

Orion Nebula



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The Orion Nebula is a region filled with hot gas and dust, the raw materials for building new stars. It is located in the area of the sword of Orion the Hunter, a constellation named by ancient Greeks that dominates the northern hemisphere winter sky. The Nebula appears as a fuzzy, starlike area, which is visible without a telescope on clear, dark nights. The Nebula is nearby: it is 1,500 light-years away in our spiral arm of the Milky Way Galaxy.

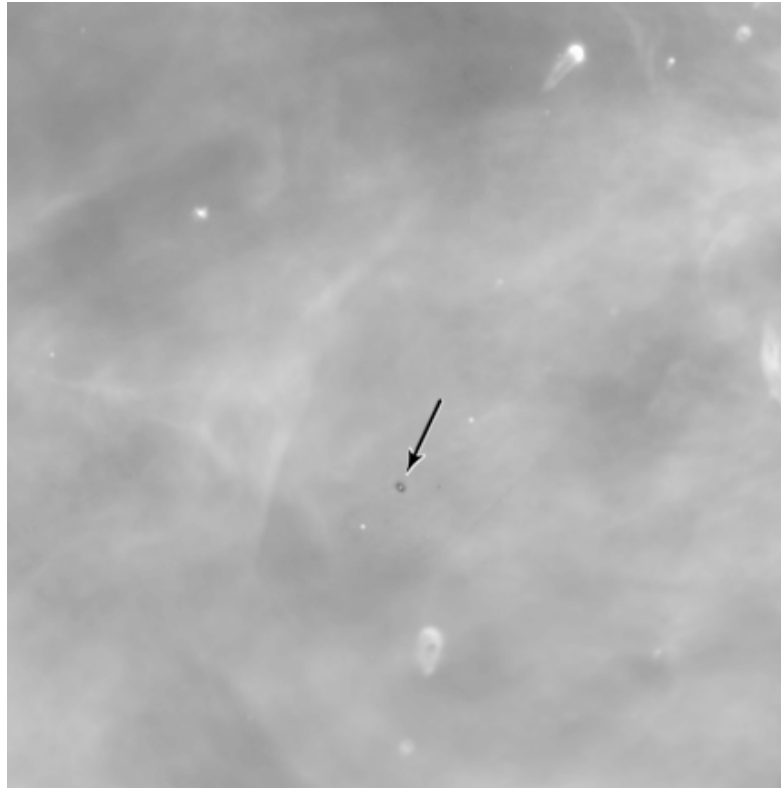
Crucible of Creation

Four of the Nebula's hottest and most massive stars lie near the center of the image. Light from these stars illuminates the Nebula's "cavern" just as flashlights light up a cave. The cavern contains 700 other young stars at various stages of formation. Some of the infant stars send jets of hot gas into the Nebula at 100,000 miles per hour. These jets appear as thin curved loops, sometimes knotting at the end where they hit denser material. The brightest examples are near the reddish star in the image's lower left.

Planets Under Construction

The Orion Nebula also contains 153 glowing disks thought to be infant solar systems (*see detail image, right*). Many of the Nebula's young stars are embedded in the middle of pancake-shaped disks of dust and gas. Astronomers think the disks, called protoplanetary disks or proplyds, may be an early stage of planet formation. Our solar system probably formed out of just such a disk 4.5 billion years ago.

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About the Image

This spectacular panorama (*front*) is one of the largest pictures ever assembled using NASA's Hubble Space Telescope. The mosaic contains some 45 separate images taken in blue, green, and red light between January 1994 and March 1995. Astronomer C. Robert O'Dell of Rice University matched and combined the images to look as they would to someone living near the Nebula.

Definitions

Nebula: A cloud of interstellar gas and dust, seen as either a luminous patch of light or a dark cloud against a bright background. The term was coined to describe objects that appeared fuzzy when viewed through early telescopes.

Nuclear Fusion: Two or more light nuclei join together to form a heavier nucleus, releasing energy in the process.

Protoplanetary Disks/Proplyds: Disks thought to be made of 99% gas and 1% dust. They appear around young stars, and may evolve into planetary systems like our own.

Light-Year: The distance light travels in a year (6×10^{12} or 5 trillion, 900 billion miles).

Fast Facts

Age

The four bright central stars are less than a million years old. The Nebula is the same age or younger.

Location

In the constellation Orion the Hunter in the northern hemisphere

Distance from Earth

1,500 light years

Size

2.5 light years across, covering an area of sky about 5% of the area covered by the full Moon

Electronic Addresses

You can get images and other information about the Hubble Space Telescope on the World Wide Web.

Point your browser (Netscape Navigator, Microsoft Internet Explorer, and others), to URL <http://hubble.stsci.edu/> and follow links from there.