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FUN FOR KIDS

A COOPERATIVE PROJECT OF THE SANTA BARBARA NEWS-PRESS AND THE EDUCATORS' ROUNDTABLE, PUBLISHED MONTHLY TO PROMOTE LEARNING AMONG YOUNG READERS IN NATURAL SCIENCE, HISTORY, TECHNOLOGY, AND ART

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This Month's Theme: "The Summer Sky"

Celestial Navigation

By Elenor Burciaga, Santa Barbara Maritime Museum

Did you know that the sun, moon, planets, and stars can be used to determine your location on the Earth? For centuries sailors have used the celestial bodies (sun, moon, planets, and stars) to navigate across the ocean seas.

Mariners, or sailors, use special instruments to measure the angles of different celestial bodies above the horizon to chart their course and find their location. This is called celestial navigation. Sailors must know where they are, where they want to go, and how to arrive at their destination safely. The earliest navigation tools were used to determine location, direction, and speed.

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At the Maritime Museum, you can navigate into the Santa Barbara Harbor as captain of the Jack Tar.

From the 1400s to the 1700s, several instruments were developed to measure the angles of celestial objects. These included the astrolabe, backstaff, quadrant, octant, and sextant.

A chronometer, or large watch designed for timekeeping on ships, was created in 1735. Another useful tool for mariners was the nautical almanac, a book of nautical information. Eventually the sextant, chronometer, and nautical almanac became very important navigational tools for sailors.

Today, modern technology has replaced celestial navigation instruments to determine the position and course of a ship at sea. The Global Positioning System (GPS) is a satellite-based navigation system made up of 24 satellites orbiting the Earth and provides ships, cars, cell phones, watches, and other devices with their exact location 24 hours a day.

Although many people now rely on modern technology, the navigation tools developed hundreds of years ago to measure the angles of the sun, moon, planets, and stars can still be used today to chart a ship's course.

At the Santa Barbara Maritime Museum, you can learn more about the history of navigation and see the different types of instruments sailors used in the Navigation Exhibit on the second floor of the museum. In the Pilothouse Exhibit, you can become the captain of the Jack Tar and use GPS to help you virtually steer the fishing vessel into the Santa Barbara Harbor.

Dance of the Planets

By Krissie Cook, Santa Barbara Museum of Natural History

This summer is also a great time for viewing planets! There are five planets that are visible without a telescope – Mercury, Venus, Mars, Jupiter, and Saturn. Three of these planets can be seen in the summer evening this year: Venus, Jupiter, and Saturn. If you're not sure what to look for, try to find a bright object that is not twinkling. (Stars twinkle, but planets don't.)

Where should you look? By mid-June, we'll see Venus and Saturn near each other in the early western evening. Jupiter also joins the evening sky in the southeast a bit after dark. By the end of June, look for a breathtaking view of Saturn and Venus right next to each other in the west.

As the summer continues, look for Venus and Saturn to get lower in the sky each night until the end of July, when they will no longer be visible in the evening sky. Jupiter will be the brightest object in the night sky (besides the moon) once Venus has set.

Summer Constellations

By Adam "Coyote" Dale, The Outdoor School at Rancho Alegre

Warm summer nights are great for getting out and exploring the sky. City lights and the moon both make it harder to see the stars so you'll have better luck if you're able to get away from town a bit and if you pick a night when the moon is less bright. Here are a few things to look for when you're gazing up at the night sky this summer.

Scorpio is one of the twelve Zodiac constellations and is only entirely visible in July, August, and September though it starts to poke its head over the horizon in June. The return of Scorpio is a good sign that summer is back. In Greek mythology, Scorpio was trying to kill the hunter Orion (did you see the constellation Orion this winter?), and many other cultures around the world identify this constellation as the scorpion. The most prominent star in Scorpio is Antares, a Red Giant star that is about 700 times the size of our sun and appears to be the red heart of the scorpion. The name Antares means, "rival of Mars", a reference to it's brilliant red color which is nearly as intense as the red planet Mars. Look for the fishhook shape of Scorpio above the southern horizon on evenings this summer.

Cygnus is another major summer constellation. In Greek myth Cygnus was the swan, but another name for this constellation is the Northern Cross. On dark summer nights it's easy to see the white streak of the Milky Way across the entire sky, and Cygnus is found in this white trail. Deneb, the brightest star in Cygnus, forms the tail of the swan and is one point of the famous Summer Triangle. It is made up of three bright stars in three separate constellations. The stars which make up the other two points of the triangle are Altair in the constellation Aquila the Eagle, and Vega in the constellation Lyra the Lyre (a lyre is a stringed instrument similar to a small harp). Vega is the brightest summer star and is approximately 26 light years away. The Summer Triangle is one of the most prominent features in the summer sky, and a great thing to look for all summer long.

Are you interested in stories about the stars and constellations? You can write your own! Submit your own original story about any existing or brand new constellation to The Outdoor School's "Create-a-Constellation" contest. The winner will get an Outdoor School T-shirt.

Bryan Snyder photograph

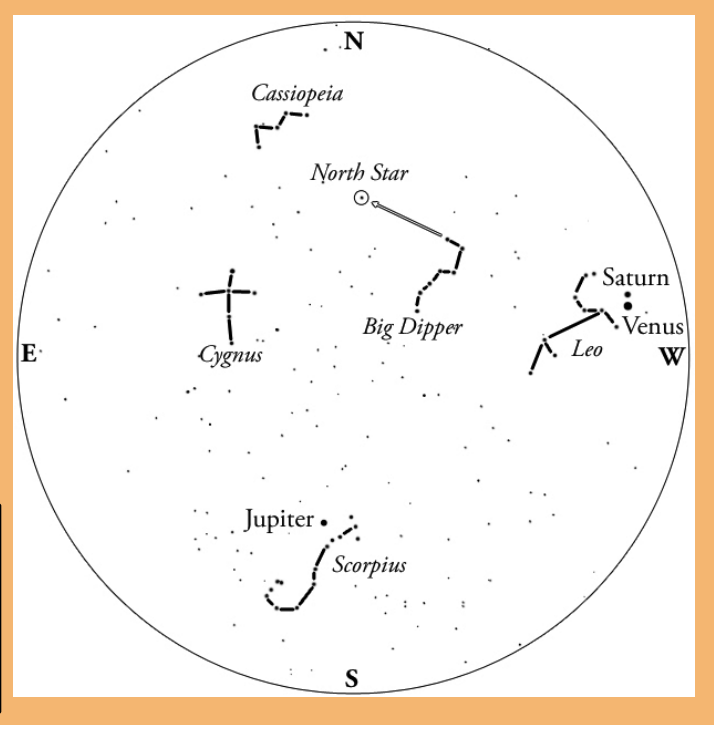
Nora Arazate of Santa Barbara's Franklin School looks at Jupiter through a telescope.

Santa Barbara Museum of Natural Historyr photograph

HOW TO USE A Star Chart

1. Hold the star chart above your head.
2. Make sure that "N" on the map is facing north, "S" is facing south, "W" is facing west and "E" is facing east.
3. Match the stars on the chart with the stars in the night sky.

The star chart on the right will work at 10:00 PM on July 1, or 9:00 PM on July 15.



If you and your family want to learn more about astronomy, visit the Santa Barbara Astronomical Unit website, www.sbau.org

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