

CONSTELLATION VIRGO, THE VIRGIN

Virgo is one of the constellations of the zodiac. Its name is Latin for virgin. Lying between Leo to the west and Libra to the east, it is the second largest constellation in the sky (after Hydra) with an area of 1294 square degrees. It can be easily found through its brightest star, Spica.

Due to the effects of precession of the equinoxes, the autumn equinox point (known as the First Point of Libra) now lies within the boundaries of Virgo very close to β Virginis. This is one of the two points in the sky where the celestial equator crosses the ecliptic (the other being the First Point of Aries, now in the constellation of Pisces.) This point will pass into the neighbouring constellation of Leo around the year 2440.

STARS

- α Virginis (Spica) is the brightest star in Virgo and at magnitude 1.04 the 15th brightest star in the sky.
- other bright stars in Virgo include β Vir (Zavijava), γ Vir (Porrima), δ Vir (Auva) and ϵ Vir (Vindemiatrix). Other fainter stars that were also given names are ζ Vir (Heze), η Vir (Zaniah), θ Vir (Syrma) and μ Vir (Rijl al Awwa).
- The star 70 Virginis has one of the first known extrasolar planetary systems with one confirmed planet 7.5 times the mass of Jupiter.
- The star Chi Virginis has one of the most massive planets ever detected, at a mass of 11.1 times that of Jupiter.
- The sun-like star 61 Virginis has three planets: one is a super-Earth and two are Neptune-mass planets.
- SS Virginis is a variable star with a noticeable red color. It varies in magnitude from a minimum of 9.6 to a maximum of 6.0 over a period of approximately one year.

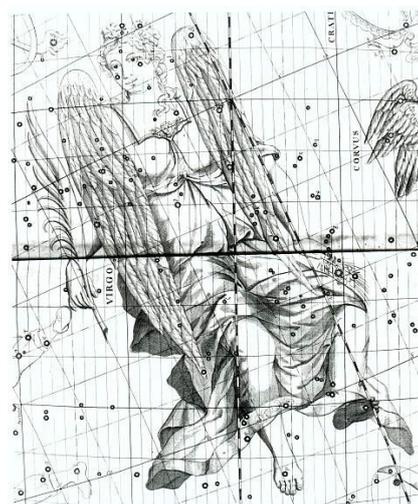
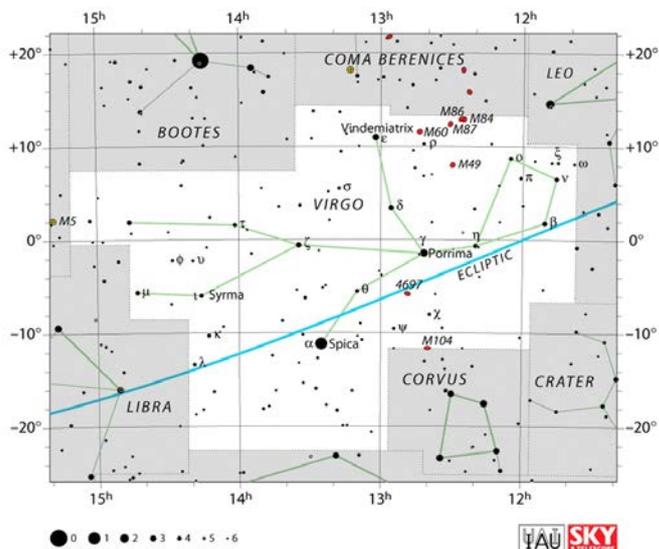
EXOPLANETS

There are 35 verified exoplanets orbiting 29 stars in Virgo, including PSR B1257+12 (three planets), 70 Virginis (one planet), Chi Virginis (one planet), 61 Virginis (three planets), NY Virginis (two planets), and 59 Virginis (one planet).

DEEP-SKY OBJECTS

Because of the presence of a galaxy cluster (consequently called the Virgo cluster) within its borders 5° to 12° west of α Vir (Vindemiatrix), this constellation is especially rich in galaxies.

Some examples are Messier 49 (elliptical), Messier 58 (spiral), Messier 59 (elliptical), Messier 60 (elliptical), Messier 61 (spiral), Messier 84 (lenticular), Messier 86 (lenticular), Messier 87 (elliptical and a famous radio source), Messier 89 (elliptical) and Messier 90 (spiral). A noted galaxy that is not part of the cluster is the Sombrero Galaxy (M104), an unusual spiral galaxy. It is located about 10° due west of Spica.



The Virgo Cluster shows the diffuse light between the galaxies belonging to the cluster. The cluster's centre is located approximately 53.8 million light years away from the solar system and part of the Supercluster that also contains the Local Group including the Andromeda Galaxy and the Milky Way. The Virgo Cluster may contain up to 2000 Galaxies.



Messier 49 is the brightest galaxy in the Virgo Cluster and the first galaxy to be discovered in the cluster. It is an elliptical galaxy with a visual magnitude of 9.4, about 55.9 million light years distant. It was discovered by Charles Messier in February 1771. M49 contains about 5900 globular clusters. The galaxy is believed to have a supermassive black hole with 565 million solar masses



An infrared image of Messier 58 by the Spitzer Space Telescope. Messier 58 (M58, NGC 4579) is a barred spiral galaxy in Virgo and one of the brightest. It has an apparent magnitude of 10.5 and is about 62 million light years distant. M58 was discovered by Charles Messier in April 1779. Two supernovae have been observed in the galaxy: SN 1988A and SN 1989M



Messier 61 (NGC 4303) is a spiral galaxy of the Virgo Cluster and one of its larger member galaxies. It has an apparent magnitude of 10.18 and is approximately 52.5 million light years distant. It was discovered by the Italian astronomer Barnabus Oriani in May 1779. Six supernovae have been discovered in it



The Eyes Galaxies are a pair of interacting galaxies – NGC 4435 and NGC 4438 – located in the Virgo Cluster. NGC 4435 is a barred lenticular galaxy and has lots of young stars in its central regions, due to interaction with NGC 4438. This has a distorted disk and tidal tails as a result of the interaction. The galaxies are 52 million light years distant.



Sombrero Galaxy – Messier 104 (NGC 4594) is a bright nearby spiral galaxy. The prominent dust lane and halo of stars and globular clusters give this galaxy its name. M 104 is an unbarred spiral galaxy with a visual magnitude of 8.98 approximately 29.3 million light years distant. The galaxy contains between 1,200 and 2,000 globular clusters. It got the name Sombrero because its unusually large central bulge and the dust lane in its disk make it look like a sombrero hat. It was discovered by Pierre Méchain in March 1767 and later included in the Messier Catalogue.

Virgo is home to the quasar 3C 273 which was the first quasar ever to be identified. With a magnitude of ~12.9 it is also the optically brightest quasar in the sky.

MYTHOLOGY

According to the Babylonian Mul.Apin, which dates from 1000–686 BCE, this constellation was known as "The Furrow", representing the goddess Shala's ear of grain. One star in this constellation, Spica, retains this tradition as it is Latin for "ear of grain", one of the major products of the Mesopotamian furrow.

The Greeks and Romans associated Virgo with their goddess of wheat/agriculture, Demeter-Ceres



Virgo as depicted in Urania's Mirror, a set of constellation cards published in London c.1825.

who is the mother of Persephone-Proserpina. Alternatively, she was sometimes identified as the virgin goddess Iustitia or Astraea, holding the scales of justice in her hand as the constellation Libra. In the Middle Ages, Virgo was sometimes associated with the Blessed Virgin Mary. Virgo is often portrayed with wings, reminiscent of an angel, holding an ear of wheat in her left hand (the star Spica).

Virgo is the second-largest constellation in the sky, exceeded only by the much fainter Hydra. The Greeks called the constellation Parthenos, which is the name Ptolemy gave in the Almagest and usually identified as Dike, goddess of justice and daughter of Zeus and Themis. Dike features as the impartial observer in a moral tale depicting mankind's declining standards. It was a favourite tale of Greek and Roman mythologists, and its themes still sound familiar today. Dike was supposed to have lived on Earth in the **Golden Age of mankind**, when Cronus ruled Olympus. It was a time of peace and happiness, a season of perennial spring when food grew without cultivation and humans never grew old. Men lived like the gods, not knowing work, sorrow, crime or war. Dike moved among them, dispensing wisdom and justice.

Then, when Zeus overthrew his father Cronus on Olympus, **the Silver Age began**, inferior to the age that had just passed. In the Silver Age, Zeus shortened springtime and introduced the yearly cycle of seasons. Humans in this age became quarrelsome and ceased to honour the gods. Dike longed for the idyllic days gone by. She assembled the human race and spoke sternly to them for forsaking the ideals of their ancestors. 'Worse is to come', she warned them. Then she spread her wings and took refuge in the mountains, turning her back on mankind. Finally came the **Ages of Bronze and Iron**, when humans descended into violence, theft and war. Unable to endure the sins of humanity any longer, Dike abandoned the Earth and flew up to heaven, where she sits to this day next to the constellation of Libra, which some see as the scales of justice.

There are other goddesses who can claim identity with Virgo. One is Demeter, the corn goddess, who was daughter of Cronus and Rhea. By her brother Zeus she had a daughter, Persephone (also called Kore, meaning 'maiden'). Persephone might have remained a virgin for-ever had not her uncle, Hades, god of the Underworld, kidnapped her while she was out picking flowers one day at Henna in Sicily. Hades swept her aboard his chariot drawn by four black horses and galloped with her into his underground kingdom, where she became his reluctant queen. Demeter, having scoured the Earth for her missing daughter without success, cursed the fields of Sicily so that the crops failed. In desperation she asked the Great Bear what he had seen, since he never sets, but since the abduction had taken place during the day he referred her to the Sun, who finally told her the truth.

Demeter angrily confronted Zeus, father of Persephone, and demanded that he order his brother Hades to return the girl. Zeus agreed to try; but already it was too late, because Persephone had eaten some pomegranate seeds while in the Underworld and, once having done that, she could never return permanently to the land of the living. A compromise was reached in which Persephone would spend half of the year in the Underworld with her husband, and the rest of the year above ground with her mother. Clearly, this is an allegory on the changing seasons.

Eratosthenes and **Hyginus** both name Tyche, the goddess of fortune, as another identification of Virgo; but Tyche was usually represented holding the **horn of plenty (cornucopia)** rather than an ear of grain. In the sky, the ear of corn is represented by the first-magnitude star Spica, Latin for 'ear of grain'.

FACTS: The neighboring constellations are Boötes, Coma Berenices, Corvus, Crater, Hydra, Leo, Libra and Serpens Caput. Virgo belongs to the Zodiac family of constellations.