

Hello,

January has been one of those months where we had a hard time deciding on which space news to share with you. Hopefully, the whole year will be a blast with new space missions and discoveries. Make sure to follow the launch of the brand new rocket "Falcon Heavy" for the first time ever on February 6.

What makes this issue of Astro Newsletter so special is that a former FEP student, Dalya Kinsizer, has sent us a sincere testimonial and we wanted to share it with our readers. You can find Dalya's testimonial on Page 4. Nothing inspires a young mind like a fellow student! Thank you Dalya for sharing your thoughts and experience with us. We wish you the BEST!

All FEP and PSSP students are also welcome to share their testimonials with us.

SPACE NEWS IN A FLASH

- Astronaut John Young, Who Walked on the Moon and Led 1st Shuttle Mission, Dies at 87
- Trash-Blasting Lasers Could Help Clean Up Space Junk
- Meteorites Brought Water to Earth During the First Two Million Years
- Rare Super Blue Blood Moon Eclipse Thrills Millions Around the World
- James Webb Wraps Up 3 Months in the Freezer
- Microbes May Help Astronauts Transform Human Waste Into Food
- Chinese Lander Will Carry Insects and Plants to the Moon

The moon is a friend for the lonesome to talk to.

- Carl Sandburg



Astronaut John Young, Who Walked on the Moon and Led 1st Shuttle Mission, Dies at 87

John Young, NASA's longest-serving astronaut, who walked on the moon and flew on the first Gemini and space shuttle missions, has died.

The first person to fly six times into space and the only astronaut to command four different types of spacecraft, Young died on January 5th following complications from pneumonia.. He was 87.

Selected alongside Neil Armstrong and Jim Lovell with NASA's second group of astronauts in 1962, Young flew two Gemini missions, two Apollo missions and two space shuttle missions. He was one of only three astronauts to launch to the moon twice and was the ninth person to step foot on the lunar surface.

In total, Young logged 34 days, 19 hours and 39 minutes flying in space, including 20 hours and 14 minutes walking on the moon.

"I've been very lucky, I think," Young said in a NASA interview in 2004, when he retired from the space agency after 42 years.

"NASA and the world have lost a pioneer," said NASA acting administrator Robert Lightfoot in a statement on Saturday (Jan. 6). "John Young's storied career spanned three generations of spaceflight; we will stand on his shoulders as we look toward the next human frontier."

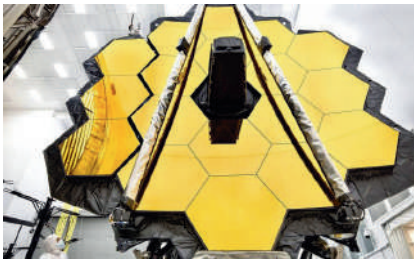
(<http://www.space.com>)

Trash-Blasting Lasers Could Help Clean Up Space Junk

More than 500,000 pieces of human-made debris — colloquially known as "space junk" — orbit the Earth at any given time, NASA reported in 2013. At least 20,000 items in this extraterrestrial scrap heap are larger than a softball, and can include such massive detritus as entire defunct satellites and abandoned launch vehicles.

As more space missions (and more space junk) enter orbit every year, the need to clean up Earth's outer atmosphere grows ever more pressing. Now, researchers at the Air Force Engineering University in China propose a solution: just blast the junk with satellite-mounted lasers.

(<http://www.livescience.com>)



James Webb Wraps Up 3 Months in the Freezer

When the James Webb Space Telescope finally takes to space, it will study some of the most distant objects in the Universe, effectively looking back in time to see the earliest light of the cosmos. It will also study extra-solar planets around nearby stars and even bodies within the Solar System.

It is therefore understandable why the world is so eager for the JWST to be launched into space (which is now scheduled to take place in 2019). And recently, the telescope passed another major milestone along the road towards deployment. After spending three months in a chamber designed to simulate the temperatures and vacuum conditions of space, the JWST emerged and was given a clean bill of health.

(<https://www.universetoday.com>)

Meteorites Brought Water to Earth During the First Two Million Years

A new study of a rare basaltic meteorites called angrites suggests that volatiles, which are elements with relatively low boiling points such as water, could have been brought to our planet by meteorites during the first two million years of the solar system.

Since elements such as water and carbon are essential ingredients to life on Earth, researchers are keen to know when they arrived on our planet.

The team discovered that the parent asteroid of angrites likely had about 20 percent of the Earth's current water content.

(<http://phys.org>)

Microbes May Help Astronauts Transform Human Waste Into Food

Human waste may one day be a valuable resource for astronauts on deep-space missions. Now, a Penn State research team has shown that it is possible to rapidly break down solid and liquid waste to grow food with a series of microbial reactors, while simultaneously minimizing pathogen growth.

To test their idea, the researchers used an artificial solid and liquid waste that's commonly used in waste management tests. They created an enclosed, cylindrical system, in which select microbes came into contact with the waste. The microbes broke down waste using anaerobic digestion, a process similar to the way humans digest food.

The team found that methane was readily produced during anaerobic digestion of human waste and could be used to grow a different microbe, *Methylococcus capsulatus*, which is used as animal feed today. The team concluded that such microbial growth could be used to produce a nutritious food for deep space flight.

(<http://phys.org>)

Rare Super Blue Blood Moon Eclipse Thrills Millions Around the World

The second full moon of January passed through Earth's shadow in a Super Blue Blood Moon eclipse on January 31, a rare lunar sight visible to millions of observers around the world.

The lunar eclipse was the first to coincide with a Blue Moon — a second full moon in one month — in North America in over 150 years. It was also the second "supermoon" of 2018.

(<http://www.space.com>)

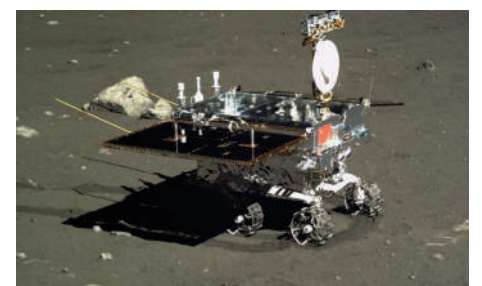


Chinese Lander Will Carry Insects and Plants to the Moon

Many of the space agencies and private aerospace companies are planning their own missions to the lunar surface. A good example is the Chinese Lunar Exploration Program (CLEP), otherwise known as the Chang'e Program. Named in honor of the ancient Chinese lunar goddess, this program has sent two orbiters and one lander to the Moon already. And later this year, the Chang'e 4 mission will begin departing for the far side of the Moon, where it will study the local geology and test the effects of lunar gravity on insects and plants.

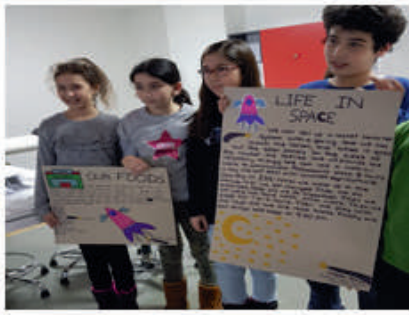
The mission will consist of a relay orbiter being launched aboard a Long March 5 rocket in June of 2018. This relay will assume orbit around the Earth-Moon L2 Lagrange Point, followed by the launch of the lander and rover about six months later.

(<http://www.universetoday.com>)



SCHOOLS IN ACTION

Even though it was almost the end of first term, schools were in full action and completed all their projects on time! We continue welcoming new schools to our programs and hope to see even more students involved in space themed projects. And to our students that are currently on their semester break; Enjoy the Holiday :)



Maltepe Yönder College, stanbul



Yane Sandanski, Gotse Delchev Bulgaria



smail Kaymak College, Çanakkale



MEF Middle School, stanbul
Velzys Gymnasium, Lithuania



"Ivan Hadzhienov" High School, Bulgaria



Yönder College, zmir



SEV Middle School, zmir
ProFuturo School, Poland

Astronomy Picture of the Day



Explanation: Near the closest point in its orbit, the second Full Moon of the month occurred on January 31. So did the first Total Lunar Eclipse of 2018, as the Moon slid through planet Earth's shadow. In a postcard from planet Earth, this telescopic snapshot captures the totally eclipsed Moon as it set above the western horizon and the Chiricahua Mountains of southern Arizona. The Moon's evocative reddened hue is due to sunlight scattered into the shadow. Still, the planet's shadow visibly grows darker near the center, toward the top of the lunar disk.

Moonset Eclipse

Image Credit & Copyright: Fred Espenak

TESTIMONIAL

As a past FEP student, I had the privilege of gaining and learning skills that allowed me to succeed in many ways. Not only academically, the program allowed me to gain teamwork skills that's more advanced than what my grade supplied me with. I had the opportunities to learn about space and all its wonders in many ways, I got to create projects with my peers in various grades and explore many innovative and advanced ways in doing my work. While working in ways to have our knowledge be reflected on our projects, I never realized until now how much I have learned about astronomy and space! Without FEP, I never would have found my passion and interest in space and astrophysics. It truly was a wonderful experience learning and actually having to have hands-on projects that made us feel as if we were above our grade levels. The most fun part for me was that we got to use science and our imagination, which is so unique. In differing ways of how we learned from experiments, models, sketches, presentations and adds, I've grown over the course.

One of my personal favorites was when we used Green Screen to do a commercial about a vacation that we planned accordingly to the conditions of planet Saturn. Not only learning about Saturn's interesting qualities, we got to create a vacation with everything included! We created life kit packs, items, games, activities and even payment methods! I never could have imagined how much self esteem I have gained with FEP too. I honestly loved the course that I took it two years in a row and even worked with my group mates to create and learn more! I assure you and guarantee that unlike any other course, FEP is the one that not only will be fun but will also change you in so many great ways that even you will be surprised of. I'm very thankful for all that I have gained, experienced and learned from the course. I can't forget that I got to meet more people that shared my interest and became close friends with. Without FEP, I think that I would never have had the privilege of knowing how fun and incredible astronomy truly is especially with your friends.

Dalya Kinsizer, New York