astronomical calendar

BUHL PLANETARIUM & OBSERVATORY

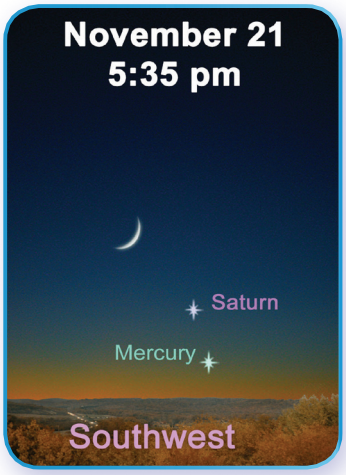
fall
2017

SEPTEMBER

6	Wed	○	Full “Corn Moon” – 3:02 am
12	Tue		Mercury at greatest elongation (Look east at dawn)
13	Wed	◑	Last Quarter Moon – 2:24 am
16	Sat		Close conjunction of Mercury and Mars (Look east at dawn)
17	Sun		Venus 5 degrees below waning crescent (Look east at dawn)
20	Wed	●	New Moon – 1:29 am
22	Fri		Autumnal Equinox – 4:01 pm Jupiter 6 degrees below waxing crescent (Look west after sunset)
27	Wed	◐	First Quarter Moon – 10:53 pm

OCTOBER

4	Wed		Venus ½ degree above Mars (Look east in the am)
5	Thu	○	Full “Harvest Moon” – 2:40 pm
8	Sun		Draconid Meteor Shower Peak (Best viewing evening right after sunset)
12	Thu	◑	Last Quarter Moon – 8:25 am
16	Mon		Mars 10 degrees below waning crescent (Look east in the am)
17	Tue		Waning crescent between Venus and Mars (Look east in the am)
19	Thu	●	New Moon – 3:12 pm
20	Fri		Orionid meteor shower peaks (Overnight until dawn on October 21)
24	Tue		Saturn 4 degrees below waxing crescent (Look southwest after sunset)
27	Fri	◐	First Quarter Moon – 6:22 pm



NOVEMBER

4	Sat	○	Full “Beaver Moon” – 1:22 am
5	Sun		Daylight Saving time ends 2:00 am – turn clocks back one hour
10	Fri	◑	Last Quarter Moon – 3:36 pm
13	Mon		Venus and Jupiter conjunction (Look east-southeast at dawn)
14	Tue		Mars 6 degrees below waning crescent (Look southeast in the am)
17	Fri		Leonid meteor shower peaks – (Late evening until dawn on Nov. 18)
18	Sat	●	New Moon – 6:42 am
21	Tue		Saturn 10 degrees below waxing crescent (Look southwest after sunset)
24	Fri		Mercury at greatest elongation (Look southwest after sunset)
26	Sun	◐	First Quarter Moon – 12:02 pm

OBSERVATORY SkyWatch

Join stargazers rain or shine for SkyWatch.
$4 for non-members / $2 for members and as an add-on to general admission.
For dates and details visit CarnegieScienceCenter.org/planetarium

Fall Planet Visibilities

September	**Morning:**	Mercury, Venus, and Mars (E)
	Evening:	Saturn (SW) and Jupiter (W) early month
October	**Morning:**	Venus and Mars (E)
	Evening:	Saturn (SW)
November	**Morning:**	Jupiter and Mars (SE), Venus (SE) early month
	Evening:	Saturn (SW), Mercury (SW) late month

Autumn Meteor Showers

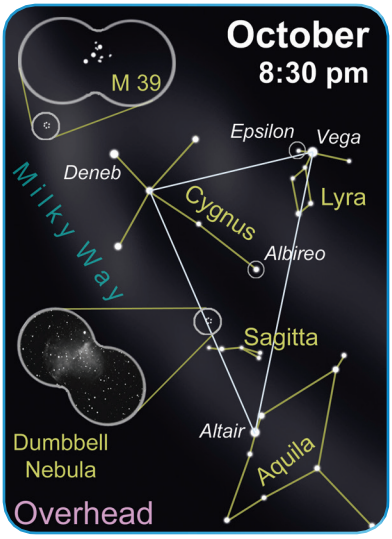
The fall meteor shower season starts with the annual Orionid meteor shower, which peaks overnight on Oct. 20 and until dawn on Oct. 21. Since the peak of this year's shower occurs only one day after the New Moon, moonlight won't interfere with this year's celestial show. With a clear dark sky, you could spot up to 20 meteors each hour before dawn. However, there have been some years where observers have counted nearly double that number.

The Orionid shower gets its name because the meteors or "shooting stars" appear to streak out of a point, called the radiant, in the constellation Orion. Finding the Orionid radiant is easy. It lies near the left shoulder of Orion the Hunter. But don't stare directly at the radiant. Orionids that appear there will seem short and stubby. Instead, look toward any dark region of the sky about 90 degrees away. You'll see just as many meteors, but they'll seem longer and more dramatic.

Experts also predict an excellent Leonid shower overnight on Nov. 17 and until dawn on Nov. 18. Since the peak of this year's shower occurs in a dark sky on the morning before a New Moon, you may see as many as 15 meteors per hour streak across the sky from an area around the shower's radiant in the constellation Leo. Since Leo doesn't rise until around midnight, the best viewing will occur between 2 am and dawn in the eastern sky.

For best viewing of a meteor shower, find a dark location away from the glow of city lights with a clear view of the horizon that the constellation the shower is named after will rise over. Binoculars or a telescope aren't necessary to view meteor showers. Your eyes will do just fine.

Binocular Targets for Autumn



The hazy nights of summer are behind us, it's time to grab your binoculars and favorite reclining lawn chair and take a look at the hidden celestial objects high overhead in the autumn sky.

The brilliant star shining directly overhead in mid-October at 8:30 pm is Deneb, the brightest star in Cygnus the Swan. Deneb is one of three bright stars that outline a large triangle that rides high in the southern sky throughout the summer and autumn. The other stars in the triangle include Vega and Altair. Vega, found in Lyra the Harp, is also overhead and about 20 degrees to the west or right of Deneb. About 40 degrees below Deneb sits Altair, the brightest star in Aquila, the Eagle. These three stars outline the asterism known as the Summer Triangle.

Our first target is a very small constellation called Sagitta, the Arrow. It's located about 10 degrees above Altir, and fits neatly in the field of view of most binoculars. The seventh magnitude Dumbbell Nebula, M27, will appear about 3 degrees from the "point" of Sagitta as a little pillow floating in the Milky Way.

The stars Albireo in Cygnus and Epsilon in Lyra will appear as double stars in binoculars. Located about 9 degrees above and to the left of Deneb is M39. This fifth magnitude open star cluster will appear as triangular splash of stars!

astronomical fact:

Once considered a rare substance in space, we now know that there is water ice everywhere in our solar system. It's in permanently shadowed craters on our Moon and Mercury. Mars also has ice at its poles and below its rusty surface. Saturn's rings and its moons Titan and Enceladus have ice. Jupiter's moons Europa, Ganymede, and Callisto have abundant ice. Uranus' moon Miranda and Neptune's moon Triton also have water ice. Small bodies in the solar system like comets and asteroids, and the recently explored dwarf planets Pluto and Ceres also have water ice.