

Messier 65 Spiral Galaxy in Constellation Leo

Messier 65 (M65) is an intermediate spiral galaxy that forms the Leo Triplet with the nearby Messier 66 and NGC 3628

The three galaxies are located in the constellation Leo. M65 lies at a distance of about 35 million light years from Earth and has an apparent magnitude of 10.25. It has the designation NGC 3623 in the New General Catalogue.

Messier 65 occupies an area of 8.079 by 2.454 arc minutes of apparent sky, which corresponds to a linear diameter of about 90,000 light years. It is one of the most popular targets among amateur astronomers as it can be seen and photographed in the same field of view as its neighbours, M66 and NGC 3628.



The Leo Triplet, with M65 at the upper right, M66 at the lower right, and NGC 3628 at the upper left.

The galaxy lies in the eastern part of Leo. Thanks to its high surface brightness, it is visible even in small binoculars and appears as an oval shaped patch, along with its bright neighbour M66. Small telescopes begin to reveal the structure of the pair, with a bright central core surrounded by a thin disk of light. To see the third member of the Leo Triplet, however, one needs at least a 6-inch telescope. Larger telescopes reveal the dark dust lanes and other details of M65. Messier 65 can be found along the line from Denebola to Regulus. The best time of year to observe M65 is during the spring.

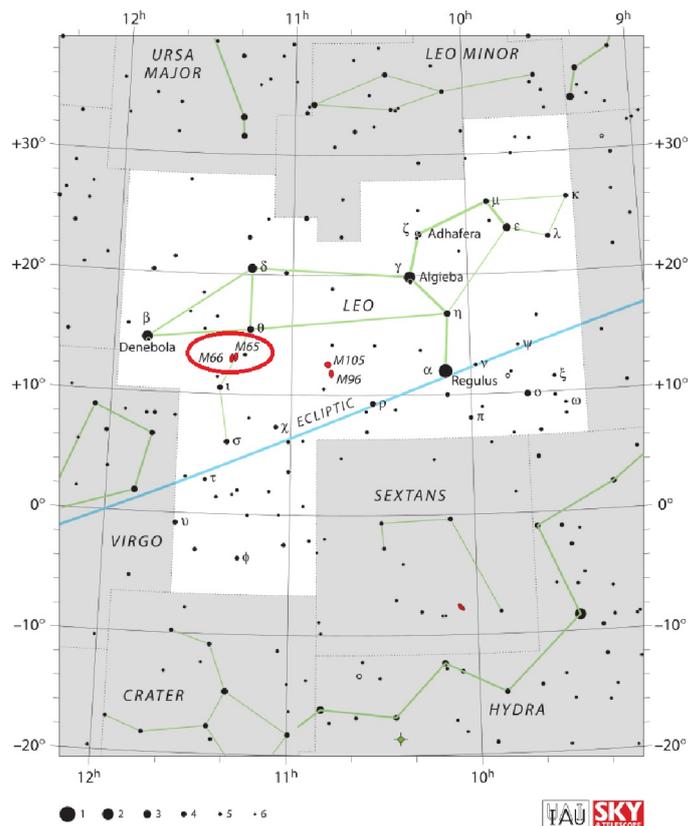
The Leo Triplet is a small grouping of galaxies that are known to be gravitationally interacting with each other. The interaction has affected all three galaxies, but M65 is the least affected of the group. With tightly wound spiral arms, a conspicuous central lense and a dust lane along the facing edge, M65 appears like a normal spiral galaxy. It is moving away from us at a velocity of about 807 km/s.

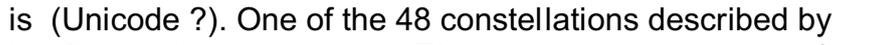
Messier 65 contains little dust and gas and, even though its spiral arms show some evidence of recent star forming activity, there is overall little star formation occurring in it and the ratio of old, evolved stars to young ones is quite high.

The recent star formation and the galaxy's disk, which appears slightly warped, both indicate that M65 is interacting with its large neighbours. The galaxy may also have a central bar, which may indicate tidal disruption, but it is difficult to confirm the existence of the bar because M65 is positioned at an oblique angle when seen from Earth.

The M66 Group is located in the eastern part of Leo constellation, along the line from the bright star Denebola to Regulus. Messier 66, the largest and brightest member of the Leo Triplet, is roughly 95 light years across. It has an apparent size of 9.1 by 4.2 minutes of arc and an apparent magnitude of 8.9.

The Leo Triplet lies close to the M96 Group, also known as the Leo I Group, another group of galaxies found in the Leo constellation. The M96 Group contains up to 24 galaxies, including the spiral galaxies Messier 95 and Messier 96, and the elliptical galaxy Messier 105. As the two groups are physically close, some sources identify the M66 Group as part of the M96 Group. The two groupings may in fact be separate parts of a considerably larger galaxy group.



Leo is one of the constellations of the zodiac, lying between Cancer the crab to the west and Virgo the maiden to the east. Its name is Latin for lion, and to the ancient Greeks represented the Nemean Lion killed by the mythical Greek hero Heracles meaning 'Glory of Hera' (known to the ancient Romans as Hercules) as one of his twelve labors. Its symbol is  (Unicode ?). One of the 48 constellations described by the 2nd-century astronomer Ptolemy, Leo remains one of the 88 modern constellations today, and one of the most easily recognizable due to its many bright stars and a distinctive shape that is reminiscent of the crouching lion it depicts. The lion's mane and shoulders also form an asterism known as "The Sickle," which to modern observers may resemble a backwards "question mark."

Leo contains many bright stars, many of which were individually identified by the ancients. There are four stars of first or second magnitude, which render this constellation especially prominent:

Regulus, designated Alpha Leonis, is a blue-white main-sequence star of magnitude 1.34, 77.5 light-years from Earth. It is a double star divisible in binoculars, with a secondary of magnitude 7.7. Its traditional name (Regulus) means "the little king".

Denebola, Beta Leonis is at the opposite end of the constellation to Regulus. It is a blue-white star of magnitude 2.23, 36 light-years from Earth. The name Denebola means "the lion's tail".

Algieba, Gamma Leonis, is a binary star with a third optical component; the primary and secondary are divisible in small telescopes and the tertiary is visible in binoculars. Algieba means "the forehead". The primary is a gold-yellow giant star of magnitude 2.61 and the secondary is similar but at magnitude 3.6; they have a period of 600 years and are 126 light-years from Earth. The unrelated tertiary, 40 Leonis, is a yellow-tinged star of magnitude 4.8. Its traditional name, .

Zosma, Delta Leonis, is a blue-white star of magnitude 2.58, 58 light-years from Earth.

Leo is also home to one bright variable star, the red giant R Leonis. It is a Mira variable with a minimum magnitude of 10 and normal maximum magnitude of 6; it periodically brightens to magnitude 4.4. R Leonis, 330 light-years from Earth, has a period of 310 days and a diameter of 450 solar diameters.

HISTORY AND MYTHOLOGY

In Greek mythology, Leo was identified as the Nemean Lion which was killed by Hercules during the first of his twelve labours. The Lion would take women as hostages to its lair in a cave, luring warriors from nearby towns to save the damsel in distress, to their misfortune. The Lion was impervious to any weaponry; thus, the warriors' clubs, swords, and spears were rendered useless against it. Realizing that he must defeat the Lion with his bare hands, Hercules slipped into the Lion's cave and engaged it at close quarters. When the Lion pounced, Hercules caught it in midair, one hand grasping the Lion's forelegs and the other its hind legs, and bent it backwards, breaking its back and freeing the trapped maidens.

The Leonids Meteor shower occur in November, peaking on November 14–15, and have a radiant close to Gamma Leonis. Its parent body is Comet Tempel-Tuttle, which causes significant outbursts every 35 years. The normal peak rate is approximately 10 meteors per hour.

AK, with EarthSky and Wikipedia Notes



Constellations Leo and Leo Minor just above it



Greek stamp depicting a mosaical image of the encounter between Hercules and Leo, the Nemean Lion.