

Fall comes in with a splash as watery constellations abound.

Wet skies

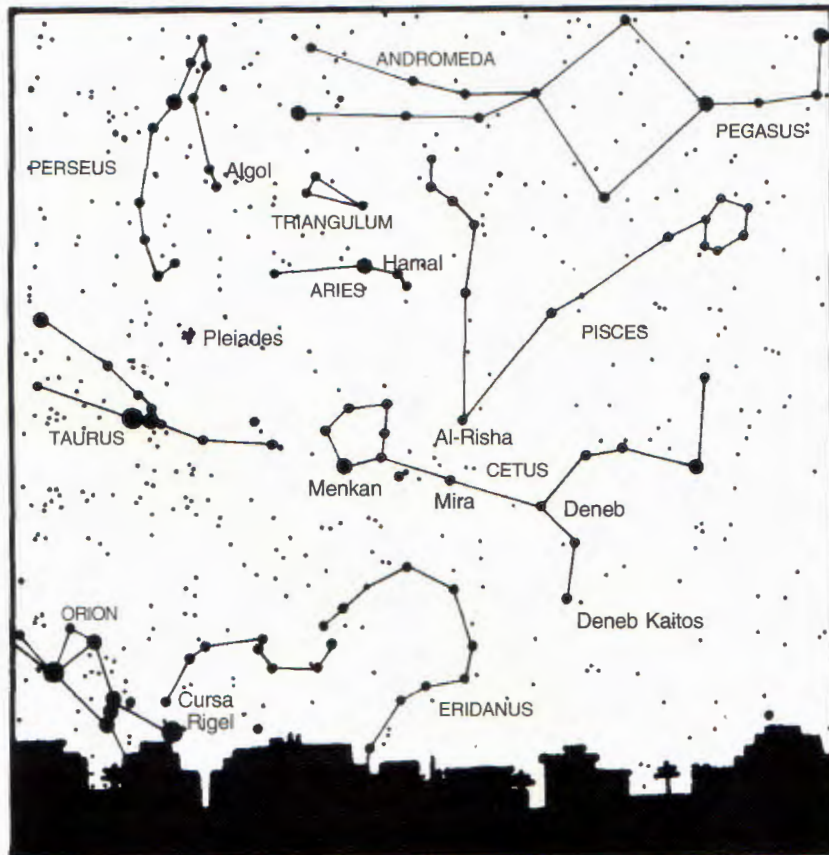
For those living in the northern hemisphere, spring is usually considered the wet time of the year, famous for the April showers that bring May flowers. However, not until fall does the "wet" portion of the starry skies become visible. For example, during November, constellations associated with water, such as Cetus, Pisces, Aries, and Eridanus, are prominent in the evening skies.

Above the southeastern horizon is the constellation Cetus the Monster, sometimes known as the Whale. Perhaps you can imagine Cetus swimming along the river constellation, Eridanus, and resting along its banks. Various cultures have described Cetus as the whale that swallowed Jonah, or an easy chair leaning back towards Orion. In Greek mythology, Cetus was a monster, while according to Chinese and East Indians, Cetus is a dragon. Coincidentally, the two myths share the common theme of the rescue of a maiden from the threats of a monster.

The stars marking the different parts of Cetus' body were named by Arab astronomers. For example, the star Menkar means "nose" in Arabic, but the star's current position more appropriately marks Cetus' open jaws. The sea monster's tail is marked by Deneb and Deneb Kaitos. The name *Deneb* derives from the Arabic word for tail, and *Deneb Kaitos* derives from an Arabic name meaning the southern branch of the tail.

Magical Mira

Probably the most interesting star within Cetus is Mira, the Wonderful, because it is a variable star. Mira is a long-period, pulsating, variable red giant. A pulsating star is one that expands and contracts rhythmically. Scientists theorized that pulsations occur because the red giant star is in the process of running out of hydro-



LOOKING SOUTHEAST AT 9:00 P.M. ON OCTOBER 30, 1993.

gen and is starting to fuse helium to its core.

Mira has a period that averages 330 days. It is the brightest of the long-period variable stars, and its brightness also varies the most greatly. Most of the time, Mira is too faint to be seen with the unaided eye; however, its brightness increases from its minimum to its maximum in 110 days, considerably faster than it dims to its minimum brightness. Having reached its maximum brightness during June, Mira may now be too faint to see with the naked eye.

If you can't wait until next spring for its reappearance, then look toward the northeast for the star Algol, the Demon Star. Algol, represents Medusa's head as it is held by Perseus. Perseus had slain the monster to

rescue Andromeda the princess.

Algol is an eclipsing binary, variable star in which a dimmer star orbits a brighter star. From Earth, we see the effects of a partial eclipse of the brighter star when the dimmer star swings around in front of it and blocks the brighter star. This stellar eclipse lasts approximately ten hours. Algol normally shines as brightly as the Big Dipper. However, every 2 days, 20 hours, 48 minutes, and 56 seconds, Algol dims to two fifths its normal brightness.

To find dates of maximum brightness for the different variable stars, refer to *Sky & Telescope* magazine. For more information, write to the American Association of Variable Star Observers (AAVSO), 25 Birch Street, Cambridge, MA 02138.

Measuring a light-year

Stellar distances can be cumbersome, so astronomers use the term light-year as a standard distance of measurement. But the term can be confusing to middle level students. Carrying out the following activity suggested by Linda Bull of San Jose, California, will help your students better understand the concept of what a light-year is.

To introduce the activity, have a student pace back and forth along a premeasured, five-meter strip of tape for one minute while students keep track of the distance walked. You may want to ask for an additional student volunteer to serve as an official timekeeper.

At the end of the minute, have students record the distance traveled. Based on what they've recorded, students extrapolate to estimate the distance the volunteer would theoretically walk at this pace in an entire day. Have the class further extrapolate to determine the distance traveled in a week, a month, and finally a year. The last calculation reinforces to students that a light-year is actually a distance—the distance light travels in a year.

Evening planet

Saturn: Visible over the southeastern horizon at sunset.

Moon phases

Last Quarter - November 7
New Moon - November 13
First Quarter - November 20
Full Moon - November 29

Bob Riddle is the planetarium director for the Kansas City School District at Southwest Magnet Math & Science High School.

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