

Summer planet watch

This summer, all but one of the bright planets will be easily visible as evening planets during the first part of our Northern Hemisphere summer season, and then shift to the predawn skies during the latter half of summer. The one constant, with regard to evening visibility, will be the planet Jupiter. Located inside the western boundary of Libra, the Scales, Jupiter will be easily seen over the western horizon at sunset approximately 15 degrees east of the blue-white star Spica in the constellation Virgo. By the end of August, Jupiter will have moved about 20 degrees further east within the boundaries of the constellation of Libra.

The remaining visible planets, Mercury, Venus, Mars, and Saturn, on the other hand, will go through more observable changes in their relative positions as the days of summer pass by.

Venus will be the sole morning planet until joined by Mercury during August. If you had followed the path Mars took across Aries and Taurus this past year, then the location and motion of Venus will look familiar. In June, Venus will move eastward away from the stars of Aries, the Ram, and will cross into the region of Taurus, the Bull, as it passes the open star clusters, the Pleiades and Hyades, during the latter half of the month. During July and August, Venus will move below the stars of the pentagon-shaped constellation of Auriga, the Charioteer, past the feet of the Gemini twins and eventually reach a planetary rendezvous, of sorts, with Mercury on August 21, east of the Gemini twin stars Pollux and Castor.

The evening action will be almost all during June and the first half of July as Mercury, Mars, and Saturn will rearrange themselves near the bright Pollux and Castor, and the bright star Regulus in Leo, the Lion.

During June, Mercury will appear over the western horizon at sunset and will quickly rise higher each evening (it will be seen setting a few minutes later each evening). Mercury will begin this evening apparition at the feet of the Gemini twins, and will end its visibility at month's end lined up with and just to the left of Pollux and Castor (see Figure 1).

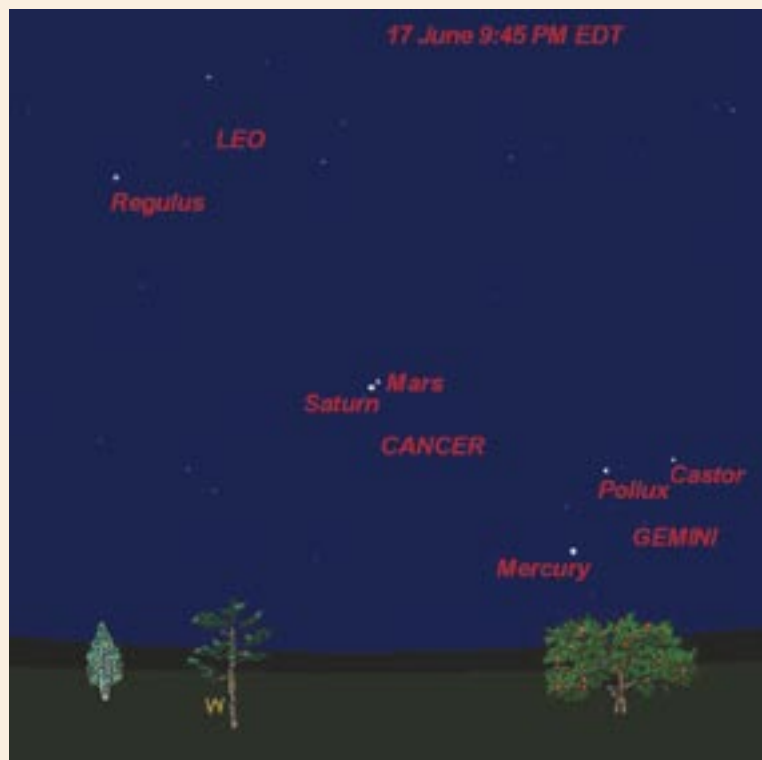
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Mars and Saturn will play a game of planetary tag as the faster-moving Mars will move eastward, catching up with and passing Saturn. Saturn will continue moving eastward, away from the Beehive Cluster, M-44, an open star cluster just barely visible to the unaided eye in dark skies. On the other hand, or actually *orbit*, Mars will start June lined up with Pollux and Castor at about where Mercury will be at the end of June. The Red Planet will quickly move to within about one-half degree of Saturn on June 17, after having passed across the center of the Beehive Cluster a few days earlier (June 14–16). These two planets and M-44 should make for an interesting view with binoculars or a wide-field telescope eyepiece (see Figure 2). By the end of June, only Mars will be left, very low over the western horizon. On July 21–22, Mars will very closely pass Regulus in Leo. However, the pair will be very low over the western horizon and may not easily be seen. By the end of July, only Jupiter will remain as an evening planet, and it too will slip below the western horizon and no longer be seen by the end of August.

The other remaining visible planet, Earth, will reach its maximum distance from the Sun, aphelion, on July 3 at

FIGURE 1

Mercury, the Gemini twins, Mars, and Saturn on June 17 at 9:45 p.m. EDT



6 p.m. EDT. At that moment, the Earth will be 152,095,700 km away from the Sun, or about 3.5% further away than its minimum distance of 147,103,600 km at perihelion this past January 4.

A couple of weeks earlier, on June 21, and unrelated to Earth-Sun distance, will be the June solstice. For the Northern Hemisphere, this is the day in the Earth's orbit around the Sun when the Sun is at the following: its maximum altitude above the southern horizon at midday; its maximum number of degrees north of the Earth's equator; the equatorial celestial coordinates of 23.5 degrees north, 6 hours right ascension; and within the constellation of Gemini.

Moon phases	June	July	August
First quarter	6/3	7/3	8/2
Full Moon	6/11	7/11	8/9
Last quarter	6/18	7/17	8/16
New Moon	6/25	7/25	8/23
First quarter	—	—	8/31

Visible planets

- **Mercury** will be visible as an evening planet during June and then as a morning planet during August.
- **Venus** will be visible, but low over the southeast horizon at sunrise during most of the Northern Hemisphere summer.
- **Mars** will set earlier each evening but will be visible low over the western horizon at sunset during June and the first week or so of July, before it will become lost in the Sun's glare.
- **Jupiter** will be visible over the southwestern horizon at sunset all night during Northern Hemisphere summer months.
- **Saturn** will be visible low over the southwestern horizon at sunset during June, but then will move behind the Sun in July and reappear as a morning planet in August.

Calendar of summer celestial events

June

- 4 Saturn near Beehive open star cluster
- 15 Mars crosses center of Beehive open star cluster
Pluto at opposition
- 16–17 Mars passes Saturn
- 20 Mercury at greatest eastern elongation
- 21 June solstice (8:26 a.m. EDT)
- 22 Venus, waning crescent Moon near Pleiades
- 26 Mars at aphelion

FIGURE 2

Mars, Saturn, and M-44 as seen through 7 x 50 binoculars on June 17



July

- 1–19 Launch window for STS-121
- 2 The year is half over
Cassini Titan flyby
Venus near Aldebaran
- 3 Earth at aphelion (7 p.m. EDT)
- 18 Mercury at inferior conjunction
- 22 Cassini Titan flyby
- 26 30th anniversary of Viking I landing on Mars

August

- 7 Mercury at greatest western elongation
Saturn-Sun conjunction
- 8 Perseids meteor shower peak
- 10 Neptune at opposition
Mercury near Venus
- 16 Mercury near Beehive open star cluster
- 18 Venus near Beehive open star cluster
- 20 Mercury near Saturn
- 26–27 Venus passes Saturn
- 31 Second first quarter Moon this month

Resources

- U.S. Naval Observatory data services—aa.usno.navy.mil
- SFA star charts—observe.phy.sfasu.edu
- PC freeware: Planetary, lunar, and stellar visibility—www.alcyone.de/PVvis/english/ProgramPVvis.htm
- Tracking the planets—<http://currentsky.com/planets.html>