolts, etc.) to be sharp edges.** We recommend choosing fastener lengths such that they are flush with your device/any nuts. You should cover any unavoidable exposed threads with RTV silicone, which comes as a liquid in a tube and cures at room temperature into a soft silicone.

FAQS: NASA STEM Gateway

1. Does every member of the team need to submit the proposal?

Only one member of the team (preferably the team lead) will submit the proposal on behalf of the team. During this process, they will add all team members and faculty advisors by entering their names and email addresses.

2. I have already created a STEM Gateway profile for other engagement openings, do I need to create a new profile?

No, if you are using the same email address attached to your existing profile, you will receive the notification that we have added you to the team without needing to set up an additional profile.

3. How do we add team members?

During the application process, the team lead will be prompted by STEM Gateway to add team members. You will do this by entering each team member's name and email address. Be sure to check with each team member that you are using the correct email address. You will need to click the "send invites" button in order to send the invitations.

4. Do we have to include our faculty advisor as a team member?

Yes, you must add all team members and faculty advisors to your team roster.

5. If we encounter technical issues, who do we contact?

You can report STEM Gateway technical issues to hq-nasa-stem-gateway@nasa.gov.