

Center of the Galaxy  
"Black hole"  
26 000 l.y.

Binary X-ray source 1E1740.7-2042  
25 000 l.y.

Kepler's Supernova  
16 000 l.y.

VOYAGE  
AU  
CŒUR  
DE LA  
GALAXIE  
CALENDAR

SUN

SATURN

SIRIUS

S1 PEGASUS

RHO OPHIUCHI

ORION NEBULA

MESSIER OBJECT 35

CAT'S EYE NEBULA

KEPLER'S SUPERNOVA

BINARY X-RAY SOURCE

CENTER of the GALAXY

THURSDAY ⑥ JANUARY 2009 - 00H00

THURSDAY ① JANUARY 2009 - 01H09

MONDAY ② AUGUST 2017

WEDNESDAY ③ MARCH 2059

TUESDAY ④ MAY 2403

MONDAY ⑤ FEBRUARY 3769

SATURDAY ⑥ JUNE 4809

SUNDAY ⑧ APRIL 5309

MONDAY ② NOVEMBER 18 009

FRIDAY ⑧ JULY 27 009

FRIDAY ⑧ MARCH 28 009

Rho Ophiuchi  
394 l.y.

Saturn  
69 light minutes

Orion Nebula  
1 760 l.y.

Messier Object 35  
2 800 l.y.

Cat's Eye  
Nebula  
3 300 l.y.

51 Peg  
50 l.y.

Sirius  
8,6 l.y.

6

Messier 27 (M27) or the Dumbbell Nebula in visible light.  
Photographed by the VLT telescope of the ESO Observatory

# The last starbursts

THE EVENTFUL END OF A STAR'S LIFE:  
A BALL OF GAS WITH A HOT CORE VISIBLE  
BY ULTRAVIOLET LIGHT

fuel

ENVELOPE

Stars don't live forever.


It becomes just a small, barely visible star – a **white dwarf**.  
These are incredibly hot, very dense stars, concentrating a mass close to that of the Sun within a space approximately the Earth's volume. White dwarfs shine with an intense ultraviolet light that illuminates the ejected gas envelope.

A nebula – a ball of hot gas in spectacular shapes – is then visible, surrounding the dwarf star.

Zoom


The nebula surrounding a white dwarf is also called a planetary nebula, because it is shaped like a luminous disk that looks very much like a planet. The surface temperature of a white dwarf may be as high as 100,000 degrees. The star shines mainly in ultraviolet light. With no internal source of energy, a white dwarf is an inert star that will inexorably cool down in a few hundred billion years. Indeed, that is our own Sun's destiny.  
M27 is a planetary nebula in the *Vulpecula* or *Little Fox* constellation, discovered by the French astronomer, Charles Messier, on 12 July 1764. It is about 1.6 light-years in size and is located at a distance of 1,360 light-years. The central star is a white dwarf, with an estimated solar mass of 0.56. Its age is estimated at around 10,000 years.

CAT'S EYE NEBULA



Brilliant nebulae often surround stars that are at the end of their lives. That's the case with the nebula called the "Cat's Eye" nebula because of its shape. It was discovered in 1786 by the British astronomer, William Herschel, and is located in the *Dragon* constellation, 3,300 light-years away from Earth. In this nebula, the central star is a massive star that has expelled its external layers and has a temperature of 80,000 degrees.  
Picture of the "Cat's Eye" nebula photographed in visible light by the Hubble satellite

CORE



A detailed star map of the constellation Ophiuchus and surrounding areas. It shows various constellations including Ursa Major, Canes Venatici, Coma Berenices, Leo, Leo Minor, Corona Borealis, Bootes, Virgo, Corvus, Crater, Hydra, Hercules, Serpens caput Borealis, Libra, Ophiuchus, Centaurus, Crux, Musca, Chaemeleon, Corona Australis, Telescopium, Ara, Triangulum Australe, Apus, Sagittarius, Delphinus, Equuleus, Vulpecula, Cygnus, Scutum, Aquila, Serpens Cauda, Cepheus, Lynx, Ursa Minor, Draco, Camelopardalis, Perseus, Cassiopeia, Lacerta, Andromeda, and Taurus. The Cat's Eye Nebula and Messier 27 are highlighted with white dots and labels. The map includes a grid of right ascension and declination coordinates.

