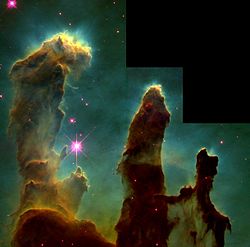
Nebula

From Wikipedia, the free encyclopedia

*For other uses, see*[*Nebula (disambiguation)*](https://en.wikipedia.org/wiki/Nebula_(disambiguation))*.*

[](https://en.wikipedia.org/wiki/File:Eagle_nebula_pillars.jpg)

The "[Pillars of Creation](https://en.wikipedia.org/wiki/Pillars_of_Creation)" from the [Eagle Nebula](https://en.wikipedia.org/wiki/Eagle_Nebula). Evidence from the [Spitzer Telescope](https://en.wikipedia.org/wiki/Spitzer_Telescope)suggests that the pillars may already have been destroyed by a supernova explosion, but the light showing us the destruction will not reach the Earth for another millennium.[[1]](https://en.wikipedia.org/wiki/Nebula#cite_note-1)

A **nebula** ([Latin](https://en.wikipedia.org/wiki/Latin) for "cloud";[[2]](https://en.wikipedia.org/wiki/Nebula#cite_note-2) pl. **nebulae**, **nebulæ**, or **nebulas**) is an [interstellar cloud](https://en.wikipedia.org/wiki/Interstellar_cloud) of [dust](https://en.wikipedia.org/wiki/Cosmic_dust), [hydrogen](https://en.wikipedia.org/wiki/Hydrogen), [helium](https://en.wikipedia.org/wiki/Helium) and other [ionized gases](https://en.wikipedia.org/wiki/Ionized_gases). Originally, *nebula* was a name for any diffuse [astronomical object](https://en.wikipedia.org/wiki/Astronomical_object), including[galaxies](https://en.wikipedia.org/wiki/Galaxy) beyond the [Milky Way](https://en.wikipedia.org/wiki/Milky_Way). The [Andromeda Galaxy](https://en.wikipedia.org/wiki/Andromeda_Galaxy), for instance, was once referred to as the *Andromeda Nebula* (and [spiral galaxies](https://en.wikipedia.org/wiki/Spiral_galaxies) in general as "spiral nebulae") before the true nature of galaxies was confirmed in the early 20th century by [Vesto Slipher](https://en.wikipedia.org/wiki/Vesto_Slipher" \o "Vesto Slipher), [Edwin Hubble](https://en.wikipedia.org/wiki/Edwin_Hubble) and others.

Most nebulae are of vast size, even hundreds of [light years](https://en.wikipedia.org/wiki/Light_year) in diameter.[[3]](https://en.wikipedia.org/wiki/Nebula#cite_note-3) Although denser than the space surrounding them, most nebulae are far less dense than any [vacuum](https://en.wikipedia.org/wiki/Vacuum) created on Earth – a nebular cloud the size of the [Earth](https://en.wikipedia.org/wiki/Earth) would have a total mass of only a few [kilograms](https://en.wikipedia.org/wiki/Kilogram). Many nebulae are visible due to their fluorescence caused by the embedded hot stars, while others are so diffuse they can only be detected with long exposures and special filters. Some nebulae are variably illuminated by [T Tauri](https://en.wikipedia.org/wiki/T_Tauri) variable stars. Nebulae are often star-forming regions, such as in the "[Pillars of Creation](https://en.wikipedia.org/wiki/Pillars_of_Creation)" in the [Eagle Nebula](https://en.wikipedia.org/wiki/Eagle_Nebula). In these regions the formations of gas, dust, and other materials "clump" together to form denser regions, which attract further matter, and eventually will become dense enough to form [stars](https://en.wikipedia.org/wiki/Star). The remaining material is then believed to form [planets](https://en.wikipedia.org/wiki/Planet) and other [planetary system](https://en.wikipedia.org/wiki/Planetary_system) objects.

The range of objects called nebula are very diverse, have diverse origins, and final ends.

**Contents**

  [[hide](https://en.wikipedia.org/wiki/Nebula)]

* [1Observational history](https://en.wikipedia.org/wiki/Nebula#Observational_history)
* [2Formation](https://en.wikipedia.org/wiki/Nebula#Formation)
* [3Types of nebulae](https://en.wikipedia.org/wiki/Nebula#Types_of_nebulae)
  + [3.1Classical types](https://en.wikipedia.org/wiki/Nebula#Classical_types)
  + [3.2Diffuse nebulae](https://en.wikipedia.org/wiki/Nebula#Diffuse_nebulae)
  + [3.3Planetary nebulae](https://en.wikipedia.org/wiki/Nebula#Planetary_nebulae)
    - [3.3.1Protoplanetary nebula](https://en.wikipedia.org/wiki/Nebula#Protoplanetary_nebula)
  + [3.4Supernova remnants](https://en.wikipedia.org/wiki/Nebula#Supernova_remnants)
* [4Notable named nebulae](https://en.wikipedia.org/wiki/Nebula#Notable_named_nebulae)
  + [4.1Nebula catalogs](https://en.wikipedia.org/wiki/Nebula#Nebula_catalogs)
* [5See also](https://en.wikipedia.org/wiki/Nebula#See_also)
* [6References](https://en.wikipedia.org/wiki/Nebula#References)
* [7External links](https://en.wikipedia.org/wiki/Nebula#External_links)

Observational history[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=1" \o "Edit section: Observational history)]

[](https://en.wikipedia.org/wiki/File:Hs-2009-25-e-full_jpg.jpg)

Portion of the [Carina Nebula](https://en.wikipedia.org/wiki/Carina_Nebula)

Around 150 AD, [Claudius Ptolemaeus](https://en.wikipedia.org/wiki/Claudius_Ptolemaeus) (Ptolemy) recorded, in books VII-VIII of his [*Almagest*](https://en.wikipedia.org/wiki/Almagest), five stars that appeared nebulous. He also noted a region of nebulosity between the [constellations](https://en.wikipedia.org/wiki/Constellation) [Ursa Major](https://en.wikipedia.org/wiki/Ursa_Major" \o "Ursa Major) and [Leo](https://en.wikipedia.org/wiki/Leo_(constellation)) that was not associated with any [star](https://en.wikipedia.org/wiki/Star).[[4]](https://en.wikipedia.org/wiki/Nebula#cite_note-4) The first true nebula, as distinct from a [star cluster](https://en.wikipedia.org/wiki/Star_cluster), was mentioned by the [Persian/Muslim astronomer](https://en.wikipedia.org/wiki/Astronomy_in_medieval_Islam), [Abd al-Rahman al-Sufi](https://en.wikipedia.org/wiki/Abd_al-Rahman_al-Sufi" \o "Abd al-Rahman al-Sufi), in his [*Book of Fixed Stars*](https://en.wikipedia.org/wiki/Book_of_Fixed_Stars) (964).[[5]](https://en.wikipedia.org/wiki/Nebula#cite_note-Jones-5) He noted "a little cloud" where the [Andromeda Galaxy](https://en.wikipedia.org/wiki/Andromeda_Galaxy) is located.[[6]](https://en.wikipedia.org/wiki/Nebula#cite_note-rasqj25-6) He also cataloged the [Omicron Velorum](https://en.wikipedia.org/wiki/Omicron_Velorum_Cluster) star cluster as a "nebulous star" and other nebulous objects, such as [Brocchi's Cluster](https://en.wikipedia.org/wiki/Brocchi%27s_Cluster" \o "Brocchi's Cluster).[[5]](https://en.wikipedia.org/wiki/Nebula#cite_note-Jones-5) The [supernova](https://en.wikipedia.org/wiki/Supernova) that created the [Crab Nebula](https://en.wikipedia.org/wiki/Crab_Nebula), the [SN 1054](https://en.wikipedia.org/wiki/SN_1054), was observed by Arabic and [Chinese astronomers](https://en.wikipedia.org/wiki/Chinese_astronomy) in 1054.[[7]](https://en.wikipedia.org/wiki/Nebula#cite_note-Lundmark-7)[[8]](https://en.wikipedia.org/wiki/Nebula#cite_note-Mayall-8)

In 1610, [Nicolas-Claude Fabri de Peiresc](https://en.wikipedia.org/wiki/Nicolas-Claude_Fabri_de_Peiresc) discovered the [Orion Nebula](https://en.wikipedia.org/wiki/Orion_Nebula) using a telescope. This nebula was also observed by [Johann Baptist Cysat](https://en.wikipedia.org/wiki/Johann_Baptist_Cysat) in 1618. However, the first detailed study of the Orion Nebula was not performed in 1659 by [Christiaan Huygens](https://en.wikipedia.org/wiki/Christiaan_Huygens), who also believed himself to be the first person to discover this nebulosity.[[6]](https://en.wikipedia.org/wiki/Nebula#cite_note-rasqj25-6)

In 1715, [Edmund Halley](https://en.wikipedia.org/wiki/Edmund_Halley) published a list of six nebulae.[[9]](https://en.wikipedia.org/wiki/Nebula#cite_note-9) This number steadily increased during the century, with [Jean-Philippe de Cheseaux](https://en.wikipedia.org/wiki/Jean-Philippe_de_Cheseaux) compiling a list of 20 (including eight not previously known) in 1746. From 1751–53, [Nicolas Louis de Lacaille](https://en.wikipedia.org/wiki/Nicolas_Louis_de_Lacaille) cataloged 42 nebulae from the [Cape of Good Hope](https://en.wikipedia.org/wiki/Cape_of_Good_Hope), most of which were previously unknown. [Charles Messier](https://en.wikipedia.org/wiki/Charles_Messier) then compiled a catalog of 103 "nebulae" (now called [Messier objects](https://en.wikipedia.org/wiki/Messier_object), which included what are now known to be galaxies) by 1781; his interest was detecting [comets](https://en.wikipedia.org/wiki/Comet), and these were objects that might be mistaken for them.[[10]](https://en.wikipedia.org/wiki/Nebula#cite_note-hoskin2005-10)

The number of nebulae was then greatly expanded by the efforts of [William Herschel](https://en.wikipedia.org/wiki/William_Herschel) and his sister [Caroline Herschel](https://en.wikipedia.org/wiki/Caroline_Herschel). Their [*Catalogue of One Thousand New Nebulae and Clusters of Stars*](https://books.google.com/books?id=0YMFAAAAQAAJ&pg=PA457) was published in 1786. A second catalog of a thousand was published in 1789 and the third and final catalog of 510 appeared in 1802. During much of their work, William Herschel believed that these nebulae were merely unresolved clusters of stars. In 1790, however, he discovered a star surrounded by nebulosity and concluded that this was a true nebulosity, rather than a more distant cluster.[[10]](https://en.wikipedia.org/wiki/Nebula#cite_note-hoskin2005-10)

Beginning in 1864, [William Huggins](https://en.wikipedia.org/wiki/William_Huggins) examined the spectra of about 70 nebulae. He found that roughly a third of them had the [emission spectrum](https://en.wikipedia.org/wiki/Emission_spectrum) of a [gas](https://en.wikipedia.org/wiki/Gas). The rest showed a continuous spectrum and thus were thought to consist of a mass of stars.[[11]](https://en.wikipedia.org/wiki/Nebula#cite_note-11)[[12]](https://en.wikipedia.org/wiki/Nebula#cite_note-struve37-12) A third category was added in 1912 when [Vesto Slipher](https://en.wikipedia.org/wiki/Vesto_Slipher" \o "Vesto Slipher) showed that the spectrum of the nebula that surrounded the star [Merope](https://en.wikipedia.org/wiki/Merope_(star)) matched the spectra of the [Pleiades](https://en.wikipedia.org/wiki/Pleiades) [open cluster](https://en.wikipedia.org/wiki/Open_cluster). Thus the nebula radiates by reflected star light.[[13]](https://en.wikipedia.org/wiki/Nebula#cite_note-13)

About 1922, following the [Great Debate](https://en.wikipedia.org/wiki/Great_Debate_(astronomy)), it had become clear that many "nebulae" were in fact galaxies far from our own.

Slipher and [Edwin Hubble](https://en.wikipedia.org/wiki/Edwin_Hubble) continued to collect the spectra from many diffuse nebulae, finding 29 that showed emission spectra and 33 that had the continuous spectra of star light.[[12]](https://en.wikipedia.org/wiki/Nebula#cite_note-struve37-12) In 1922, Hubble announced that nearly all nebulae are associated with stars, and their illumination comes from star light. He also discovered that the emission spectrum nebulae are nearly always associated with stars having spectral classifications of B1 or hotter (including all [O-type main sequence stars](https://en.wikipedia.org/wiki/O-type_main_sequence_star)), while nebulae with continuous spectra appear with cooler stars.[[14]](https://en.wikipedia.org/wiki/Nebula#cite_note-14) Both Hubble and [Henry Norris Russell](https://en.wikipedia.org/wiki/Henry_Norris_Russell) concluded that the nebulae surrounding the hotter stars are transformed in some manner.[[12]](https://en.wikipedia.org/wiki/Nebula#cite_note-struve37-12)

Formation[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=2" \o "Edit section: Formation)]

[](https://en.wikipedia.org/wiki/File:Nursery_of_New_Stars_-_GPN-2000-000972.jpg)

The Triangulum Emission Garren Nebula[NGC 604](https://en.wikipedia.org/wiki/NGC_604)

Many nebulae or stars form from the [gravitational collapse](https://en.wikipedia.org/wiki/Gravitational_collapse) of gas in the [interstellar medium](https://en.wikipedia.org/wiki/Interstellar_medium). As the material collapses under its own weight, massive stars may form in the center, and their [ultraviolet radiation](https://en.wikipedia.org/wiki/Ultraviolet_radiation) [ionizes](https://en.wikipedia.org/wiki/Ion) the surrounding gas, making it visible at optical [wavelengths](https://en.wikipedia.org/wiki/Wavelength). Examples of these types of nebulae are the [Rosette Nebula](https://en.wikipedia.org/wiki/Rosette_Nebula) and the [Pelican Nebula](https://en.wikipedia.org/wiki/Pelican_Nebula). The size of these nebulae, known as [H II regions](https://en.wikipedia.org/wiki/H_II_region), varies depending on the size of the original cloud of gas. New stars are formed in the nebulae. The formed stars are sometimes known as a young, loose cluster.

Other nebulae form as the result of [supernova](https://en.wikipedia.org/wiki/Supernova) explosions; the death throes of massive, short-lived stars. The materials thrown off from the [supernova](https://en.wikipedia.org/wiki/Supernova) explosion are then ionized by the energy and the compact object that its core produces. One of the best examples of this is the [Crab Nebula](https://en.wikipedia.org/wiki/Crab_Nebula), in [Taurus](https://en.wikipedia.org/wiki/Taurus_(constellation)). The supernova event was recorded in the year 1054 and is labelled [SN 1054](https://en.wikipedia.org/wiki/SN_1054). The compact object that was created after the explosion lies in the center of the Crab Nebula and its core is now a [neutron star](https://en.wikipedia.org/wiki/Neutron_star).

Still other nebulae form as [planetary nebulae](https://en.wikipedia.org/wiki/Planetary_nebulae). This is the final stage of a low-mass star's life, like [Earth](https://en.wikipedia.org/wiki/Earth)'s [Sun](https://en.wikipedia.org/wiki/Sun). [Stars](https://en.wikipedia.org/wiki/Star) with a [mass](https://en.wikipedia.org/wiki/Mass) up to 8–10 solar masses evolve into [red giants](https://en.wikipedia.org/wiki/Red_giant) and slowly lose their outer layers during pulsations in their atmospheres. When a star has lost enough material, its temperature increases and the [ultraviolet radiation](https://en.wikipedia.org/wiki/Ultraviolet_radiation) it emits can [ionize](https://en.wikipedia.org/wiki/Ion) the surrounding nebula that it has thrown off. Our Sun will produce a planetary nebula and its core will remain behind in the form of [white dwarf](https://en.wikipedia.org/wiki/White_dwarf).

Types of nebulae[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=3" \o "Edit section: Types of nebulae)]

* [https://upload.wikimedia.org/wikipedia/commons/thumb/7/75/A_stellar_sneezing_fit.jpg/120px-A_stellar_sneezing_fit.jpg](https://en.wikipedia.org/wiki/File:A_stellar_sneezing_fit.jpg)

[Herbig–Haro object](https://en.wikipedia.org/wiki/Herbig%E2%80%93Haro_object) [HH 161](https://en.wikipedia.org/w/index.php?title=HH_161&action=edit&redlink=1) and [HH 164](https://en.wikipedia.org/w/index.php?title=HH_164&action=edit&redlink=1).[[15]](https://en.wikipedia.org/wiki/Nebula#cite_note-15)

* [](https://en.wikipedia.org/wiki/File:Omega_Nebula.jpg)

The [Omega Nebula](https://en.wikipedia.org/wiki/Omega_Nebula), an example of an [emission nebula](https://en.wikipedia.org/wiki/Emission_nebula)

* [](https://en.wikipedia.org/wiki/File:Horsehead-Hubble.jpg)

The [Horsehead Nebula](https://en.wikipedia.org/wiki/Horsehead_Nebula), an example of a [dark nebula](https://en.wikipedia.org/wiki/Dark_nebula).

* [](https://en.wikipedia.org/wiki/File:NGC6543.jpg)

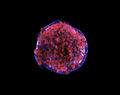
The [Cat's Eye Nebula](https://en.wikipedia.org/wiki/Cat%27s_Eye_Nebula), an example of a[planetary nebula](https://en.wikipedia.org/wiki/Planetary_nebula).

* [](https://en.wikipedia.org/wiki/File:PIA04533.jpg)

The [Red Rectangle Nebula](https://en.wikipedia.org/wiki/Red_Rectangle_Nebula), an example of a[protoplanetary nebula](https://en.wikipedia.org/wiki/Protoplanetary_nebula).

* [](https://en.wikipedia.org/wiki/File:SNR_0509.jpg)

The delicate shell of[SNR B0509-67.5](https://en.wikipedia.org/wiki/SNR_0509-67.5)

* [](https://en.wikipedia.org/wiki/File:Tycho_xrayonly.jpg)

[Tycho Supernova remnant in X-ray light](https://en.wikipedia.org/wiki/SN_1572)

**Classical types**[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=4" \o "Edit section: Classical types)]

Objects named nebulae belong to four major groups. Before their nature was understood, [galaxies](https://en.wikipedia.org/wiki/Galaxy) ("spiral nebulae") and [star clusters](https://en.wikipedia.org/wiki/Star_cluster) too distant to be resolved as stars were also classified as nebulae, but no longer are.

* [H II regions](https://en.wikipedia.org/wiki/H_II_region), large diffuse nebulae containing ionized hydrogen
* [Planetary nebulae](https://en.wikipedia.org/wiki/Planetary_nebula)
* [Supernova remnant](https://en.wikipedia.org/wiki/Supernova_remnant) (e.g., Crab Nebula)
* [Dark nebula](https://en.wikipedia.org/wiki/Dark_nebula)

Not all cloud-like structures are named nebulae; [Herbig–Haro objects](https://en.wikipedia.org/wiki/Herbig%E2%80%93Haro_object" \o "Herbig–Haro object) are an example.

**Diffuse nebulae**[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=5" \o "Edit section: Diffuse nebulae)]

[](https://en.wikipedia.org/wiki/File:Carina_Nebula_by_ESO.jpg)

The Carina Nebula is a diffuse nebula

Most nebulae can be described as diffuse nebulae, which means that they are extended and contain no well-defined boundaries.[[16]](https://en.wikipedia.org/wiki/Nebula#cite_note-Messier-16) Diffuse nebulae can be divided into [emission nebula](https://en.wikipedia.org/wiki/Emission_nebula), [reflection nebulae](https://en.wikipedia.org/wiki/Reflection_nebula) and "dark nebulae." In visible light nebulae may be divided into emission nebulae that emit [spectral line](https://en.wikipedia.org/wiki/Spectral_line) radiation from excited or [ionized](https://en.wikipedia.org/wiki/Ion) gas (mostly ionized [hydrogen](https://en.wikipedia.org/wiki/Hydrogen));[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17) they are often called [HII regions](https://en.wikipedia.org/wiki/HII_regions) (the term "HII" refers to ionized hydrogen).[Reflection nebulae](https://en.wikipedia.org/wiki/Reflection_nebula) are visible primarily due to the light they reflect. Reflection nebulae themselves do not emit significant amounts of visible light, but are near stars and reflect light from them.[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17) Similar nebulae not illuminated by stars do not exhibit visible radiation, but may be detected as opaque clouds blocking light from luminous objects behind them; they are called "dark nebulae".[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17)

Although these nebulae have different visibility at optical wavelengths, they are all bright sources of [infrared](https://en.wikipedia.org/wiki/Infrared) emission, chiefly from [dust](https://en.wikipedia.org/wiki/Cosmic_dust) within the nebulae.[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17)

**Planetary nebulae**[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=6" \o "Edit section: Planetary nebulae)]

[](https://en.wikipedia.org/wiki/File:Catseyeandmore.jpg)

Four different planetary nebulae

*Main article:*[*Planetary nebula*](https://en.wikipedia.org/wiki/Planetary_nebula)

Planetary nebulae form when low-mass asymptotic giant branch stars [nova](https://en.wikipedia.org/wiki/Nova). A star that novas pushes the outer layers of the star's mass outward forming gaseous shells, while leaving behind the star's core in the form of a [white dwarf](https://en.wikipedia.org/wiki/White_dwarf).[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17) The hot white dwarf illuminates the expelled gases producing emission nebulae with spectra similar to those of emission nebulae found in [star formation](https://en.wikipedia.org/wiki/Star_formation) regions.[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17) Technically they are [HII regions](https://en.wikipedia.org/wiki/HII_region), because most[hydrogen](https://en.wikipedia.org/wiki/Hydrogen) will be ionized, but they are denser and more compact than the nebulae found in star formation regions.[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17) Planetary nebulae were given their name by the first [astronomical observers](https://en.wikipedia.org/wiki/Astronomy) who were initially unable to distinguish them from planets, and who tended to confuse them with [planets](https://en.wikipedia.org/wiki/Planet), which were of more interest to them. Our Sun is expected to spawn a planetary nebula about 12 billion years after its formation.[[18]](https://en.wikipedia.org/wiki/Nebula#cite_note-s-18)

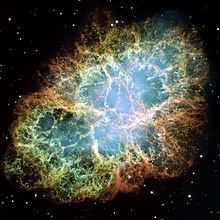
**Protoplanetary nebula**[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=7" \o "Edit section: Protoplanetary nebula)]

*Main article:*[*Protoplanetary nebula*](https://en.wikipedia.org/wiki/Protoplanetary_nebula)

A protoplanetary nebula (PPN) is an astronomical object which is at the short-lived episode during a star's rapid [stellar evolution](https://en.wikipedia.org/wiki/Stellar_evolution) between the late [asymptotic giant branch](https://en.wikipedia.org/wiki/Asymptotic_giant_branch) (LAGB) phase and the following planetary nebula (PN) phase.[[19]](https://en.wikipedia.org/wiki/Nebula#cite_note-sahaietal2005-19) During the AGB phase, the star undergoes mass loss, emitting a circumstellar shell of hydrogen gas. When this phase comes to an end, the star enters the PPN phase.

The PPN is energized by the central star, causing it to emit strong infrared radiation and become a reflection nebula. Collimated stellar winds from the central star shape and shock the shell into an axially symmetric form, while producing a fast moving molecular wind.[[20]](https://en.wikipedia.org/wiki/Nebula#cite_note-mnras360_1-20) The exact point when a PPN becomes a planetary nebula (PN) is defined by the temperature of the central star. The PPN phase continues until the central star reaches a temperature of 30,000 K, after which it is hot enough to ionize the surrounding gas.[[21]](https://en.wikipedia.org/wiki/Nebula#cite_note-apj342_1-21)

**Supernova remnants**[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=8" \o "Edit section: Supernova remnants)]

[](https://en.wikipedia.org/wiki/File:Crab_Nebula.jpg)

The [Crab Nebula](https://en.wikipedia.org/wiki/Crab_Nebula), an example of a[supernova remnant](https://en.wikipedia.org/wiki/Supernova_remnant)

A [supernova](https://en.wikipedia.org/wiki/Supernova) occurs when a high-mass star reaches the end of its life. When [nuclear fusion](https://en.wikipedia.org/wiki/Nuclear_fusion) in the core of the star stops, the star collapses. The gas falling inward either rebounds or gets so strongly heated that it expands outwards from the core, thus causing the star to explode.[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17) The expanding shell of gas forms a [supernova remnant](https://en.wikipedia.org/wiki/Supernova_remnant), a special [diffuse nebula](https://en.wikipedia.org/wiki/Diffuse_nebula).[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17) Although much of the optical and [X-ray](https://en.wikipedia.org/wiki/X-ray) emission from supernova remnants originates from ionized gas, a great amount of the [radio](https://en.wikipedia.org/wiki/Radio) emission is a form of non-thermal emission called [synchrotron emission](https://en.wikipedia.org/wiki/Synchrotron_emission).[[17]](https://en.wikipedia.org/wiki/Nebula#cite_note-shu1982-17) This emission originates from high-velocity [electrons](https://en.wikipedia.org/wiki/Electrons) oscillating within [magnetic fields](https://en.wikipedia.org/wiki/Magnetic_field).

Notable named nebulae[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=9" \o "Edit section: Notable named nebulae)]

* [Ant Nebula](https://en.wikipedia.org/wiki/Ant_Nebula)
* [Barnard's Loop](https://en.wikipedia.org/wiki/Barnard%27s_Loop)
* [Boomerang Nebula](https://en.wikipedia.org/wiki/Boomerang_Nebula)
* [Cat's Eye Nebula](https://en.wikipedia.org/wiki/Cat%27s_Eye_Nebula)
* [Crab Nebula](https://en.wikipedia.org/wiki/Crab_Nebula)
* [Eagle Nebula](https://en.wikipedia.org/wiki/Eagle_Nebula)
* [Eskimo Nebula](https://en.wikipedia.org/wiki/Eskimo_Nebula)
* [Eta Carinae Nebula](https://en.wikipedia.org/wiki/Eta_Carinae_Nebula)
* [Fox Fur Nebula](https://en.wikipedia.org/wiki/Fox_Fur_Nebula)
* [Helix Nebula](https://en.wikipedia.org/wiki/Helix_Nebula)
* [Hourglass Nebula](https://en.wikipedia.org/wiki/Hourglass_Nebula)
* [Horsehead Nebula](https://en.wikipedia.org/wiki/Horsehead_Nebula)
* [Lagoon Nebula](https://en.wikipedia.org/wiki/Lagoon_Nebula)
* [Orion Nebula](https://en.wikipedia.org/wiki/Orion_Nebula)
* [Pelican Nebula](https://en.wikipedia.org/wiki/Pelican_Nebula)
* [Red Square Nebula](https://en.wikipedia.org/wiki/Red_Square_Nebula)
* [Ring Nebula](https://en.wikipedia.org/wiki/Ring_Nebula)
* [Rosette Nebula](https://en.wikipedia.org/wiki/Rosette_Nebula)
* [Tarantula Nebula](https://en.wikipedia.org/wiki/Tarantula_Nebula)

**Nebula catalogs**[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=10" \o "Edit section: Nebula catalogs)]

* [Gum catalog](https://en.wikipedia.org/wiki/Gum_catalog)
* [RCW Catalogue](https://en.wikipedia.org/wiki/RCW_Catalogue)
* [Sharpless catalog](https://en.wikipedia.org/wiki/Sharpless_catalog)
* [Caldwell Catalogue](https://en.wikipedia.org/wiki/Caldwell_Catalogue)

See also[[edit](https://en.wikipedia.org/w/index.php?title=Nebula&action=edit&section=11)]

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| --- | --- |
| [Portal icon](https://en.wikipedia.org/wiki/File:Crab_Nebula.jpg) | [***Astronomy portal***](https://en.wikipedia.org/wiki/Portal:Astronomy) |
| [Portal icon](https://en.wikipedia.org/wiki/File:Earth-moon.jpg) | [***Space portal***](https://en.wikipedia.org/wiki/Portal:Space) |

* [H I region](https://en.wikipedia.org/wiki/H_I_region)
* [H II region](https://en.wikipedia.org/wiki/H_II_region)
* [List of diffuse nebulae](https://en.wikipedia.org/wiki/List_of_diffuse_nebulae)
* [Lists of nebulae](https://en.wikipedia.org/wiki/Lists_of_nebulae)
* [Molecular cloud](https://en.wikipedia.org/wiki/Molecular_cloud)
* [Magellanic Clouds](https://en.wikipedia.org/wiki/Magellanic_Clouds)
* [Messier object](https://en.wikipedia.org/wiki/Messier_object)
* [Nebulae in fiction](https://en.wikipedia.org/wiki/Nebulae_in_fiction)
* [Nebular hypothesis](https://en.wikipedia.org/wiki/Nebular_hypothesis)
* [Orion Molecular Cloud Complex](https://en.wikipedia.org/wiki/Orion_Molecular_Cloud_Complex)
* [Timeline of knowledge about the interstellar and intergalactic medium](https://en.wikipedia.org/wiki/Timeline_of_knowledge_about_the_interstellar_and_intergalactic_medium)