

LiftOff 2023: Planetary Defender!

Opportunity for a Virginia Teacher in Grades 5-12!

Virginia Space Grant Consortium (VSGC) will sponsor one teacher from Virginia for a Summer Professional Development Institute in Houston, Texas.

Application deadline December 20, 2022

Summer Institute: June 25- June 30, 2023

PROGRAM ANNOUNCEMENT

In the summer of 1990, NASA's Texas Space Grant Consortium initiated weeklong professional development training for teachers. This aerospace workshop, called LiftOff, emphasizes science, technology, engineering, and mathematics (STEM) learning experiences by incorporating a space science theme supported by NASA missions. Teacher participants are provided with information and experiences through speakers, hands-on activities, and field investigations that promote space science and enrichment activities for themselves and others.

PROGRAM HIGHLIGHTS

From looking for potential asteroids or comets that might impact Earth to protecting our home planet, NASA's Planetary defense research is critical to our assessment of future impact hazards for developing spacecraft missions that will assist us in protecting our home and increasing our understanding of the world around us.

In the next few years, NASA will increase our understanding of the structure of asteroids to help scientists and engineers create solutions to remove potential future threats of impact. Planetary defense research is critical to assessing future impact hazards and helping us understand the leftover remnants of our solar system...Asteroids.

These missions will help answer the questions:

- Can humans deflect asteroids?
- Could we stop an asteroid from hitting earth?
- How likely is it that an asteroid could hit earth?
- What are the components of an asteroid?

OSIRIS-Rex, returning with samples from Bennu, seeks answers to the questions that are central to the human experience: Where did we come from? What is our destiny? Asteroids, the leftover debris from the solar system formation process, can answer these questions and teach us about the history of the sun and planets.

The OSIRIS-Rex spacecraft traveled to Bennu, a carbonaceous asteroid whose regolith may record the earliest history of our solar system. Bennu may contain the molecular precursors to the origin of life and the Earth's oceans. Bennu is also one of the most potentially hazardous asteroids, as it has a relatively high probability of impacting Earth in the 22nd century. OSIRIS-Rex will determine Bennu's physical and chemical properties, which will be critical to know in the event of an impact mitigation mission. Asteroids like Bennu contain natural resources such as water, organics, and precious metals. In the future, these asteroids may one day fuel the exploration of the solar system by robotic and crewed spacecraft.

Double Asteroid Redirection Test (DART) is a NASA space mission aimed at testing a method of planetary defense against near-Earth objects (NEOs). An on-orbit demonstration of asteroid deflection is a key test that NASA and

other agencies wish to perform before any actual need is present. The DART mission is NASA's demonstration of kinetic impactor technology, impacting an asteroid to adjust its speed and path. DART will be the first-ever space mission to demonstrate asteroid deflection by the kinetic impactor.

Lucy is the first space mission launched to study the Trojan asteroids. Trojans are small bodies that are remnants of our early solar system. They orbit the Sun in two loose groups: one group leading ahead of Jupiter in its orbit, the other trailing behind.

During its 12-year primary mission, Lucy will explore a record-breaking number of asteroids, flying by one main belt asteroid and seven Trojans. No other space mission in history has been launched to as many different destinations in independent orbits around our Sun.

PROGRAM FEATURES:

- Presentations by NASA scientists and engineers
- Tours of NASA and Space Center Houston
- Hands-on, inquiry-based classroom activities aligned with educational standards
- Career Exploration
- Teacher Feature (sharing of classroom lessons and activities)
- Opportunity to interact with researchers dedicated to space missions

Eligibility Requirements:

- Currently employed as a 5-12 grade classroom educator
- Demonstrate the willingness to share information with others
- Must be a U.S. citizen

How to apply:

- For VSGC sponsorship, please **email your resume** by **December 12, 2022**, to **Joyce Corriere** at jcorrier@odu.edu
- **You must apply directly through the Liftoff application system to be considered for the workshop.** <https://www.tsgc.utexas.edu/liftoff/index.html>

The selected teacher will be required:

- to attend the whole event, participate fully, and submit a report summarizing the experience to the VSGC.
- Will be asked to present on the experience at VSGC-sponsored events.

For Questions about the VSGC sponsorship of one teacher from Virginia, please contact Joyce Corriere.

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