

Constellation Close-Up

Leo

Leo is one of the sky's most distinctive constellations, prowling the southern meridian around midnight in the spring. The prominent asterism of the 'Sickle', often likened to a backwards question-mark, is delineated by the stars Regulus (alpha α), eta (η), gamma (γ), zeta (ζ), mu (μ) and epsilon (ϵ) Leonis. To many the Sickle represents the Lion's mane: Leo's hindquarters are made up from the triangle of Denebola, delta (δ) and theta (θ) Leonis, and this is one of the few constellations which bears some resemblance to the beast for which it is named.

Leo is bordered to the west by Cancer. Dim Sextans and the Virgo 'bowl' lie to the south, while Coma Berenices (at one time envisioned as Leo's tail) is to the east. Leo Minor nestles into the space between Leo and the 'forepaws' of Ursa Major.

The ecliptic runs through Leo, just south of Regulus. This is one of the 12 constellations of the Zodiac. The Sun lies in Leo in our line of sight from Earth between mid-August and mid-September. Leo covers 947 square degrees of sky.

Myth

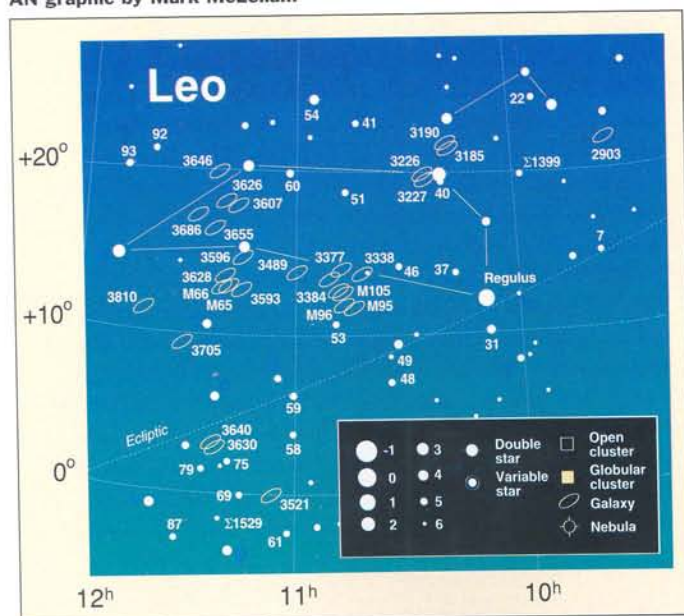
Leo is one of the original 48 Greek constellations, representing the Nemean Lion which was slain by Hercules as the first of his Twelve Labours. Several other traditions, including the Persian and Babylonian, also picture Leo as a celestial lion.

Features of Leo

Leo's most prominent star is alpha, Regulus, at magnitude of +1.36 the 21st brightest in the sky. Regulus takes its name from the Latin, Rex for King, and is sometimes also referred to as the Lion's Heart. Pure-white Regulus is found at the base of the Sickle asterism on the west of Leo. Lying at a distance of 69 lightyears, Regulus has an absolute magnitude of -0.7, about 160 times that of our Sun, and a surface temperature of 13,000 K. A mag. +7.7 dwarf companion, itself double, lies 177 arcseconds away and, sharing the same proper motion through space, is assumed to be physically connected.

Regulus lies 46 arcminutes north of the ecliptic. It can therefore be occulted by the Moon during two roughly 18-month 'seasons' during the 18.6-year Metonic cycle, over which the intersection (node) where the tilted lunar orbit cuts across the ecliptic plane gradually moves westwards. The last series of occultations ended in September 1999; the next begins in 2007. Regulus is one of the brightest stars which can be occulted by the Moon. It was also occulted by the planet Venus on 1959 July 7. The event provided

Finder chart for the constellation Leo.
AN graphic by Mark McLellan.



M95 is a spectacular barred spiral in Leo Image: Jacobus Kapteyn Telescope/ Johan Knapen (ING) / Nik Szymanek.

astronomers with a valuable means of probing Venus' atmosphere, with Regulus flickering and fading behind successive layers.

North from Regulus, at the base of the Sickle's curve, is mag. +3.48 eta Leonis, a very luminous type A supergiant, 2000 lightyears away. Northeastwards from eta lies gamma, also known as Algieba (sometimes alternatively spelt as Algieba). Algieba is a fine binary with an orbital period of 620 years. The components, currently 4.4 arcseconds apart, have respective magnitudes of +2.2 and +3.5, giving an integrated naked-eye brightness of mag. +1.98. The system lies about 75 lightyears from us, and can be split readily with a telescope of 80 mm aperture.

About four degrees north from gamma, zeta Leonis is a mag.+3.44 F-class star about 50 times as luminous as the Sun. The Sickle then curves north-westwards through mu Leonis

to mag. +2.98 epsilon Leonis, a powerful G-class star of nearly 600 times solar luminosity.

At Leo's eastern tail end mag. +2.14 Denebola (beta Leonis) forms part of a prominent triangle of stars together with delta and theta Leonis. Denebola is a spectral-type A star similar to Sirius, with a luminosity equivalent to about 20 Suns. It lies 40 lightyears away. Delta lies twice as distant from us, and has an apparent mag. +2.55. Mag. +3.34 Theta is 90 light years distant, another luminous A-class star.

Located five degrees west of Regulus, R Leonis is a Mira-class red giant variable star, lying about 600 lightyears away. The fourth of its kind to be found, by J.H. Koch in 1782, it ranges from a maximum mag. +4.4 to +11.3 over a period of 310 days, appearing red through much of its cycle. Through the spring and summer of 2004, R Leo will be brightening towards maxi-

Objects in Leo

Object	Type	RA (2000.0)	Dec
NGC2903	Galaxy	09h 32.2m	+21° 30'
R	Variable star	09h 47.6m	+11° 26'
NGC3351 (M95)	Galaxy	10h 44.0m	+11° 42'
NGC3368 (M96)	Galaxy	10h 46.8m	+11° 49'
NGC3379 (M105)	Galaxy	10h 47.8m	+12° 35'
Wolf 359	Nearby dwarf star	10h 56.6m	+07° 01'
NGC3521	Galaxy	11h 05.8m	+00° 02'
NGC3623 (M65)	Galaxy	11h 18.9m	+13° 05'
NGC3627 (M66)	Galaxy	11h 20.2m	+12° 59'
NGC3628	Galaxy	11h 20.3m	+13° 36'