

Hello there Science Addict,

Yet another school year starts and we are back with more space news! If you did not know, hundreds of articles and photos have been shared with students and teachers via our Astro Newsletter over the last eleven years and this year will be no different. With some new schools joining our educational programs, we look forward to reaching more people.

During the 2016-2017 school year, we have conducted 51 videoconferences within our Partner School Science Program (PSSP) and 130 videoconferences within our Future Explorers Program (FEP).

This year, we have added a new topic to our curriculum called "Space Junk". This new topic is focused on all the space junk that is orbiting our planet and the dangers they possess as well as solutions on how to get rid of them.

We wish all the teachers and students a successful school year. May this be the best school year ever!

SPACE NEWS IN A FLASH

- RIP, Cassini: Historic Mission Ends with Fiery Plunge into Saturn
- Scientists Just Emerged From a Year in Isolation After an Epic Mars Simulation
- SpaceX's New Spacesuit
- Hubble discovers a unique type of object in the Solar System
- More Surface Ice On Mercury Than Previously Thought
- OSIRIS-REx Views the Earth During Flyby
- New Horizons Probe Wakes from 5-Month Slumber

Equipped with his five senses, man explores the universe around him and calls the adventure Science.

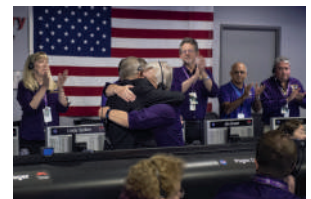
- Edwin Hubble

RIP, Cassini: Historic Mission Ends with Fiery Plunge into Saturn

NASA received its last data transmission from the Cassini spacecraft at 4:55:46 a.m. PDT (7:55:46 a.m. EDT, 1146 GMT) on September 15th, before losing contact with the probe as it hurtled into Saturn's atmosphere. It was a fiery grand finale for the probe, which spent 13 years orbiting the ringed planet. NASA officials expect that Cassini broke apart about 45 seconds after that final transmission, due to the intense friction and heat generated by the fall.

"I hope you're all ... deeply proud of this amazing accomplishment," Earl Maize, the Cassini program manager, said to the mission team after the spacecraft signal was lost.

Cassini's descent into Saturn was intentional. The spacecraft was rapidly running out of fuel, after spending nearly 20 years in space, and NASA scientists decided to make use of the mission's inevitable conclusion. By crashing into Saturn, Cassini had the opportunity to see what the planet's upper atmosphere is made of, and that's the data that the probe sent back to Earth during its final few moments of life. The probe took its last images of the Saturn system on September 14th, and transmitted those images back to Earth the same day, ahead of its plunge.



The Cassini team cheered, hugged and cried after receiving the final signal from Cassini that indicated the mission had come to an end with the spacecraft's disintegration in Saturn's atmosphere.

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

Scientists Just Emerged From a Year in Isolation After an Epic Mars Simulation

The longest-running NASA experiment of its kind designed to simulate living conditions on Mars has come to an end, with six volunteers emerging from a year-long stay in a sealed dome in Hawaii.

For 365 days, the HI-SEAS (Hawaii Space Exploration Analog and Simulation) crew lived in isolation in a geodesic dome on the barren slopes of the Big Island's Mauna Loa, with the rocky, sparse terrain outside chosen for its similarity to the red planet's natural environment.

While previous jaunts have seen scientists enclosed in the habitat for up to eight months.

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

SpaceX's New Spacesuit

Now we know what SpaceX's new spacesuit looks like from head to toe.



On September 8th, SpaceX founder and CEO Elon Musk posted a photo on Instagram of a spacesuit-clad person standing next to the Dragon capsule. The company is developing that spacecraft to fly people to and from the International Space Station (ISS), among other destinations. (SpaceX aims to launch paying customers on a trip around the moon in the near future, for example.)

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

Hubble discovers a unique type of object in the Solar System

With the help of the NASA/ESA Hubble Space Telescope, a German-led group of astronomers have observed the intriguing characteristics of an unusual type of object in the asteroid belt between Mars and Jupiter: two asteroids orbiting each other and exhibiting comet-like features, including a bright coma and a long tail. This is the first known binary asteroid also classified as a comet.

(<http://phys.org>)



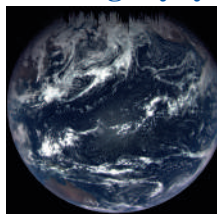
More Surface Ice On Mercury Than Previously Thought

Back in 2012, scientists were delighted to discover that within the polar regions of Mercury, vast amounts of water ice were detected. While the existence of water ice in this permanently-shaded region had been the subject of speculation for about 20 years, it was only after the Mercury Surface, Space Environment, Geochemistry, and Ranging (MESSENGER) spacecraft studied the polar region that this was confirmed.

Based on the MESSENGER data, it was estimated that Mercury could have between 100 billion to 1 trillion tons of water ice at both poles, and that the ice could be up to 20 meters deep in places. However, a new study by a team of researchers from Brown University indicates that there could be three additional large craters and many more smaller ones in the northern polar region that also contain ice.

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

OSIRIS-REx Views the Earth During Flyby



A color composite image of Earth taken on Sept. 22 by the MapCam camera on NASA's OSIRIS-REx spacecraft. This image was taken just hours after the spacecraft completed its Earth Gravity Assist at a range of approximately 170,000 kilometers. MapCam is part of the OSIRIS-REx Camera Suite (OCAMS) operated by the University of Arizona. Visible in this image are the Pacific Ocean and several familiar landmasses, including Australia in the lower left, and Baja California and the southwestern United States in the upper right. The dark vertical streaks at the top of the image are caused by short exposure times (less than three milliseconds). Short exposure times are required for imaging an object as bright as Earth, but are not anticipated for an object as dark as the asteroid Bennu, which the camera was designed to image.

(<http://www.asteroidmission.org>)

New Horizons Probe Wakes from 5-Month Slumber

NASA's New Horizons spacecraft is zooming through the outer solar system with its eyes open once again.

New Horizons woke from a five-month hibernation period — its first stretch of rest since before its epic Pluto flyby in July 2015 — last week, right on schedule, mission team members said.

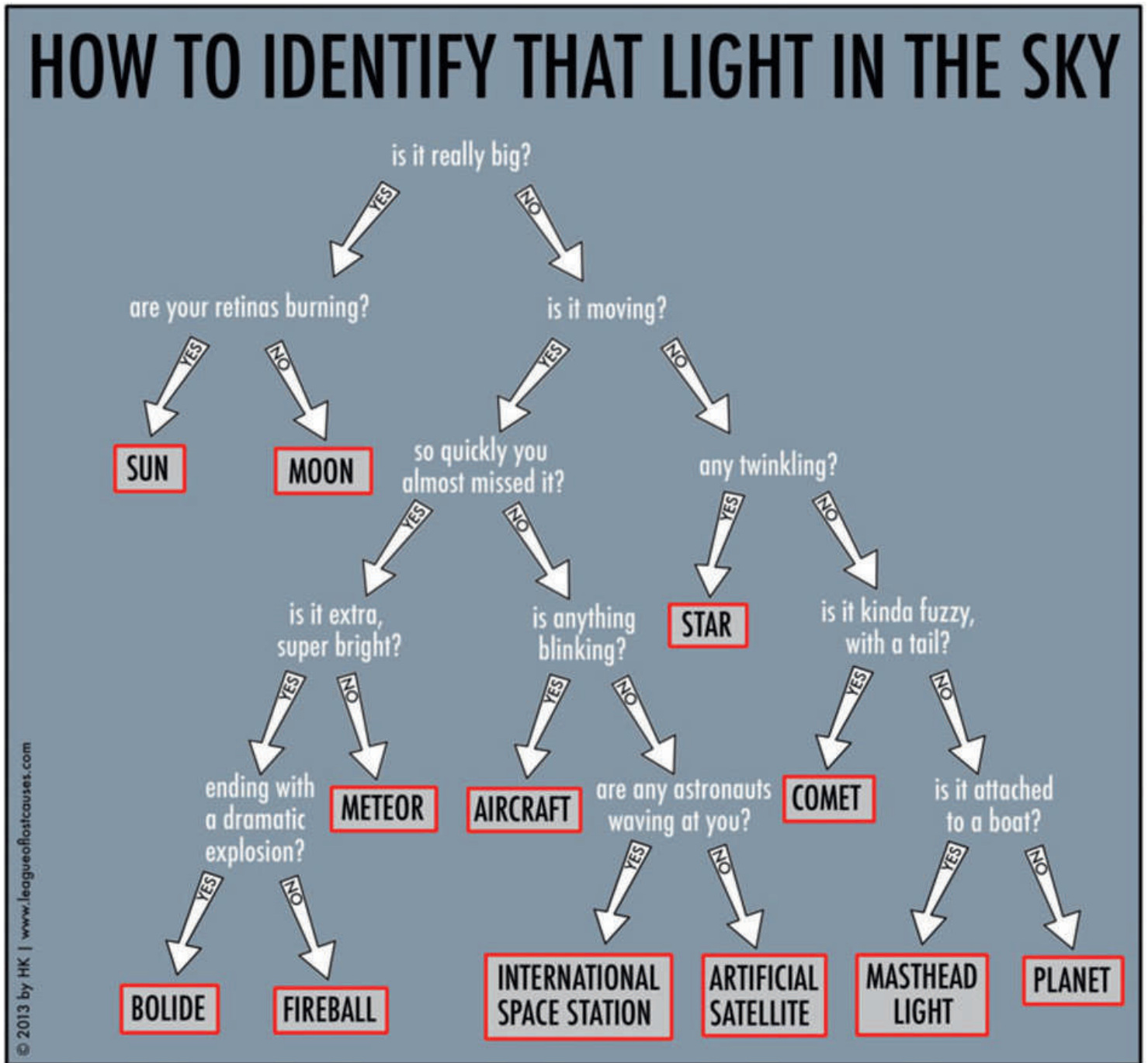
The probe is in good health and ready to resume studying the dark, frigid depths of the Kuiper Belt, the ring of bodies beyond Neptune's orbit, they added.

The \$700 million New Horizons mission, which launched in January 2006, got the first-ever good looks at Pluto during the spacecraft's historic flyby, revealing the dwarf planet to be a stunningly complex world with vast nitrogen-ice plains, towering mountains of water ice and a diversity of other landscapes.

New Horizons is currently about 5.83 billion kilometers from Earth — so far away that it takes commands more than 5 hours to reach the probe at the speed of light.

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

Astronomy Picture of the Day



How to Identify that Light in the Sky

Explanation: What is that light in the sky? Perhaps one of humanity's more common questions, an answer may result from a few quick observations. For example -- is it moving or blinking? If so, and if you live near a city, the answer is typically an airplane, since planes are so numerous and so few stars and satellites are bright enough to be seen over the din of artificial city lights. If not, and if you live far from a city, that bright light is likely a planet such as Venus or Mars -- the former of which is constrained to appear near the horizon just before dawn or after dusk. Sometimes the low apparent motion of a distant airplane near the horizon makes it hard to tell from a bright planet, but even this can usually be discerned by the plane's motion over a few minutes. Still unsure? The featured chart gives a sometimes-humorous but mostly-accurate assessment. Dedicated sky enthusiasts will likely note -- and are encouraged to provide -- polite corrections.