2023-24 Challenge Overview

https://www.futureengineers.org/nasatechrise
The Challenge

NASA is calling on middle and high school students to join the third NASA TechRise Student Challenge, which invites students teams to submit experiment ideas to fly on a high-altitude balloon or a rocket-powered lander.

Students in sixth to 12th grades at a U.S. public, private, or charter school -including those in U.S. territories- you are challenged to team up with your schoolmates to design an experiment under the guidance of an educator.

The high-altitude balloon will offer approximately four hours of flight time at 70,000 feet and exposure to Earth’s atmosphere, high-altitude radiation, and perspective views of our planet.

The rocket-powered lander will fly for approximately 120 seconds at an altitude of approximately 80 ft (~25 m) over a test field designed to look like the Moon’s surface.

The NASA TechRise contest offers participants hands-on insight into the payload design and suborbital flight test process, with the goal of inspiring a deeper understanding of space exploration, Earth observation, coding, electronics, and the value of test data.
Prizes

60 winners (30 for the high-altitude balloon and 30 for the rocket-powered lander) will be selected to build their payload. The prize package consists of:

• $1,500 to build the experiment
• A flight box in which to build the experiment
• An assigned spot to test the experiment on a high-altitude balloon or rocket-powered lander test flight
• Technical support from Future Engineers advisors when building the experiment
Watch the Challenge Video!
Challenge Timeline

- Contest Opens: Aug 16, 2023
- Educator Workshops: Sept 14, 2023
- Student Virtual Field Trip: Sept 29, 2023
- Entries Due: Nov 13, 2023
- Winners Begin Build: Jan 23, 2024
- Experiments Launch: Summer 2024
Regions

- Teams will compete in one of 20 competitive regions
Steps to Enter

- **STEP 1: FORM A TEAM**
  Your team needs to have at least 4 students and one educator/teacher.

- **STEP 2: REVIEW PROPOSAL TEMPLATE AND GUIDE**
  Your entry needs to be a written proposal that describes your experiment. It’s important to review both the proposal template and guide to understand the requirements.

- **STEP 3: CHOOSE ROCKET-POWERED LANDER OR BALLOON**
  Decide whether a Rocket-Powered Lander or High-Altitude Balloon is best for your experiment idea by watching the videos on the NASA TechRise Student Challenge web page and reviewing the slide decks and design guidelines.

- **STEP 4: PLAN YOUR EXPERIMENT**
  Use the corresponding brainstorming and components design resources to explore experiment ideas and consider how to build your idea.

- **STEP 5: SUBMIT YOUR PROPOSAL**
  Once your proposal is done, save it as a PDF so that the team leader (educator/teacher) can submit it online.
Proposal Template & Guide

Write up the experiment idea using the Proposal Template & Guide
Design Guidelines

Review the Balloon Design Guidelines or the Rocket-Powered Lander Design Guidelines before submitting your proposal. A few examples include...

- Your experiment idea must be realistic so that it can be built within ~4 months
- Your experiment must fit in a 4 inches x 4 inches x 8 inches box
- Balloon experiments, including the flight box, screws, electronics, and all components inside, can weigh no more than 1 kilogram (2.2 pounds).
- Lander experiments can weigh no more than 0.5 kg (1.1 pounds).
Entries Due by Oct. 20, 2023, 11:59 PM PT

- A proposal needs to be written by students and submitted by a teacher/educator. All proposals must include the following sections:

  - **WHAT** is your team’s experiment idea?
  
  - **HOW** do you imagine your experiment would work? What components and or technologies might you need to make it run?
  
  - **WHY** do you want to propose this experiment idea? What impact will building and testing your experiment have on your school team? What impact will this experiment have on space exploration or your knowledge of our planet, or on society as a whole?