

The **STEAM-STEINETTES** Gazette



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“DON'T LET ANYONE ROB YOU OF YOUR IMAGINATION, CREATIVITY, OR CURIOSITY. IT'S YOUR PLACE IN THE WORLD; IT'S YOUR LIFE. GO ON AND DO ALL YOU CAN WITH IT, AND MAKE IT THE LIFE YOU WANT TO LIVE.”

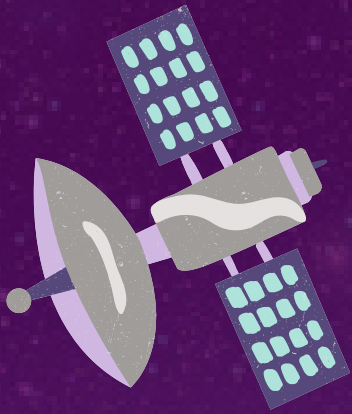
- Mae Jemison

Revealed: The Truth Behind Binary Stars | By: Sofia J.

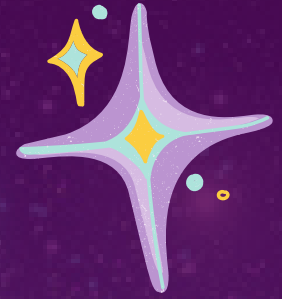
Are you familiar with binary stars? Binary stars are characterized as stars born from the same parental cloud of collapsing gas and dust, meaning they likely share the same chemical compounds. Furthermore, these stars should have almost identical chemical compositions, however, this is not always the case. A team of scientists recently discovered that differences in binary stars can originate from variations in the molecular cloud that produces them, confirming that variability between stars can originate before they even begin to form. The discovery, made using the Gemini South telescope in Northern Chile, reveals that differences in binary stars occur as a result of variations in chemical compounds of the vast molecular cloud that creates them. These results may prompt astronomers to revise the method used to identify stellar origins based on chemical makeup and rethink their understanding of stars suspected of engulfing an orbiting planet. Isn't that fascinating?

Read on!





SCIENTIST SPOTLIGHT



By: Jasmine P.



Hisako Koyama

Hisako Koyama grew up during WWII, spending nights outside watching the stars while Tokyo held airstrike drills. From this background, the result of her becoming a self-taught astronomer who spent her entire career studying the sun is not so far-fetched. For more than 40 years, she recorded the sun with hand-drawn observations and soon discovered the largest sunspot of the century. According to PBS, “Koyama wasn’t intent on becoming a world-famous scientist. She was intent on doing a good job. And that mindset helped her do something extraordinary.”

As she was growing up, women weren’t encouraged to pursue professional careers. She graduated from an all-girls high school in the 1930s, which was an educational achievement most girls of the time didn’t get to accomplish. Today, only 7% of women in Japan end up pursuing STEM. Her career began in 1944 when she began drawing sunspots using a refracting telescope gifted to her by her father. That same year, she submitted one of her illustrations to Japan’s Oriental Astronomical Association and began to work with Professor Issei Yamamoto to develop her sketching skills. She was then hired by the Tokyo Science Museum, today known as the National Museum of Nature and Science, where she would spend the next four decades of her career observing the sun. In 1947, she recorded the largest sunspot of the 20th century, and several years later, she witnessed a white-light flare in the sun on November 15, 1960.

Today, she is best known for her multi-century sunspot record, which serves as the backbone for modern charts. Not only did she research the sun, but she also worked closely with museum visitors and published astronomy articles. She was often the face of the museum, seen organizing events for eclipses and night sky-watching events. In her life, she created more than 10,000 sketches of the sun, which are published by the museum. Additionally, her original sunspot record has been featured in National Geographic. In her own words, she stated, “I simply can’t stop observing when thinking that one can never know when nature will show us something unusual.”

Astronomy Experiments



Easy

Observation

Observation is a very important skill for anyone - scientist or not. With this activity, you will improve your observation, curiosity, and enjoyment of the sky!

- 1) Gather supplies, including a notebook and a pen or pencil
- 2) Go for it!
 - As often as possible (ideally every night at the same time), go outside where there is a good view of the night sky.
 - Take a red flashlight (*see medium activity) and your notebook, and make observations about the positioning of stars, moon shape, and craters, the colors of stars, and whatever else you notice. Continue this process as often as possible, and see how the sky changes!

This activity blossoms a love of the night sky, fine-tunes observation, and can lead to fascinating discoveries.

By: Elle W.

Medium

Red Flashlight

Have you ever looked at the stars, found an interesting constellation, and then used a light to look it up in a book? If so, you know that when you looked back in the sky your night vision was disturbed and you could not see clearly anymore. Using a red flashlight solves this issue!

- 1) Get supplies including a flashlight or headlight.
 - For method one: red nail polish with brush
 - For method two: red tissue paper or red cloth, rubber band
- 2) Do it
 - For method one: paint the light with the nail polish. Let dry.
 - For method two: Wrap the material around the light. Take the rubber band and use it to secure the cloth/paper.

Now you're ready to use a star guidebook! **Check out this month's book recommendation for the best star guide.**

[CLICK HERE FOR AN EXAMPLE!](#)



World Astronomy News

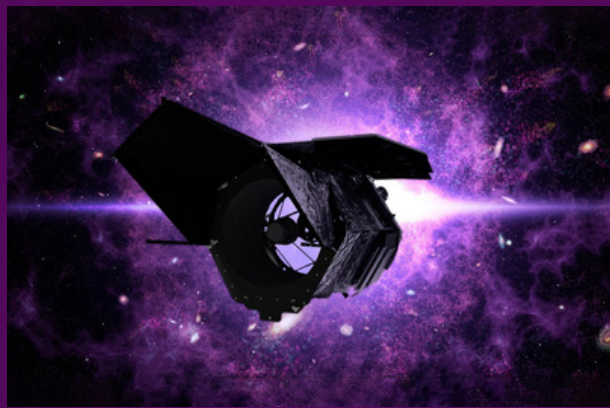
By: Hitej R.



We recently found the largest black hole in our galaxy, called Gaia BH3.

NASA's optical communication device transmitted data for 140 million miles; that's just outside the orbit of Mars!

The 2024 Total Solar Eclipse was the first total solar eclipse that crossed the United States in 7 years. The next one is coming along in 2044.



ROMAN: THE SPACE TELESCOPE

By: Bailey WR.

You go outside on a cool, crisp evening and gaze at the myriad of stars in the sky. Roman, a space telescope, is doing something similar but at a much higher level. It also has quite the list of abilities, “potentially measuring light from a billion galaxies in its lifetime” and even being able to “block starlight” so we can better see exoplanets (“Roman.” 2024).

Roman has recently been in the news due to a groundbreaking update after the establishment of mirrors in the space telescope. “Preliminary tests show the newly aligned optics, collectively called the IOA (Imaging Optics Assembly), will direct light into Roman’s science instruments extremely precisely (Bazler. 2024).” This can help us get clearer imaging of space, which can only be accomplished through the tedious work of engineers. Future tests still need to be done, though the next tests include examining Roman's ability to withstand movement while going through space and how it can handle space-like temperatures and pressure conditions. Ashley Balzer has explained these future tests in her article written for NASA.

Another article elaborates a bit more on the space telescope's true abilities, stating, “Roman will help illuminate the dark energy puzzle by using multiple methods to explore how the universe has evolved throughout cosmic history (“Roman Science.” 2024).” That same article also mentions how Roman will be able to give us much more information about dark matter, a topic scientists know very little about. This telescope has taken months to put together and has gone through countless tests, but even after all that, there is still more work to finish. However, it seems like NASA is expecting Roman to be released sometime in 2027 (“Roman.” 2024).

Even though we have a few years to wait, we can already start to expect how impactful the outcomes will be. It will shine light on some new topics and help us better understand concepts that are too difficult for current technology to study successfully. How do you think Roman will impact the future of astronomy, and how will it impact what we know about our solar system?

The Stars: A New Way To See Them

by H. A. Rey

BOOK REVIEW | BY: ELLE W.

Next time you go camping, what if you could identify yourself and your friends' zodiacs in the night sky? But anyone who's ever tried learning the constellations will know that the illustrations usually look like incomprehensible squiggles. And that is why *"The Stars: A New Way To See Them"* by H. A. Rey is so vital. In this picture book (for all ages!) Rey provides a clear strategy to learn and love the constellations easily. Take the book outside at night with a red lamp, and you will become friends with all the images spread across the sky. With clear and usable drawings, a playful tone, and perfect content, I have learned almost all the constellations I know from this little book. Albert Einstein (in a letter to the author) wrote, "Many thanks for your lucid and stimulating book. I hope it will find the interest it deserves."

Book



Review Rating:

5/5



Fantastic Facts!

By: Hitej R.

52 stars die in the Milky Way every century. That's about 2 stars dying each year, and just in our own galaxy!

Regular stars can produce elements as dense as iron, but not any denser. Any denser elements were formed in a supernova, thus their rarity.

Asteroid belts are not actually as dangerous as they are in movies. The asteroids within them can be spaced millions of kilometers apart.

Meet the Team

A

STEAM
Club

+

The
Einsteinettes

collab

Ace M.



Elle W.



Maya F.



Bailey WR.



Hitej R.



Sofia J.



Diana S.



Jan P.



Stephanie A.



Durga I.



Jasmine P.



Vasilisa B.



Special thanks to our awesome advisors, Ms. Cristen Jones and Mr. Chad Hamblin!

Not mentioned: Quote provided by Stephanie

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Fantastic Facts

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