



# 21st CCLC NASA Projects



[y4y.ed.gov/STEMChallenge/NASA](http://y4y.ed.gov/STEMChallenge/NASA)

## NASA and 21st Century Community Learning Centers (21st CCLC): Frequently Asked Questions

### What is the U.S. Department of Education's (ED's) 21st CCLC program?

The 21st CCLC (<http://www2.ed.gov/programs/21stcclc/index.html>) program provides funding for community learning centers around the country that connect young students with academic enrichment opportunities during non-school hours, particularly students who attend high-poverty and low-performing schools. The 21st CCLCs 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 regular academic programs.

The 21st CCLC program was created as part of the 1994 reauthorization of the Elementary and Secondary Education Act (ESEA). ESEA was initially signed into law in 1965 by President Lyndon Baines Johnson, who believed that "full educational opportunity" should be "our first national goal."

### What is STEM and why is it a priority?

STEM refers to the fields of science, technology, engineering and mathematics. The United States is a global leader in STEM partly because of the ability of American scientists, engineers and innovators with highly developed knowledge and skills to solve tough problems, gather and evaluate evidence and make sense of information. STEM is an educational priority for several reasons, including:

- STEM is a critical lever for equity. Reports from the US Department of Commerce show that over the past 10 years, growth in STEM jobs was three times greater than that of non-STEM jobs, and STEM jobs are expected to continue to grow at a faster rate than other jobs in the coming decade. Wages in STEM-related fields are generally higher than in non-STEM fields.
- It is not just STEM jobs that are relevant, but the skills that are cultivated in the pursuit of STEM fields – critical thinking and problem solving are among the most important skills sought by employers.
- The problem is not just a lack of *proficiency* among American students – there is also a lack of *interest* in STEM fields among many students. The U.S. faces a shortage of both teachers in STEM fields and in students interested in pursuing a future in STEM.

The goal of the 21st CCLC STEM program is to provide students access to engaging and challenging STEM activities that connect what students are learning during the school day with 'real life' applications, and strengthen their skills and increase their interest in STEM learning.



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## In general, what is the government doing to support STEM?

The Committee of STEM Education (CoSTEM), which consists of 14 federal agencies—including all of the mission-science agencies and ED—developed a cohesive national strategy to increase the impact of federal STEM education investments in five areas: 1) improving STEM instruction in preschool through 12th grade; 2) increasing and sustaining public and youth engagement with STEM; 3) improving the STEM experience for undergraduate students; 4) better serving groups historically underrepresented in STEM fields; and 5) designing graduate education for tomorrow's STEM workforce. This initiative is one of the most successful efforts linked to CoSTEM because it leverages ED's vast reach, particularly to students who would normally lack access to unique, engaging STEM content and to STEM professionals from the mission agencies.

## What is the partnership between ED and NASA?

ED has been collaborating with NASA since 2013 to bring exciting STEM-based educational content and experiences to students nationwide. In 2016, NASA activities will take place during out-of-school time at up to 148 21st CCLC sites in 15 states. Through Y4Y's collaboration with NASA, student teams are tackling real-world engineering design challenges and learning about scientific investigation, with opportunities to interact directly with NASA scientists and engineers.

## What do students learn in the 21st CCLC NASA program?

The collaboration with NASA provides students a way to learn about the Earth and the environment through making first-hand scientific observations as well as an opportunity to tackle real-world challenges currently being addressed by NASA scientists and engineers.

- Throughout the program, both 21st CCLC staff and students interact directly with NASA scientists and engineers, learning firsthand about engineering design and the scientific method.
- Program options include the Engineering Design Challenge (EDC) and Global Observation to Benefit the Environment (GLOBE) Investigation:
  - The EDC program provides students with the opportunity to work on engineering design problems that are based on real mission data and experiences encountered by NASA scientists and engineers and highlight NASA's unique mission of space exploration. In 2016, four challenge options will be offered students:
    - **Parachuting onto Mars.** Students develop a drag device to slow the descent of a spacecraft or probe, while protecting its cargo for a successful landing.
    - **Why Pressure Suits?** 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.
    - **Packing Up for the Moon.** Students design a plant growth chamber that could be used by astronauts to grow vegetables on the moon.



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- **Designing a Crew Exploration Vehicle.** Students design and construct a Crew Exploration Vehicle that can carry two toy astronauts as passengers in space travel.
- GLOBE is an international science and education program that has been underway since 1995 that teaches students how to become “citizen scientists”—members of the general public who help conduct environmental observations that are of use to the scientific community—as they contribute to our understanding of the Earth’s systems and the global environment. In this year’s program, which focuses on investigating clouds and energy, students will collect and analyze measurements of clouds, air temperature and surface temperature to determine how clouds impact Earth’s energy systems, connect with scientists to discuss their investigations and produce short videos explaining their hypotheses and supporting data for NASA’s review.

## **How many students in Montana do the Department and NASA reach with 21st CCLC programs? What is the impact in Bigfork?**

There are 15 out-of-school 21st CCLC sites in MT offering NASA STEM programs in 2016-17.

Eight students in two groups are participating in Bigfork at ACES.

## **Where can I find more information and resources for teachers?**

STEM activity examples are available through the You For Youth (Y4Y) online community (<https://y4y.ed.gov/>), which provides free, research-based content to more than 165,000 21st CLCC practitioners in over 10,000 program sites across the nation. Please note that scientist and engineer connections and support are only available to participating programs. For more information on the 21st CCLC program and the interagency collaboration visit:

<http://www2.ed.gov/programs/21stcclc/index.html>