

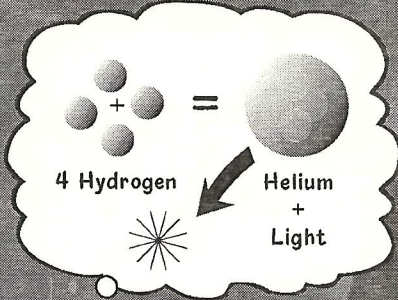
# COSMIC CHEMISTRY

13.7 BILLION YEARS AGO, OUR UNIVERSE BEGAN IN A COSMIC EXPLOSION. HYDROGEN AND HELIUM FILLED THE UNIVERSE...

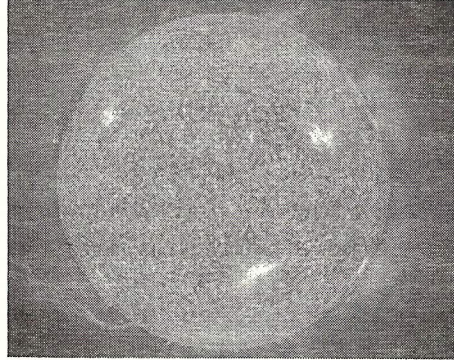
# hall of meteorites

Observations show that the universe was created about 13.7 billion years ago with **THE BIG BANG**. Billions of galaxies formed, including our galaxy, **THE MILKY WAY**.

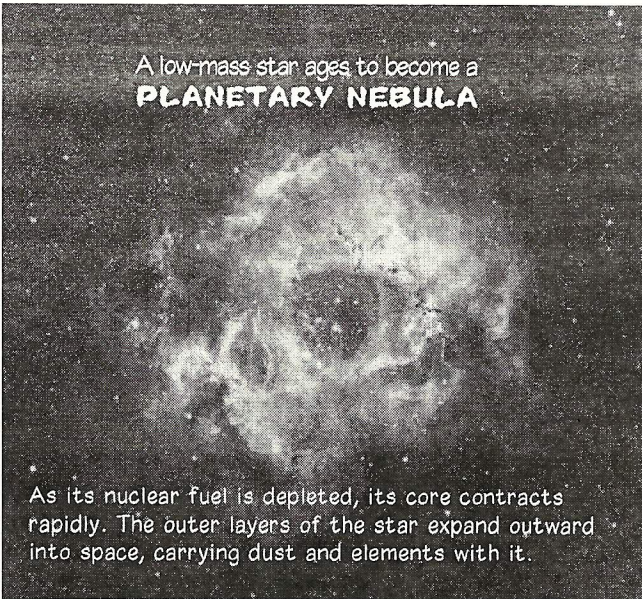
Mutual gravitational attractions led to the formation of the first generation of stars.



When enough material (gas) falls into a **new star**, the pressure and temperature at its center are great enough to initiate **nuclear fusion**. A star is born.

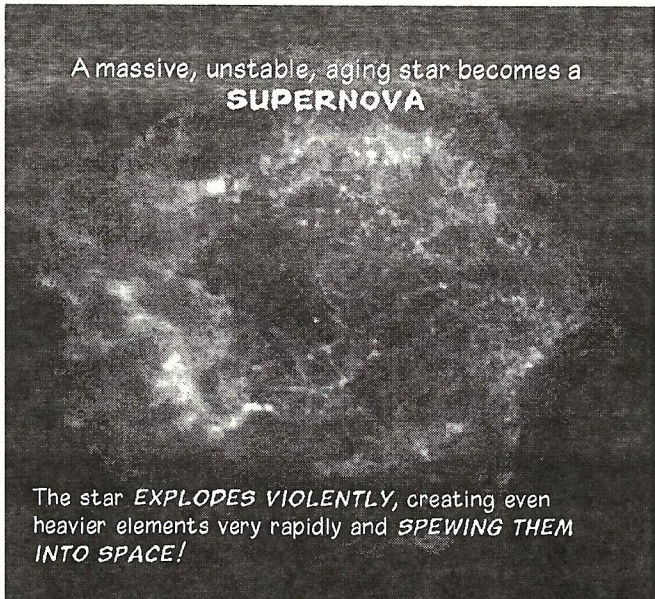


A low-mass star ages to become a **PLANETARY NEBULA**



As its nuclear fuel is depleted, its core contracts rapidly. The outer layers of the star expand outward into space, carrying dust and elements with it.

A massive, unstable, aging star becomes a **SUPERNOVA**



The star **EXPLODES VIOLENTLY**, creating even heavier elements very rapidly and **SPEWING THEM INTO SPACE!**

Some of these **heavy elements** *condense* to form small solid grains out of which **new stars** are formed

*This process occurs over and over...*

Each new generation of stars contains **higher concentrations of heavy elements** than the previous generation. These heavy elements are the **building blocks of planets**.



© 2003 American Museum of Natural History. All rights reserved.

the adventure continues with ... **THE FORMATION of the SOLAR SYSTEM**

