**4-H Race to Space Program**

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This project is being designed as the mechanism to select up to 16 4-H’ers to represent NC A&T State University at Space Camp (hosted at the US Rocket Center in Huntsville Alabama).The program is purposed to provide opportunity and access to youth in select counties that currently participate in 4-H or attend a Title 1 school.

**What is Space Camp:** Space Academy trainees experience firsthand the future of space travel and train to solve technically challenging anomalies in order to complete their space mission. Trainees practice clear communication through teambuilding activities and leadership training at Space Camp Challenge Course and put engineering skills to the test as they construct an ablative shield during the Thermal Design Challenge. During the week, youth will:

* Launch on missions to the International Space Station, the moon or Mars
* Train like an astronaut on the 1/6th Gravity Chair and the Multi-Axis Trainer
* Design, build and launch a team rocket
* Learn teambuilding skills on the low elements at our Space Camp Challenge Course and in one of our water facilities
* Put your creative thinking skills to work in our engineering design challenges
* Hear the inspiring stories about commercial pioneers like Elon Musk, founder of SpaceX

**Program Description:** The 4-H Race to Space is being proposed as a new 4-H program that will challenge teams of youth ages 12 – 14 to learn and utilize the engineering design process, and the eight practices of science and engineering to design and build a Rube Goldberg contraption or machine. All machines will be designed at home between the program orientation date and the date that engineering journals and drawings will be due. A base kit of materials will be provided for all registered teams. All items in the base kit must be used in the final design. The expectation is that teams will recycle more materials from their homes and community to complete the machines. In addition, teams will have the opportunity to submit a budget for specialty items to be used in their machines. Details on the objective of the machine, base kit, budget, and engineering journal requirements will be shared during the program orientation. Weekly updates from mission control will be provided to all emails listed on the registration. These updates will include tips, resources and mini challenges that can earn extra points. Machines will be built based on the documented designs on the competition day at North Carolina A&T State University in Greensboro, NC. Up to 16 youth will earn an all-expense paid trip to Space Camp in Huntsville Alabama.

**Eligibility:**  Youth that are current 4-H’ers or attend Title 1 middle schools are the target audience for this program. Homeschool eligibility will be determined on a case by case basis by the local 4-H staff. Participants must reside and work with a 4-H agent or program assistant that is employed by NC A&T State University to register for the program. These counties are Yancey, Mitchell, Graham, Guilford, Forsyth, Harnett, Martin, Mecklenburg, Bertie, Gates, Hertford, Bladen and Wilson.

**Team Criteria**: Youth will participate in teams of up to 4 youth and up to two adults. Youth ages 12 – 14 will be in competition for a trip to Space Camp at the US Rocket Center in Huntsville Alabama. Younger family members (up to 2) are also welcome to contribute to the machine, but are not competing for the trip. One adult team member (over the age of 18) should be a family member of at least 1 competing team member. All competing team members will be required to provide parental consent to participate in the program and travel to Space Camp during the summer of 2020.

**Registration Process:** Each team will register using the link below. In addition, each competing team member must be registered in 4-H online.

<https://forms.gle/3wLQHauGaZUdeewy9>

**Meeting dates**: An interest and kick-off meeting will be held to start registration. The kickoff meeting is highly encouraged but not required to compete. Points will be awarded to teams that participate in the kick-off event. Teams will be required to participate in an orientation meeting, where they will be provided the details of the challenge. The kickoff and orientation will be held at the Cooperative Extension offices with a message and session led by the 4-H STEM Specialist via Zoom.

**Proposed Timeline:**

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| **Date** | **Event** | **Details** |
| Oct. 10, 2019  6:30 pm | Race to Space kick-off. Meeting will be held in Zoom and hosted at county offices | Get excited about the program. Announce the challenge theme. |
| November 15, 2019 | Registration ends | All paperwork for each team should be completed and turned in to 4-H Agent. |
| November 22, 2019  6:30 pm | Program orientation. This meeting is required for all teams. The meeting will be held in Zoom and hosted at county offices. | Discuss challenge details, base kit, engineering journal expectations, and budget for machines. |
| January 10, 2020 | Engineering journals and budget forms are due to 4-H Agent |  |
| February 8, 2020 | Machine build competition and showcase | Teams build their machines on campus. Winners announced at the end of the day. Winning parents complete travel paperwork. |
| July 26 – 31, 2020 | Travel to Space Camp | Dates will be final before registration period ends. |