



21st CCLC NASA Projects



y4y.ed.gov/STEMChallenge/NASA

NASA and 21st Century Community Learning Centers Fact Sheet

Since 2013, the U.S. Department of Education's 21st Century Community Learning Centers (21st CCLC) program has collaborated with NASA to bring exciting science, technology, engineering and math (STEM) learning opportunities to student participants. Through this nationwide partnership, student teams at over 300 sites across the U.S. interact directly with NASA scientists and engineers to tackle real-world engineering design challenges.

The 21st Century Community Learning Centers Program

The 21st CCLC program provides funding for community learning centers around the country to connect young students with academic enrichment opportunities during non-school hours, particularly students who attend high-poverty and low-performing schools. The 21st CCLC program sites help students meet state and local standards in core academic subjects, such as reading and math, and offer enrichment activities designed to complement and reinforce school-day academic programs.

The 21st CCLC program was created under the 1994 reauthorization of the Elementary and Secondary Education Act as part of a national strategy to increase the impact of federal investments targeted at underserved student populations.

Why Out-of-School STEM Experiences Are Important

Evidence indicates out-of-school time can provide a critical pathway to encourage student interest in STEM learning and can be particularly effective in engaging students who might not otherwise have opportunities to participate in STEM activities. STEM skill acquisition is important for several reasons:

- Data projections show that STEM jobs will increase over time, and the demand for occupations that require expert thinking and complex communication is higher than that for manual and routine jobs. A survey of educators, parents and students found near consensus that problem solving and critical thinking are essential skills for students to learn.
- A 2017 report from the U.S. Bureau of Labor Statistics shows that over the past 10 years, STEM occupations grew by 10.5 percent compared to 5.2 percent in non-STEM occupations, and STEM jobs are expected to continue to grow at a faster rate than other jobs in the coming decade.
- There are large gaps in STEM interest and achievement gap among some groups, and African Americans, Hispanics, Native Americans, and women are seriously

underrepresented in many STEM fields. This limits their participation in many well-paid, high-growth professions and deprives the nation of the full benefit of their talents and perspectives.

- Disparities in access to high-quality STEM programs aren't limited to the school day — significant disparities also persist during out-of-school time. Typically, by sixth grade, students from middle- or upper-class households will have experienced over 6,000 more hours of enrichment programs (including, but not exclusively, about STEM) than their less financially fortunate peers. This lack of access amplifies the challenges experienced during the school day.
- The 21st CCLC program, which serves more than 1.6 million students in all 50 states, provides an unparalleled avenue for reaching students in high-need schools, who often have little or no opportunity to engage with STEM content and experiences or with STEM professionals. Participation in this program is free, giving students access to new experiences and opportunities to apply knowledge and practice in these disciplines.

Hands On With NASA

The collaboration with NASA provides students with an opportunity to tackle real-world challenges being addressed by NASA scientists and engineers.

- The 2019-20 program will reach over 300 sites across 23 states.
- Throughout the program, 21st CCLC staff and students interact directly with NASA scientists and engineers, learning firsthand about engineering design.
- The Engineering Design Challenges provide students in grades 3-8 with opportunities to work on engineering design problems that are based on real mission data and experiences encountered by NASA scientists and engineers, and that highlight NASA's unique mission of space exploration.
- In 2019-20, seven challenge options will be offered to students:
 - **Let it Glide.** (*grades 6-8*) Students build a shoebox glider to produce the greatest glide slope.
 - **Mission to Mars.** (*grades 3-5*) Students develop a device to slow down spacecraft landing on Mars.
 - **Packing Up for the Moon.** (*grades 6-8*) Students design a plant growth chamber that could be used by astronauts to grow vegetables on the moon.
 - **Parachuting onto Mars.** (*grades 6-8*) Students develop a drag device to slow the descent of a spacecraft or probe, while protecting its cargo for a successful landing.
 - **Safe Travels.** (*grades 3-5*) Students develop devices for astronauts traveling to the Moon or Mars.
 - **Spacecraft Safety.** (*grades 6-8*) Students help design NASA's next generation spacecraft.



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- **Why Pressure Suits?** (*grades 6-8*) Students design a pressure suit or spacesuit that will protect a high-altitude pilot or astronaut from the low-pressure, near-vacuum environment that is experienced in space.

State-Level Impact

There are thirty-five (35) 21st CCLC sites in New York State that offer NASA STEM programs in 2019-20 and serve over 1,100 students across the state. Click [here](#) to view a list of participating sites.

Resources for Educators and Students

The Department makes STEM activity resources available through its You for Youth (Y4Y) online community (<https://y4y.ed.gov/stemchallenge>), which provides free, research-based content to more than 165,000 21st CCLC practitioners in 11,500 program sites across the nation. For more information on the 21st CCLC program and the interagency collaboration, visit this website: <http://www2.ed.gov/programs/21stcclc/index.html>.

Please note that scientist and engineer connections and support are available only to sites participating in this school year's initiative; however, activity materials are available for other sites to use on their own.

NASA STEM Engagement Resources

For Educators

- <https://www.nasa.gov/stem/foreducators>

For Students

- <https://www.nasa.gov/stem/forstudents>