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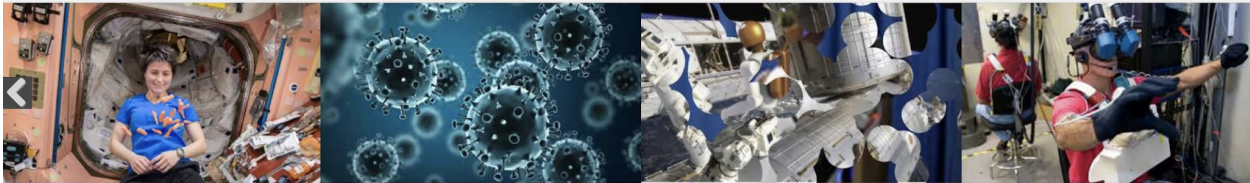
From Vermont to the ISS



On Wednesday, May 2nd, Charlotte Central School students spoke directly with NASA astronauts Scott Tingle and Drew Feustel, who were aboard the International Space Station. The live connection between Charlotte Central School and the ISS was made possible through a partnership between RETN, NASA and Charlotte Central School. The event was part of a 2-month interdisciplinary ISS unit in Social Studies and Science. This series includes a documentary film about the project created by RETN's Ken French, videos produced by Charlotte students and an archive version of NASA TV's live broadcast of the May 2nd uplink.

Links: [Charlotte Central School](#)
[NASA](#)

Shows In This Series



Mission to Learn - Year Long 6th Grade Space Science Collaboration

The best way to get a sense of what might be one of our favorite Instructional Coaching partnerships watch this short video produced by RETN - Vermont's Regional Public Television Network. They were one of the partners that worked with our students - guiding them through the production of videos highlighting an actual research project taking place onboard the International Space Station during Expedition 54:

<https://www.youtube.com/watch?v=YRMudQXIMdY&t=24s>

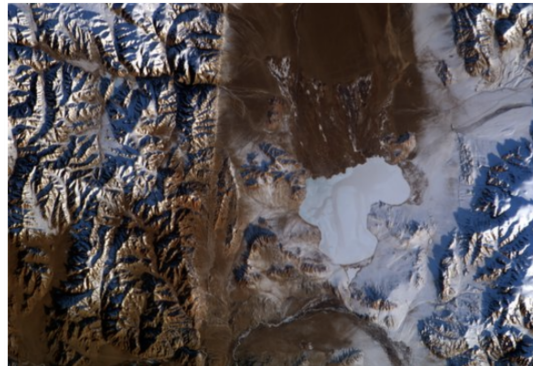

Allan was working as an Instructional Technology Coach at Charlotte Central School, and partnered with a wonderful 6th grade teacher Tasha Gray who was really excited to try to incorporate more project based learning and interdisciplinary work into her curriculum. Collaborating over the summer, the idea came to build on an opportunity for her class (and the entire middle school) to participate in a live downlink with the astronauts onboard the International Space Station. This is an opportunity schools can apply for through NASA - <https://www.nasa.gov/learning-resources/in-flight-education-downlinks/> We were excited about the opportunity but didn't want it to be just a one and done - instead deciding to make it just one component (albeit a really rare and exciting one) in a series of lessons targeting building students research and communication skills as well as their understanding of the purpose of ISS.

Being a yearlong project it had many components - we'll just give a quick overview of each here:

SallyRide Earthkam <https://www.earthkam.org/> - students were introduced to the space station and given an opportunity to program an onboard camera as part of this project. This was in reality more of a geography project as it requires an understanding of latitude / longitude and the end result was a schoolwide bulletin of student pictures taken during the mission.



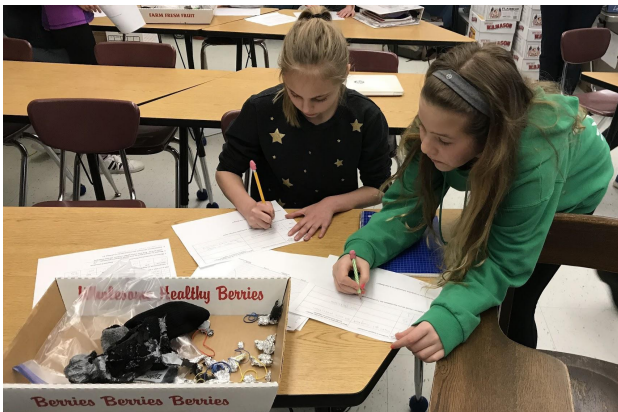
Olivia's picture of Mongolia

This photo is of Mongolia Aisa. It shows mountains and a pond or lake this is also nearby a the mountain peak Harhiraa Uul. The nearest town is Zhana-Aul.

Latitude:49.44 N
Longitude:90.64 E
Date taken: Feb 24 01:44:54

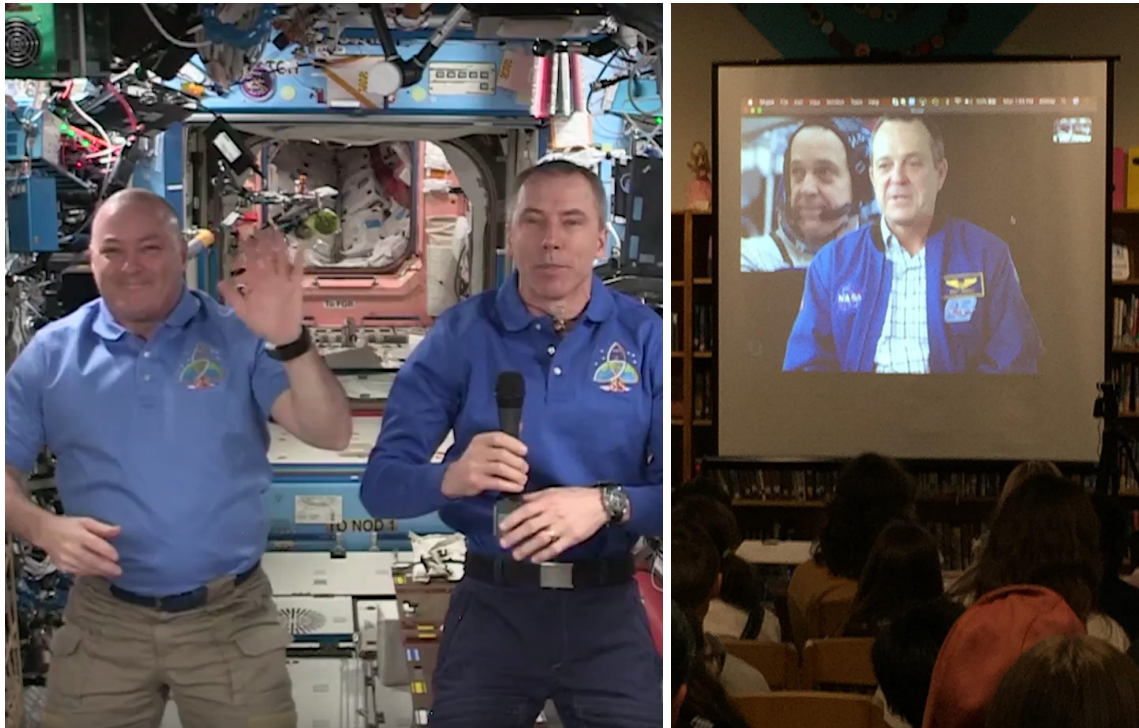
Houston We Have a Problem (this project is described much more fully as it's own project on the STEM4Learning webpage) - this was a hands-on science simulation built from the reality of Apollo 13 - especially the scene where Mission Control engineers have to solve the issue of the misfit carbon dioxide scrubber filters onboard the command and lunar modules. Students are asked to create an insulation package for a battery so that it can maintain a stable operating temperature despite the varying temperatures experienced outside the ISS during a full orbit. Students are given materials that would be onboard the ISS (ie. toilet paper, ziplocks, socks, foil, etc) and asked to create their best prototype. These are tested in hot and cold (in dry ice and an oven), results tabulated, and they they collaboratively try to create an overall solution.



Research on ISS experiments - in preparation for the downlink conversation with astronauts, students were introduced to the variety of experiments that NASA is conducting onboard the ISS during every mission. We used a wonderful NASA ipad app called the Space Station Research Explorer (SSRX) which is an easy to use database of past and present research projects with full explanations of the experimental models and desired outcomes. It is definitely not written for 6th graders which was perfect, as it led to a huge amount of questions. At this point students were tasked by a NASA education officer to create short videos explaining one or more of the experiments they found intriguing - which provided a huge motivation to really

understand these and led to some great questions of the astronauts during the actual 25 minute downlink.

The Downlink - this was an awesome event - staff from RETN was onhand to help with all of the technical logistics - we also clearly achieved our goal of not having it be a "one and done" as our students walked out excited to incorporate what they learned into their upcoming videos. The second year we repeated this project we also were able to have a Zoom call with earth based Educator Astronaut Ricky Arnold - this was even a better link to the project since we were not limited by orbital dynamics and he really knew how to talk to 6th graders :-)



Video Creation - the RETN team spent several weeks with our students helping them understand the basics of video creation and editing - how to incorporate both A and B role footage to support a well written script to deliver a clear, succinct message. Several student still had pretty significant challenges with understanding the complexity of this authentic research - several were helped by scientists from Skype a Scientist (<https://www.skypeascientist.com/>) an online resource database of scientists willing to share their science knowledge with students around the world. Once ready students used WeVideo to create their final pieces and these were archived on a site created by RETN that over the course of the three years it was up drew over 10,000 views (it has since been archived and is no longer available live - just the summary video on youtube).