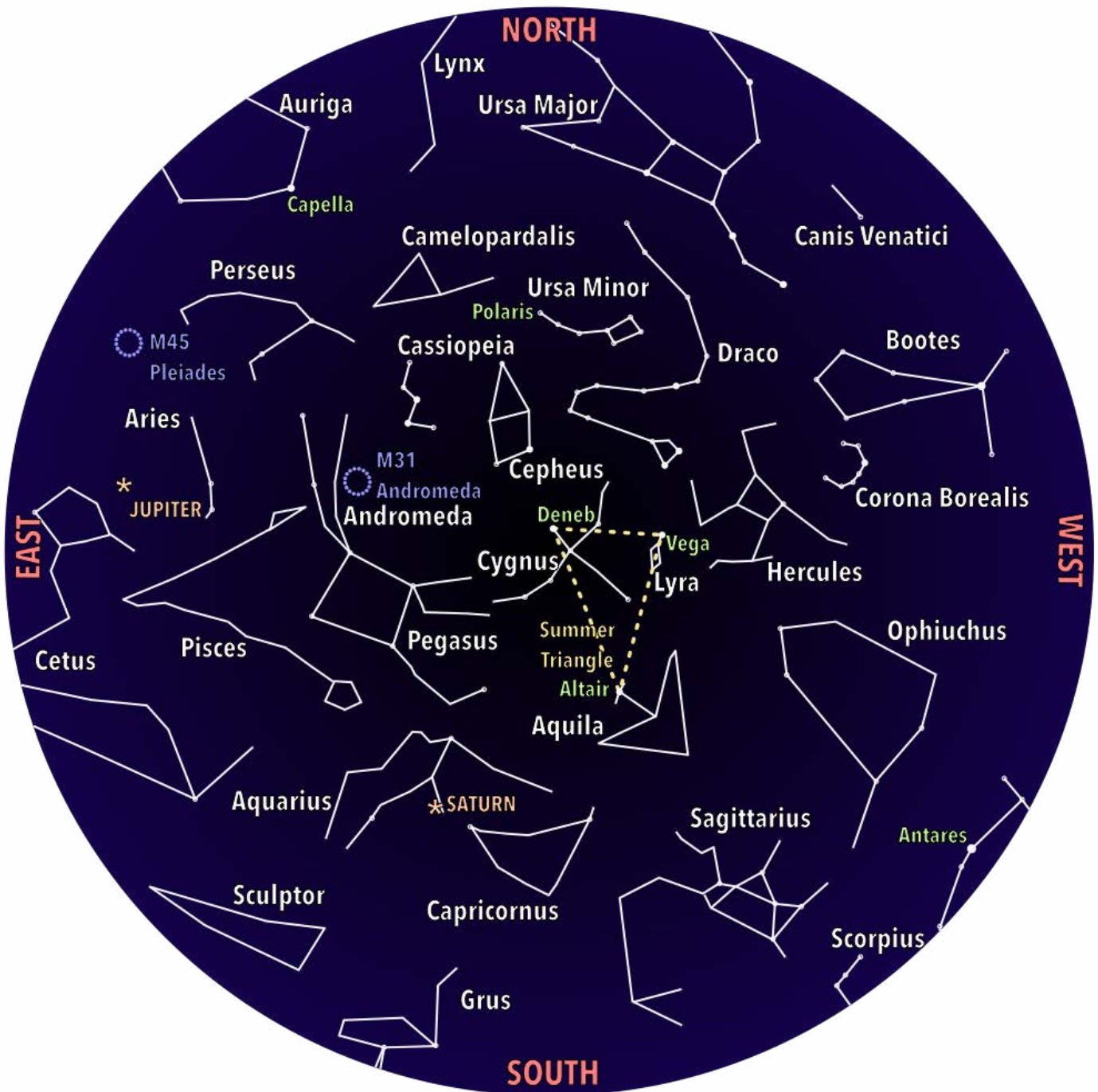


Autumn 2023

Buhl Planetarium & Observatory ASTRONOMICAL CALENDAR & STAR CHART

CARNEGIE
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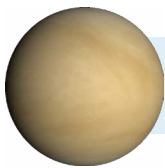
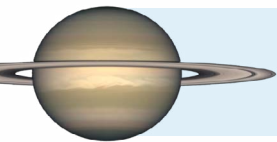
Night sky from Pittsburgh, PA 8:30 pm EST mid-October

SKYWATCH: Our last SkyWatch of the year is Sat., Sept. 23, 2023!

Get tickets and check back for 2024 dates at CarnegieScienceCenter.org.

Presented by

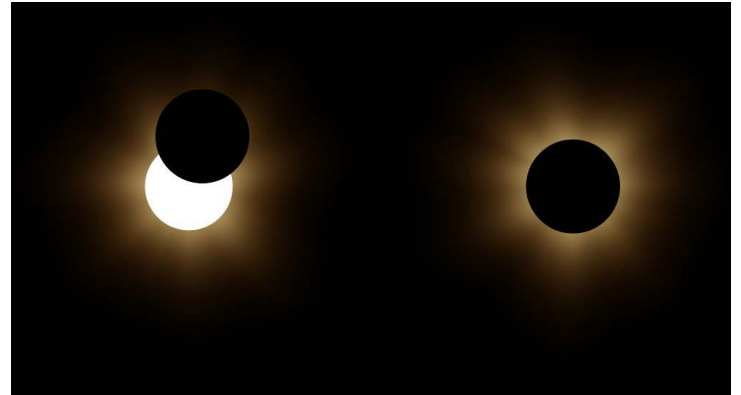


THIS SEASON'S SKYGAZING TOP PICKS**Sept 4:** Conjunction of Jupiter and the Moon. Visible Northeast.**Sept 5/6:** M45 (Pleiades) and the Moon conjunction. Visible after midnight.**Sept 18:** Jupiter at opposition. Visible dusk to predawn.**Sept 21:** Close approach of Antares and the Moon. Visible southwest after dusk.**Oct 2:** Andromeda Galaxy, M31. Well placed for binocular viewing, highest at midnight.**Oct 14:** Partial Annular Solar Eclipse.**Oct 22:** Orionid meteor shower. Visible towards Orion constellation midnight to dawn.**Nov 3:** Jupiter at opposition. Visible dusk to predawn.**Nov 8:** Venus and waning crescent Moon conjunction. Visible southeast before dawn.**Nov 18:** Leonid meteor shower. Visible towards Leo constellation midnight to dawn.**AUTUMN PLANET VISIBILITIES****Venus (morning):** Bright in the early dawn. September, October, November.**Jupiter (evening):** Dusk to West-Southwest. September, October, November.**Saturn (evening):** Dusk to West-Southwest, setting earlier each month. September, October, November.**MOON PHASES KEY**

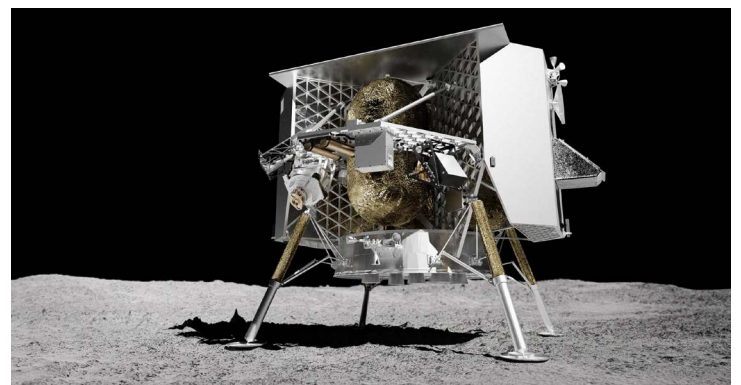
New Moon ● First Quarter ◐ Full Moon ○ Third Quarter ◑

MOON PHASES**Sept.** 6: ◐ 14: ● 22: ◑ 29: ○**Oct.** 6: ◐ 14: ● 21: ◑ 28: ○**Nov.** 5: ◐ 13: ● 20: ◑ 27: ○**WHAT'S UP?****Practice for April 2024's Solar Eclipse**

Point your protective glasses towards the partial solar eclipse Sat., Oct. 14, at 11:53 am. During a partial solar eclipse, the Moon takes a limited "bite" out of the Sun's disk from Earth's perspective. Maximum shadow will reach about 32% at 1:11 pm. The eclipse will end at 2:32 pm. Other parts of the country will experience an annular eclipse at totality. This happens when the Moon's disk doesn't fully cover the sun. The eclipsed image appears as a ring of fire. Use protective eyewear. Never look directly at the Sun.

*Image credit: NASA Goddard Flight Space Center***GET YOUR ECLIPSE GLASSES AT THE XPLOR STORE!****SPACE NEWS:****Pittsburgh in Space**

Fifty-four years ago, Pittsburgh companies Alcoa, Westinghouse, and PPG were part of Apollo 11's successful moon landing. Today, Astrobotic Technology, an aerospace and robotics company based on the North Side, is aiming to return the United States to the Moon. Built in the 'Burgh's backyard, Peregrine Mission One would be the first commercial mission to touch down on any cosmic neighbor, and the first U.S. spacecraft in 50 years to perch on lunar soil. Peregrine is aiming to land near the Moon's Ocean of Storms region, delivering payloads, and making history.

*Image credit: Astrobotic***STAR CHART FAQ****How do I use the star chart?**

Hold it out in front of you with the direction you're facing at the bottom of the chart. It works even better if you hold it above your head and look up at it.

Why are east and west switched?

They are only switched because you're used to looking at maps of the ground. Hold it above your head, and you'll see the directions line up just right.