GLOBAL FRIENDSHIP
THROUGH SPACE EDUCATION

ASTRO NEWSLETTER

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Hello Loyal Followers,

With the school year almost over, we started conducting our last videoconferences before the summer holiday begins. It has been a wonderful journey together with all our participating schools, thank you for all your hardwork and dedication. A special thanks to our teachers for their support and encouragement throughout the year. All the students did a wonderful job in expressing their ideas about space technologies and missions.

We also have some news regarding the Future Explorers Summit. We will have a videoconference with retired NASA Astronaut Nicole Stott. She will share her experiences as a NASA Astronaut and answer various questions asked by our campers. You can find more information about Nicole Stott from the link below;

http://www.gftse.org/page/astronaut-nicole-passonno-stott/

SPACE NEWS IN A FLASH

- NASA's Juno Probe Reveals Cyclones, Auroras & Surprises
- After 9 Months in Space, Mouse Sperm Yield Healthy Mice
- NASA Eyeing 'Chain Mail' Fabric for Use in Space
- Japan Aims to Uncover How Moons of Mars Formed
- Collapsing Star Gives Birth to a Black Hole
- Construction Begins on the World's First Super Telescope
- Europa Lander Could Carry a Microphone and “Listen” to the Ice

Science is the best idea humans have ever had.
- Bill Nye

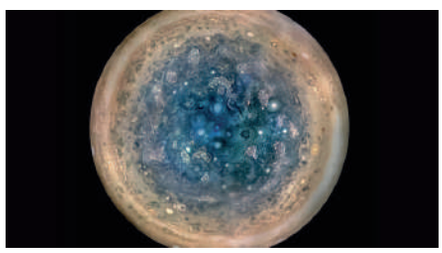
NASA's Juno Probe Reveals Cyclones, Auroras & Surprises

Huge cyclones rage near Jupiter's mysterious poles, and the giant planet's powerful auroras are fundamentally different from Earth's northern and southern lights.

Those are just two of the discoveries made by NASA's Juno spacecraft during its first few close passes over Jupiter's poles, mission scientists report in two studies published online on May 25th in the journal Science.

Before Juno, no spacecraft had ever gotten close-up looks at Jupiter's poles. These mysterious regions are beautiful and bizarre, the Bolton-led study reports.

It's unclear what, exactly, drives these polar cyclones, some of which are up to 870 miles (1,400 km) wide, or if they're stable over long periods



Scientists already knew that the solar wind is a major driver of Jovian auroras, and that the planet's rotation is involved as well. But Juno has given researchers a chance to study the phenomenon in unprecedented detail; no other spacecraft had ever flown close to the planet's auroral regions before.

The particles associated with Jupiter's auroras seem to be different than the ones responsible for Earth's most stunning light shows, study team members said.

(https://www.space.com)

The Grand Finale Toolkit:

https://saturn.jpl.nasa.gov/mission/grand-finale/overview/

After 9 Months in Space, Mouse Sperm Yield Healthy Mice

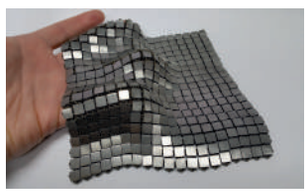
After nine months in space, mouse sperm has yielded healthy mice, Japanese scientists reported.

The freeze-dried sperm samples were launched in 2013 to the International Space Station and returned to Earth in 2014. The intense radiation of space caused slight DNA damage to the sperm. Yet, following in vitro fertilization on the ground, healthy offspring resulted. The baby mice grew into adults with normal fertility of their own.

(http://phys.org)

NASA Eyeing 'Chain Mail' Fabric for Use in Space

To protect its spacecraft from the rigors of deep space, a team of NASA engineers is turning to a solution: chain mail. The team has developed a prototype fabric that puts an extraterrestrial spin on the armor of yore.



The fabric is strung together from a series of articulated metallic tiles, which reflect light on one side and absorb it on the other, providing a mechanism for thermal regulation. Pliable yet durable, it can also be manipulated into a variety of shapes without ceding tensile strength.

(http://www.space.com)

Japan Aims to Uncover How Moons of Mars Formed

The Japan Aerospace Exploration Agency (JAXA) has announced a mission to visit the two moons of Mars and return a rock sample to Earth. It's a plan to uncover both the mystery of the moons' creation and, perhaps, how life began in our Solar System.

The Solar System's planets take their names from ancient Greek and Roman mythology. Mars is the god of war, while the red planet's two moons are named for the deity's twin sons: Deimos (meaning panic) and Phobos (fear).

Unlike our own Moon, Phobos and Deimos are tiny. Phobos has an average diameter of 22.2km, while Deimos measures an even smaller 13km.

(http://www.marsdaily.com)

Collapsing Star Gives Birth to a Black Hole

Astronomers have watched as a massive, dying star was likely reborn as a black hole. It took the combined power of the Large Binocular Telescope (LBT), and NASA's Hubble and Spitzer space telescopes to go looking for remnants of the vanquished star, only to find that it disappeared out of sight.

It went out with a whimper instead of a bang.

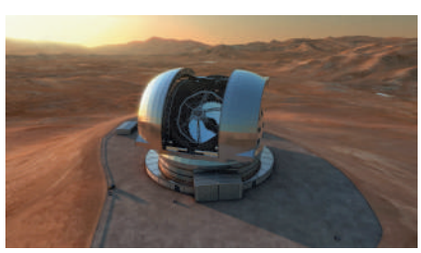
The star, which was 25 times as massive as our sun, should have exploded in a very bright supernova. Instead, it fizzled out—and then left behind a black hole.

"Massive fails" like this one in a nearby galaxy could explain why astronomers rarely see supernovae from the most massive stars, said Christopher Kochanek, professor of astronomy at The Ohio State University and the Ohio Eminent Scholar in Observational Cosmology.

(https://www.nasa.gov)

Construction Begins on the World's First Super Telescope

Scientists are a step closer to understanding the inner-workings of the universe following the laying of the first stone, and construction starting on the world's largest optical and infrared telescope.



With a main mirror 39 metres in diameter, the Extremely Large Telescope (ELT), is going to be, as its name suggests, enormous. Unlike any other before it, ELT is also designed to be an adaptive telescope and has the ability to correct atmospheric turbulence, taking telescope engineering to another level.

The ELT is being built by the European Southern Observatory (ESO), an international collaboration supported by the UK's Science and Technology Facilities Council (STFC).

(http://phys.org)

Europa Lander Could Carry a Microphone and “Listen” to the Ice

Between the Europa Clipper and the proposed Europa Lander, NASA has made it clear that it intends to send a mission to this icy moon of Jupiter in the coming decade. Ever since the Voyager 1 and 2 probes conducted their historic flybys of the moon in 1973 and 1974 – which offered the first indications of a warm-water ocean in the moon’s interior – scientists have been eager to peak beneath the surface and see what is there.

Towards this end, NASA has issued a grant to a team of researchers from Arizona State University to build and test a specially-designed seismometer that the lander would use to listen to Europa’s interior. Known as the Seismometer for Exploring the Subsurface of Europa (SESE), this device will help scientists determine if the interior of Europa is conducive to life.

(https://www.universetoday.com)

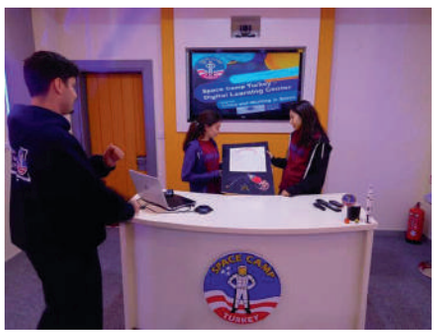
SCHOOLS IN ACTION

Final School, Malatya

Not only did we discuss the daily lives of astronauts but these students also got to design a spacecraft in-depth and explain the interior layout. It even had a Meeting Room! :)

İSTEK Atanur Oğuz, İstanbul

We have recently discovered that some of our FEP students are actually big Star Wars Fans. They came up with some awesome spacecraft ideas. Of course they had lots of weapons on them (for protection)!



ITK Büyükçiğli, İzmir

The past, the present, and the future...We discussed it all with these students and they created a feasible deep space mission with what they have learned. Thank you all for your hard work.

The Children's Aid Society, New York

MEF Schools, İstanbul

Our friends in New York are ready to present their "Toys in Space" projects to their Partner School friends at MEF Schools. They have created an awesome Mission Patch so far and I'm sure the new projects will be just as good!

Hisar School, Istanbul

Next time they ask you what "Teamwork" is, don't bother explaining. Just show them this photograph. They set a good example for the other students in the program. Thank you!

SEV College, İzmir

ProFuturo Primary School, Warsaw

New space games and some international friendship within one videoconference session! Of course it wasn't enough so we are meeting again very soon for some more space talk :)

Astronomy Picture of the Day

Beneath Jupiter

Explanation: Jupiter is stranger than we knew. NASA's Juno spacecraft has now completed its sixth swoop past Jupiter as it moves around its highly elliptical orbit. Pictured, Jupiter is seen from below where, surprisingly, the horizontal bands that cover most of the planet disappear into swirls and complex patterns. A line of white oval clouds is visible nearer to the equator. Recent results from Juno show that Jupiter's weather phenomena can extend deep below its cloud tops, and that Jupiter's magnetic field varies greatly with location. Juno is scheduled to orbit Jupiter 37 times with each orbit taking about six weeks.