Challenge Resource & Pacing Guide

Use this pacing guide to help you plan out how to participate in the NASA TechRise Student challenge.

Challenge Overview:

The NASA TechRise Student Challenge invites teams of sixth to 12th-grade students to design, build, and launch experiments on NASA-supported test flights. Guided by an educator, student teams affiliated with U.S. public, private, and charter schools can submit ideas for experiments to test on a high-altitude balloon with exposure to Earth's atmosphere and views of our planet. A panel of judges will review the submitted experiment ideas and select 60 winning entries. Each winning team will receive $1,500 to build their experiment and an assigned spot to test it on a NASA-sponsored flight operated by commercial flight provider –World View.

CHALLENGE LAUNCH VIDEO: https://youtu.be/juaMmu5bL1M

CHALLENGE WEBSITE: https://www.futureengineers.org/nasatechrise

KEY DATES:

- Entries due: November 1, 2024, 11:59 PM PT
- Winners Announced & Experiment Build Begins: January 21, 2025
- Experiment Build Complete: May 12, 2025
- Experiment Showcase: May 13, 2025
- Experiments Shipped to Future Engineers: May 14, 2025
- Experiments Launch: Summer 2025

WHO CAN ENTER: This is a challenge for SCHOOLS in the United States. U.S. public, private, or charter schools that serve 6th to 12th-grade students can assemble a team (or multiple teams) and enter. Minimum 4 students per team. No Maximum number of students per team. Proposals must be submitted by a team lead that is a teacher or employee of the school.

NGSS STANDARDS ALIGNMENT

Middle School: MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4
High School: HS-ETS1-1, HS-ETS1-2, HS-ETS1-3, HS-ETS1-4

GETTING STARTED:

Resource Type	Title	Description	Duration
Slide Deck	Challenge Overview Slides	Get to know NASA's TechRise Student Challenge. Explore the challenge page, learn the steps to participate in the challenge, and get an introduction to the proposal template.	10-15 min
Slide Deck	Learn About the Balloon Slide Decks	Use the slide deck to learn all about high-altitude balloons and the environments they will provide your payload. Then dive into what kinds of payload experiments can be done on this vehicle.	20 min

Resource Type	Title	Description	Duration
PDF	Balloon Design Guidelines	Review the High-Altitude Balloon Design Guidelines prior to planning your experiment.	5-10 min
PDF	Balloon Tech Sheet	Review the High-Altitude Balloon Tech Sheet prior to planning your experiment.	5-10 min
Slide Deck	Balloon Brainstorm	Use this slide deck to brainstorm possible balloon experiments.	30-45 min
PDF Worksheet	Balloon Brainstorm	Use this worksheet with the slide deck to help brainstorm possible balloon experiments.	
Slide Deck	Plan Your Experiment Design	Use this slide deck to start planning your experiment. First, learn about microcontrollers and how they can be used in your payload design. Next, learn the different types of hardware and components that can be used to plan out your experiment.	45-90 min
PDF Worksheet	Explore Components Design	Use this worksheet with the slide deck to plan a balloon experiment design.	
PDF	Proposal Template & Guide	Use this guide and template to create your NASA TechRise Proposal to enter the competition. Then submit your ENTRY!	Varies
PDF	Experiment Step by Step Example	Use this "Basic Sensor How-To" to help you think through the steps you might take to begin building a payload if selected as winner. It is a sample of how to record temperature and humidity during a balloon flight.	90-120 min