

BIG BOOK of THE COSMOS



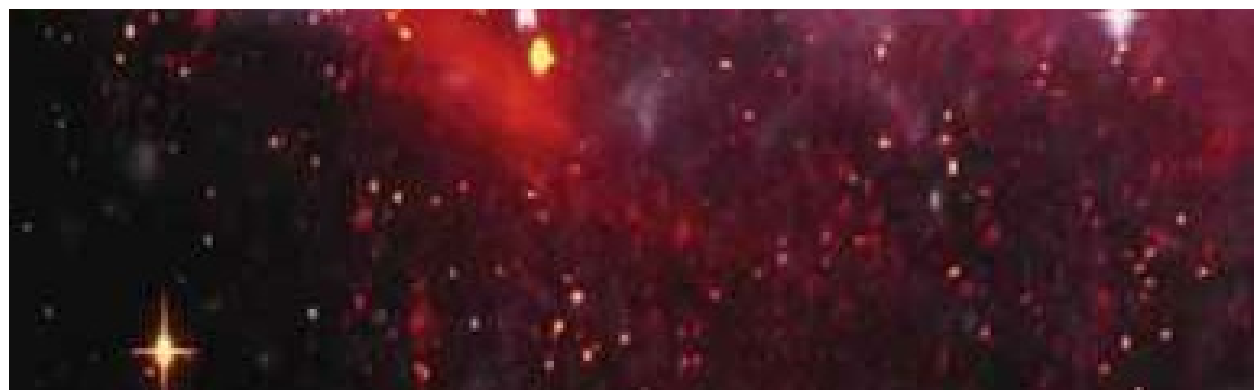
Big 1

Cosn

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any materi







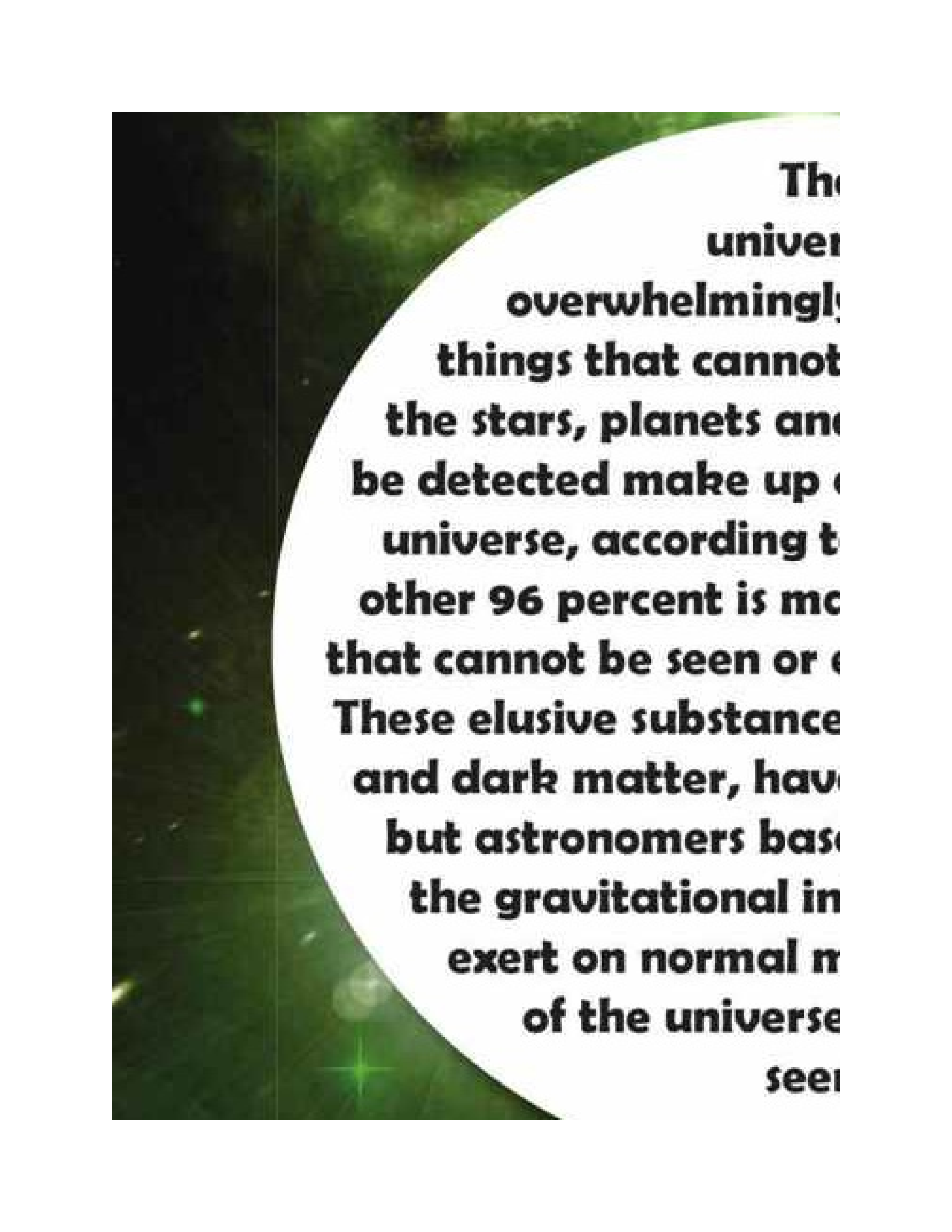
The background of the image is a deep space scene featuring a dark, star-filled sky. In the upper left, a bright white star is visible. The lower portion of the image is dominated by a vibrant, glowing nebula with shades of pink, magenta, and purple. A large, white, semi-transparent circle is positioned in the center-right of the frame, containing bold black text.

**The
universe
began with the Big
Bang, and is estimated
to be approximately 14
billion years old (plus
or minus 130 million
years).**









The
universe
overwhelmingly
things that cannot
the stars, planets and
be detected make up
universe, according to
other 96 percent is made
that cannot be seen or
These elusive substances
and dark matter, have
but astronomers base
the gravitational influence
exert on normal matter
of the universe
seen










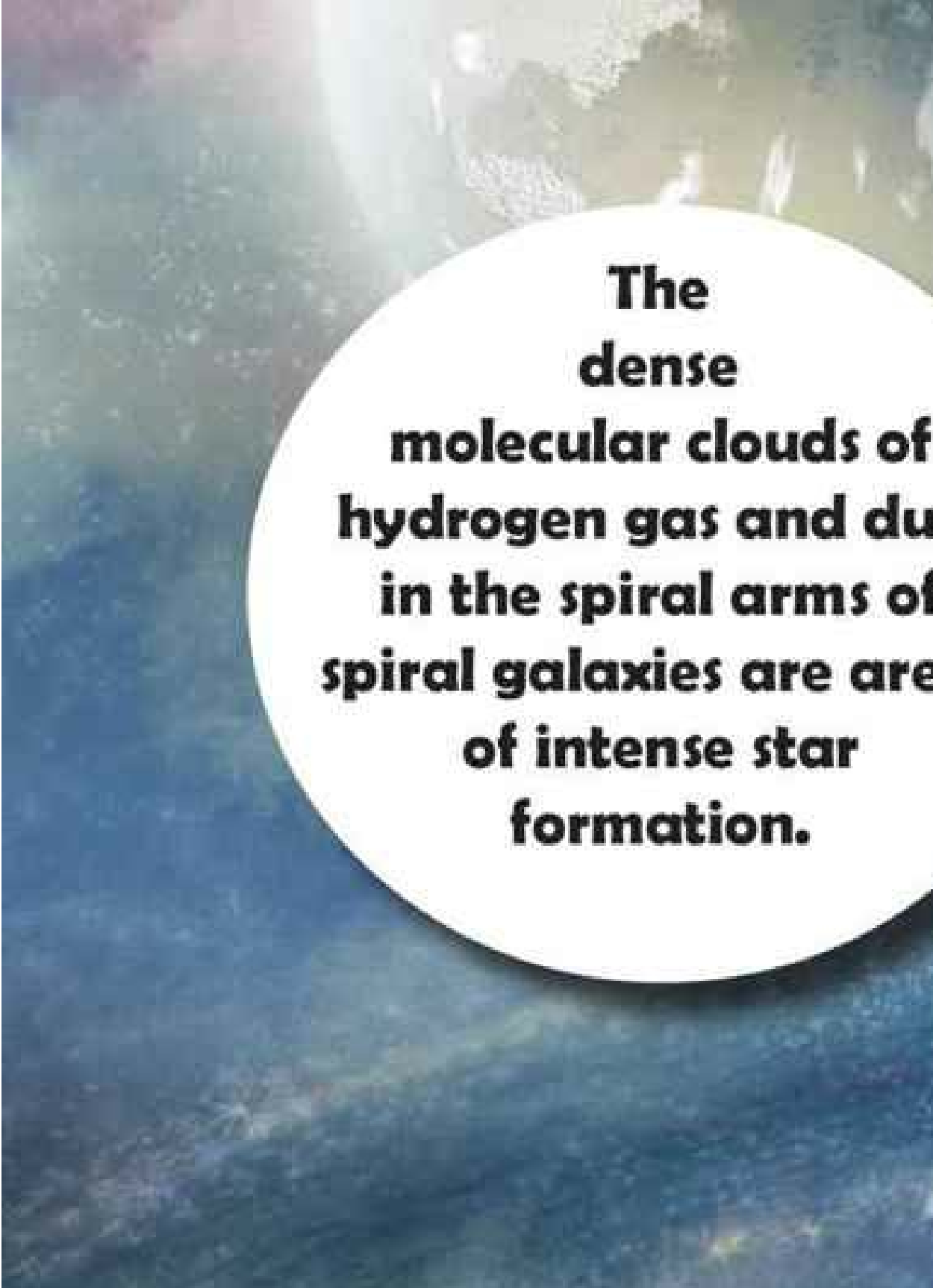


**A
galaxy is a
massive group of
stars, star clusters,
interstellar gas and dust
and dark matter which
is all gravitationally
bound together.**



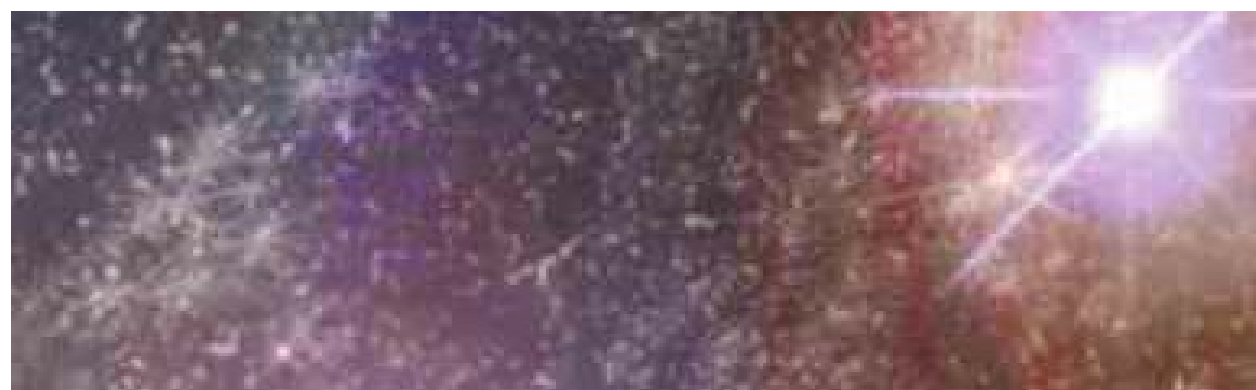
**The
word 'galaxy'
is derived from the
Greek word galaxias
which means "milky", i
is a reference to our ow
galaxy the Milky Way.**





**The
dense
molecular clouds of
hydrogen gas and dust
in the spiral arms of
spiral galaxies are areas
of intense star
formation.**







**Our
Solar System is
located within the
disk of the Milky Way
Galaxy, around 27,000
light-years from the
Galactic Center of
the galaxy.**













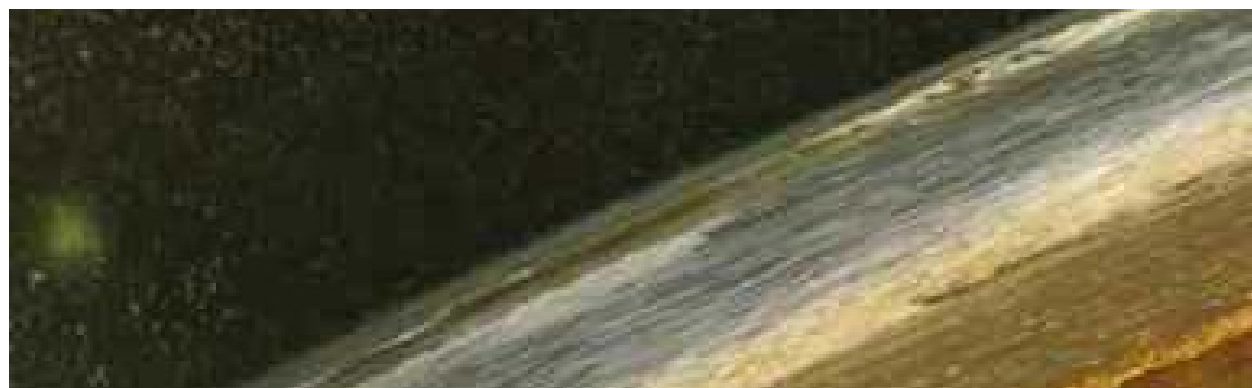
Starburst is a name for galaxies that form a lot of new stars at a fast rate, usually after much molecular cloud is produced as two galaxies merge.











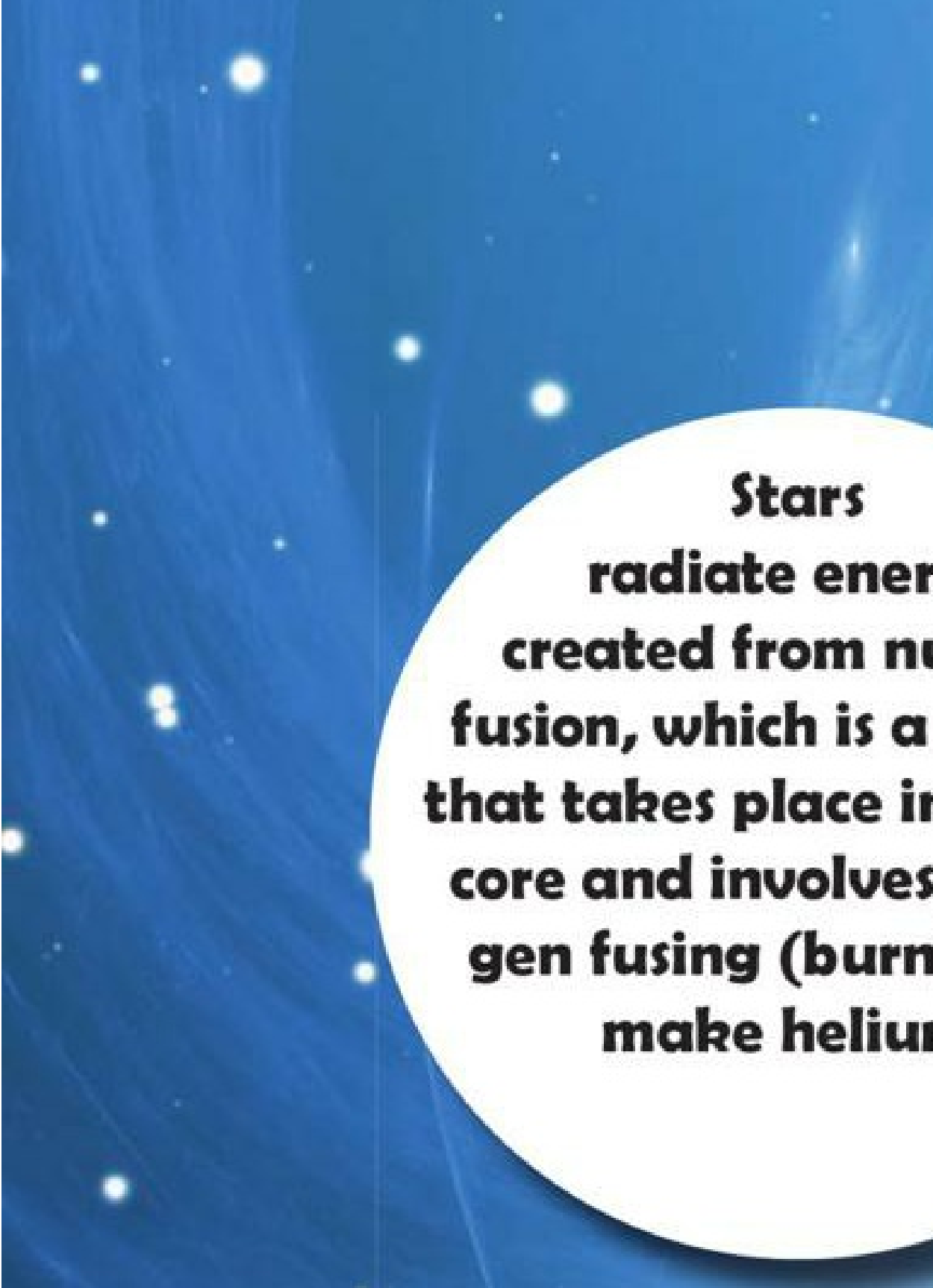




**Stars
are usually
between 1 and 10
billion years old. Some
stars may even be close
to the age of the observed
Universe at nearly 13.8
billion years old.**

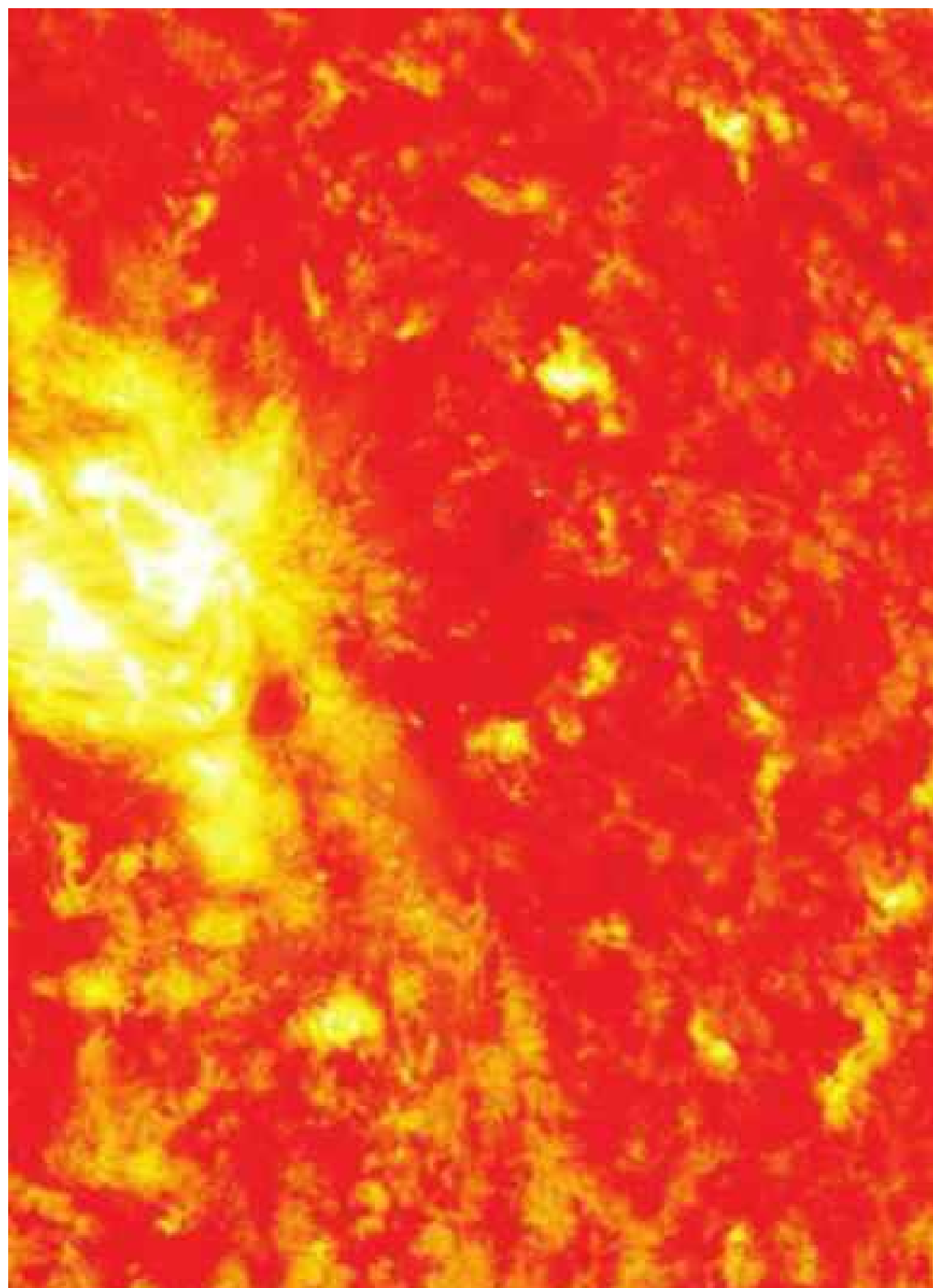


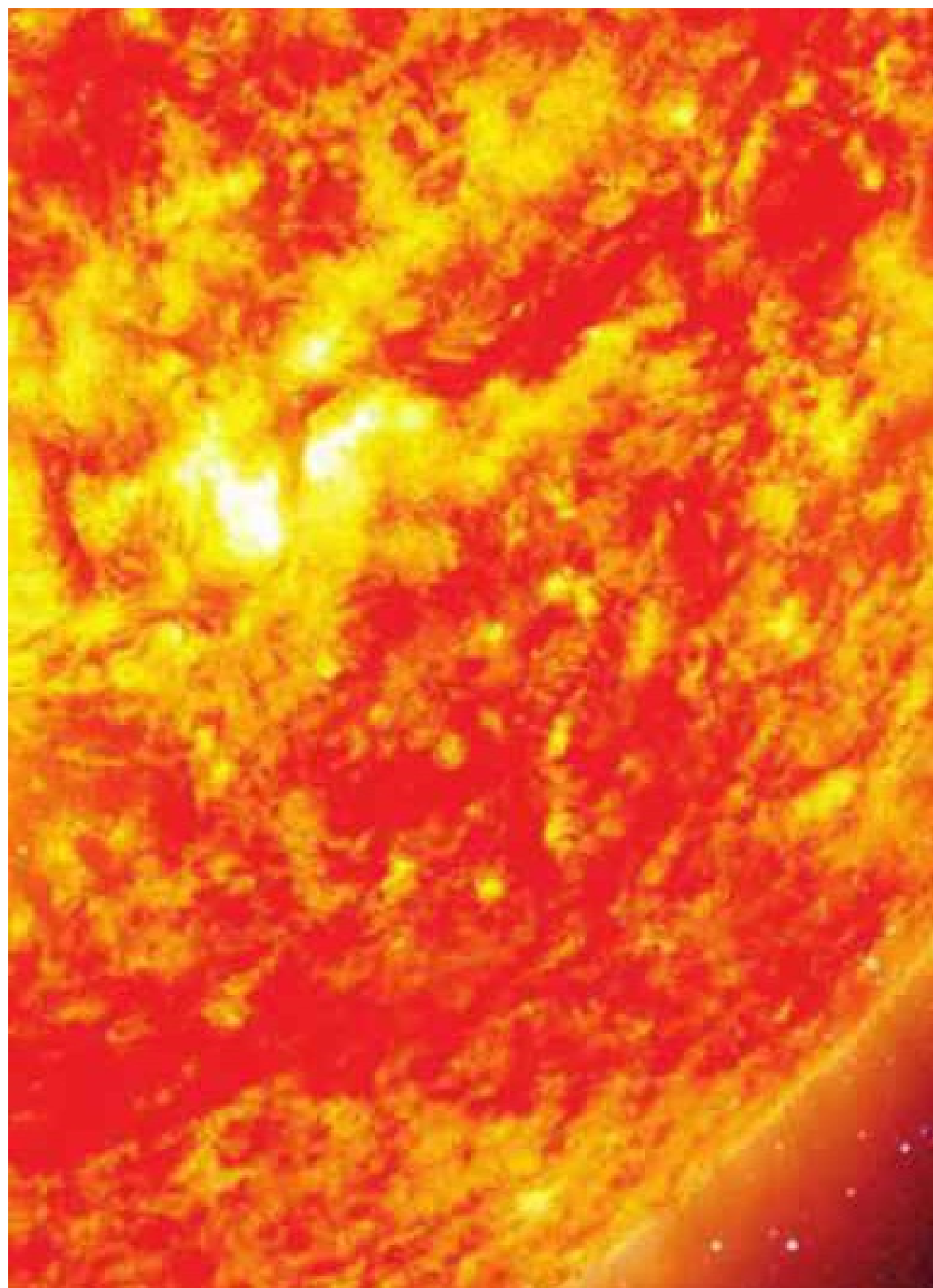


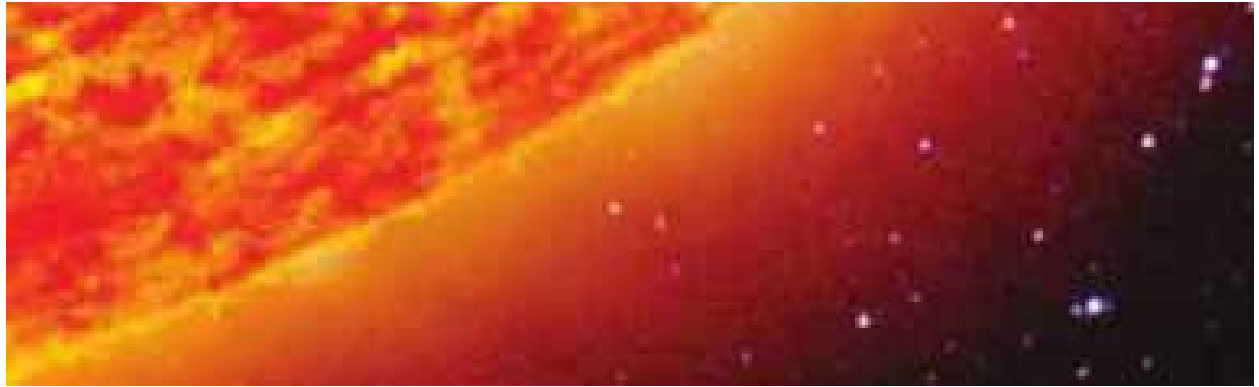


**Stars
radiate energy
created from nuclear
fusion, which is a process
that takes place in the
core and involves hydrogen
atoms fusing (burning) to
make helium**





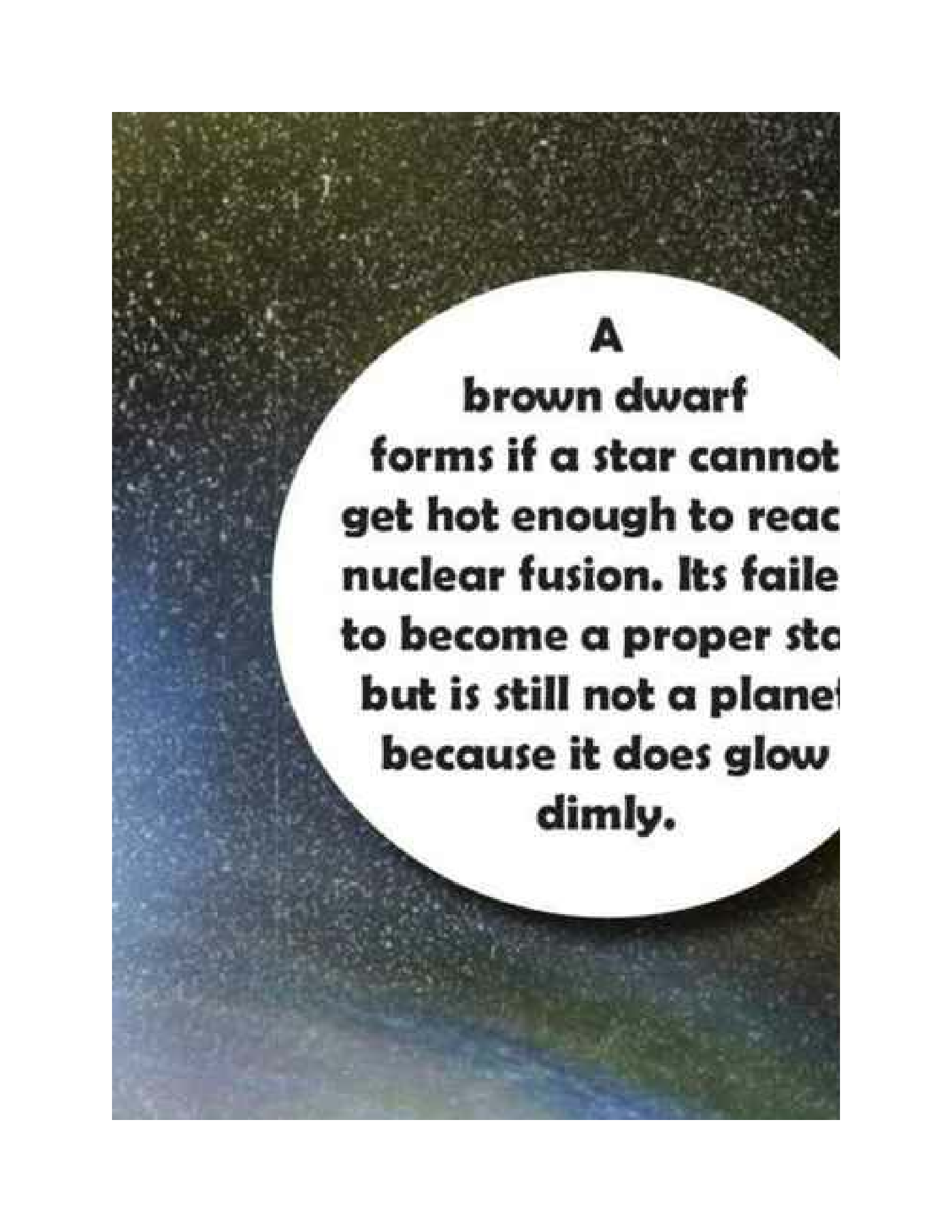










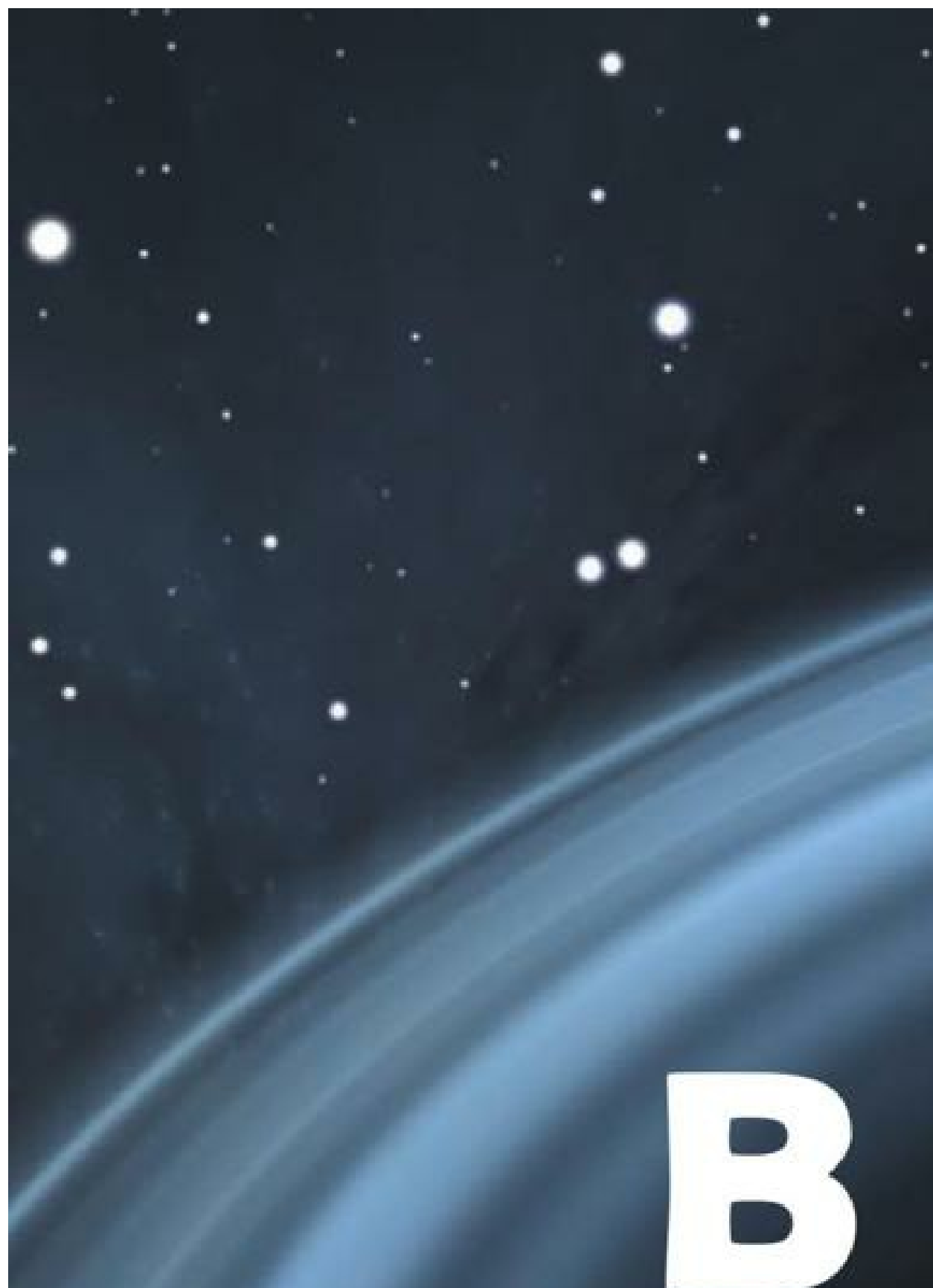
The background is a deep space image showing a dense field of stars and distant galaxies. A large, semi-transparent white circle is centered on the image, serving as a container for text. The text is written in a bold, black, sans-serif font and is arranged in seven lines, centered within the circle.

**A
brown dwarf
forms if a star cannot
get hot enough to reach
nuclear fusion. Its failure
to become a proper star
but is still not a planet
because it does glow
dimly.**



**Big
stars like
supergiants and
hypergiants have short
lives as they consume
fuel at a faster rate than
smaller stars. As these massive
stars die they explode as
massive bright
supernova.**





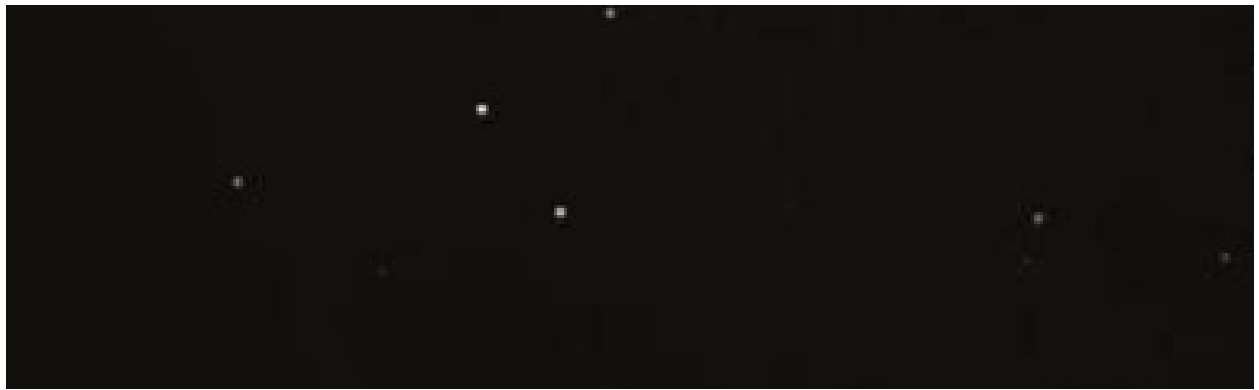






**Very
heavy stars
that have gone
supernova can
actually turn into
black holes**



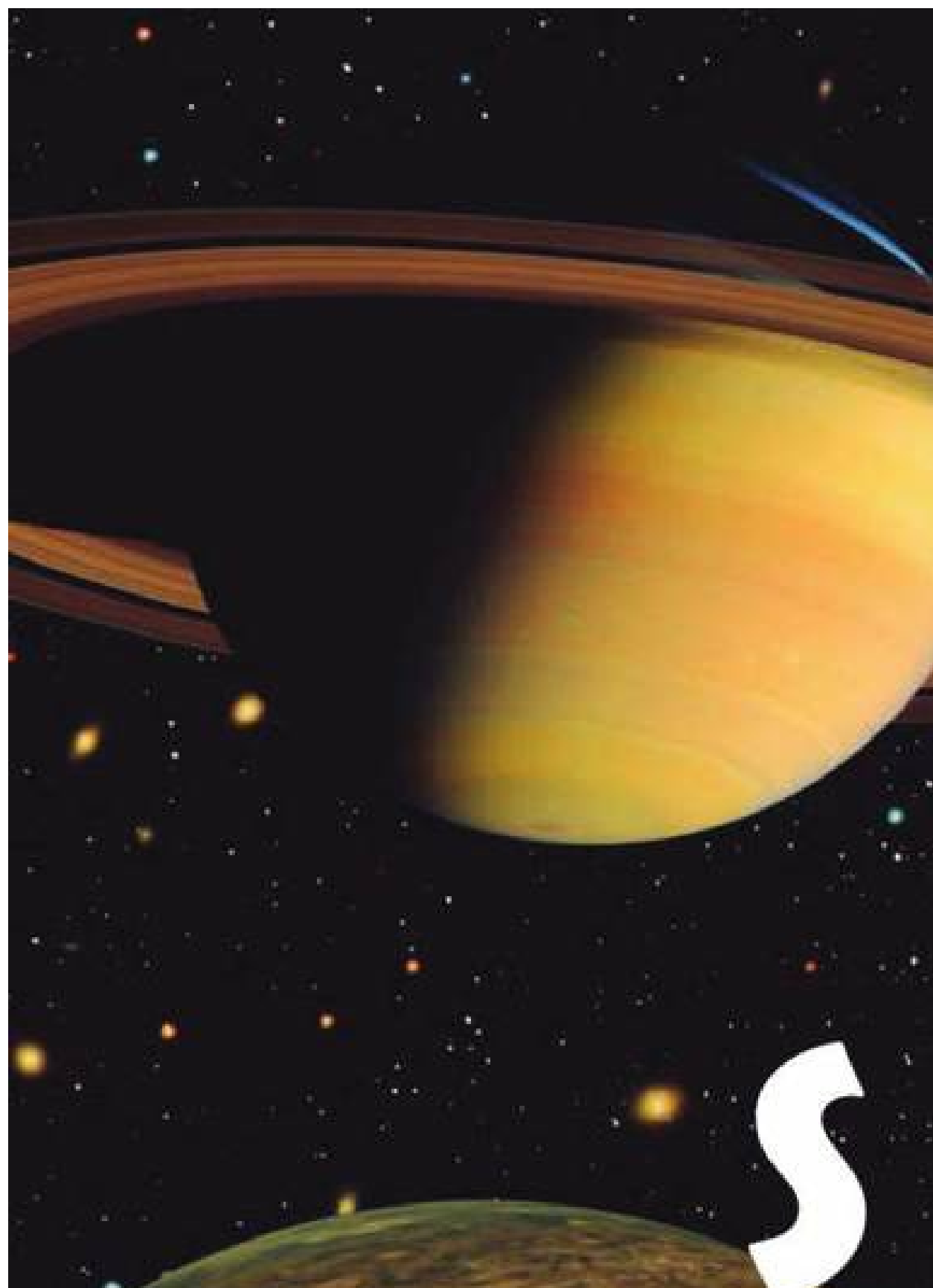




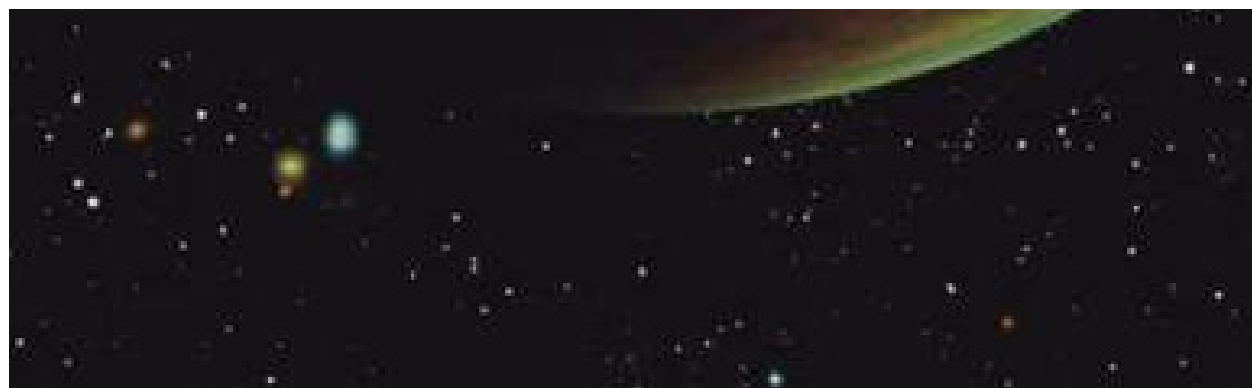
**Planets, light
and other matter
pass close to a black
hole in order to be pulled into it.
When they reach a point of no
return they are said to have crossed
the event horizon-the point of no return-
beyond which any escape is impossible
because it requires**

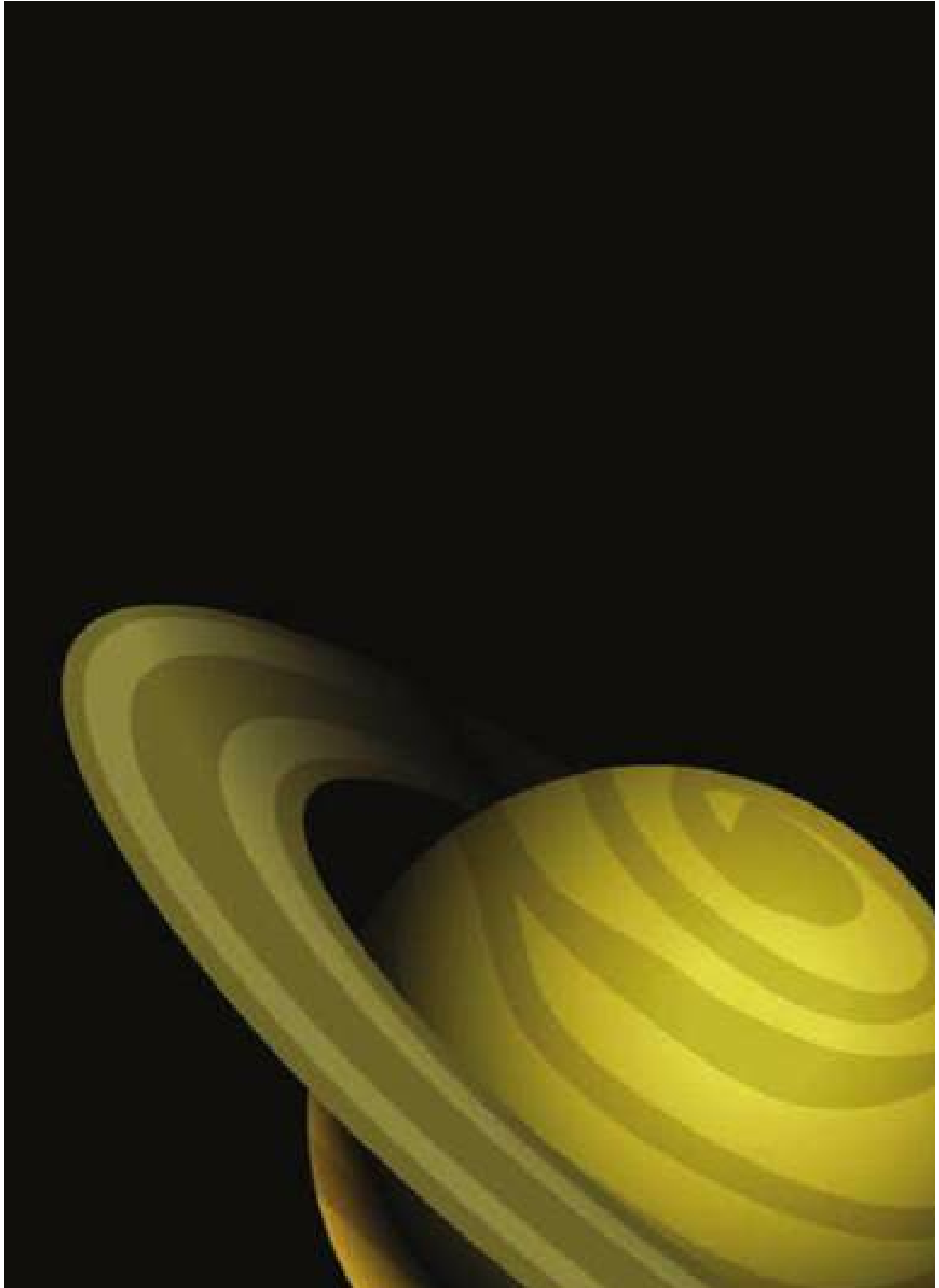


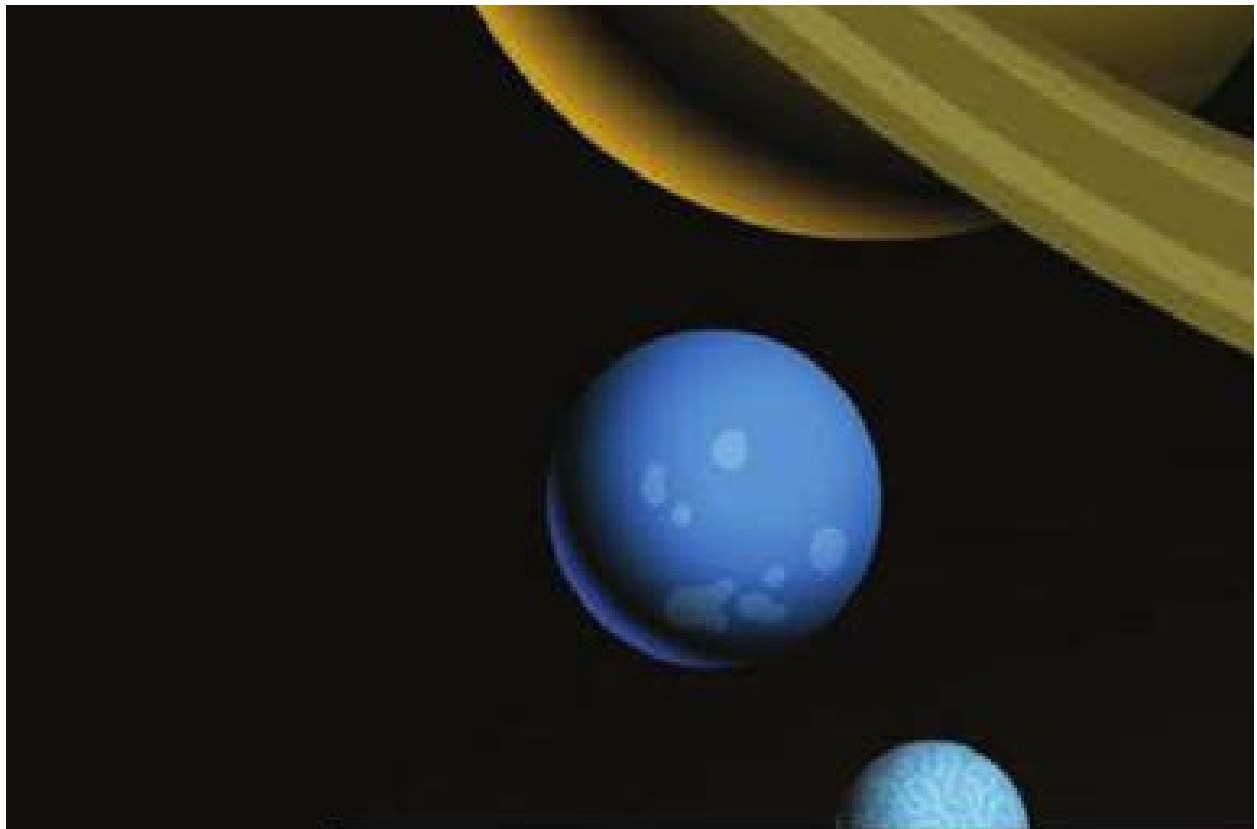














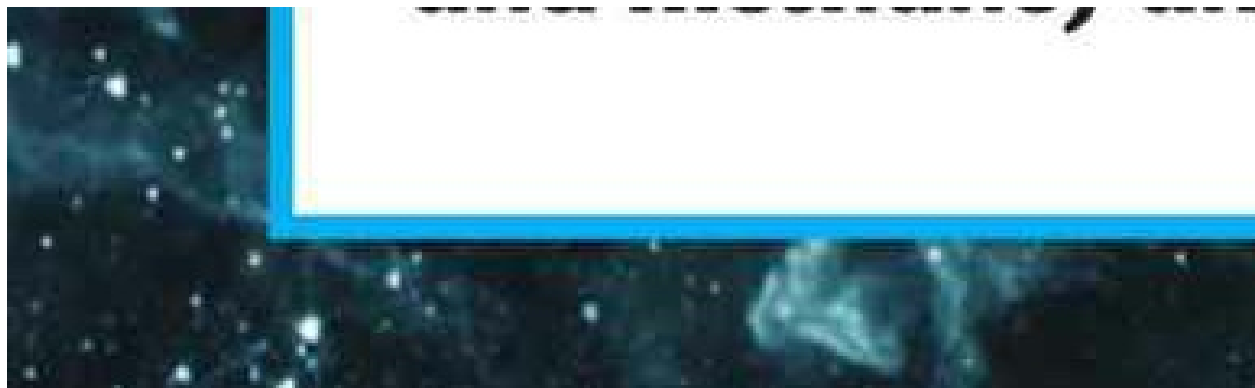
**The Solar System
ago and consi
other astronomi
was cause by the
at the centre coll
around it which th**







**The four small
“terrestrial” planets
primarily composed of
also known as the
Neptune), are sub-
inner planets. The
Saturn, are the large
hydrogen and helium
and Neptune, are
and methane) an**













**The Sun contains
mass, with Jupiter
small inner planets
Mars make up a**

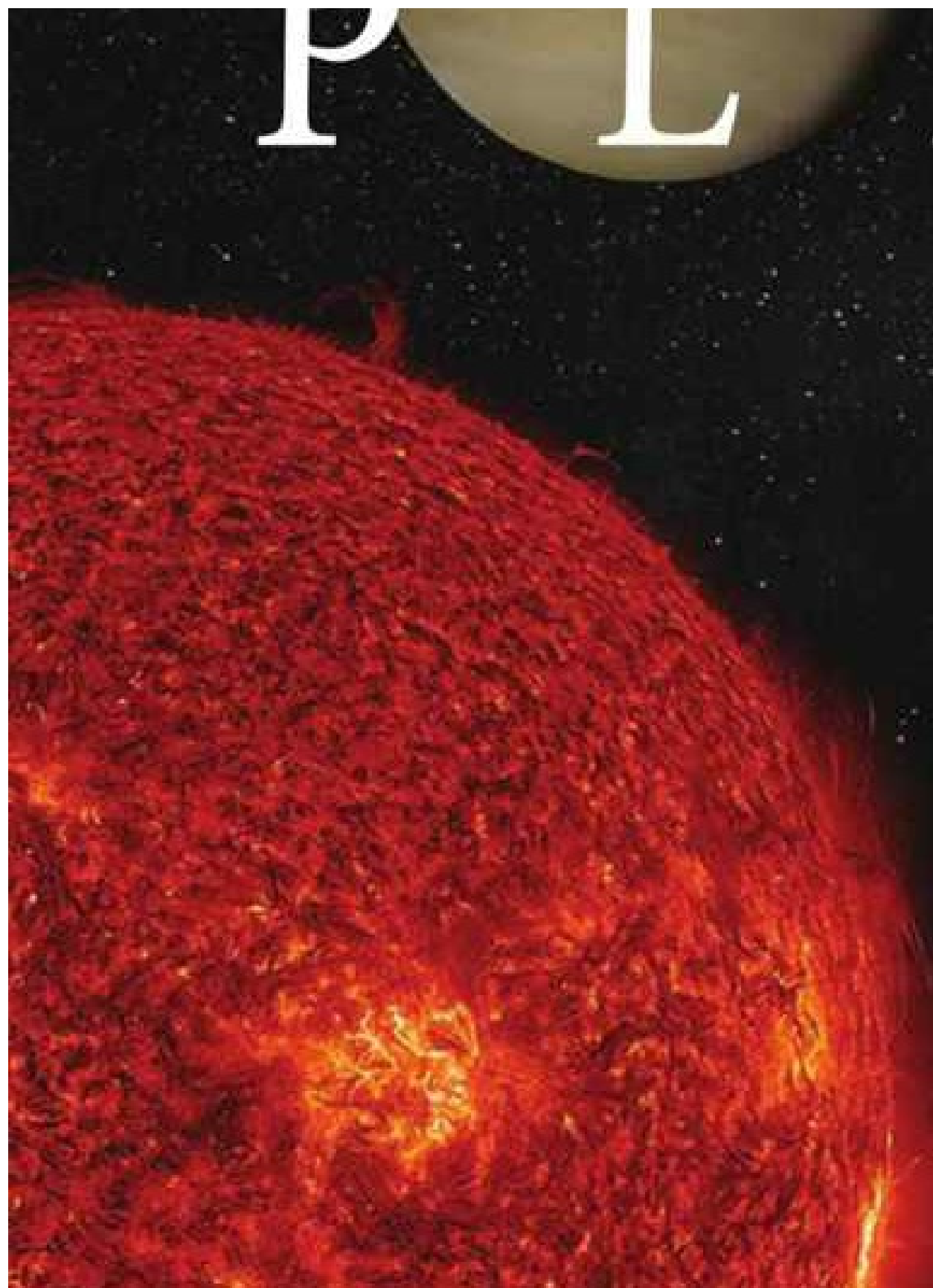


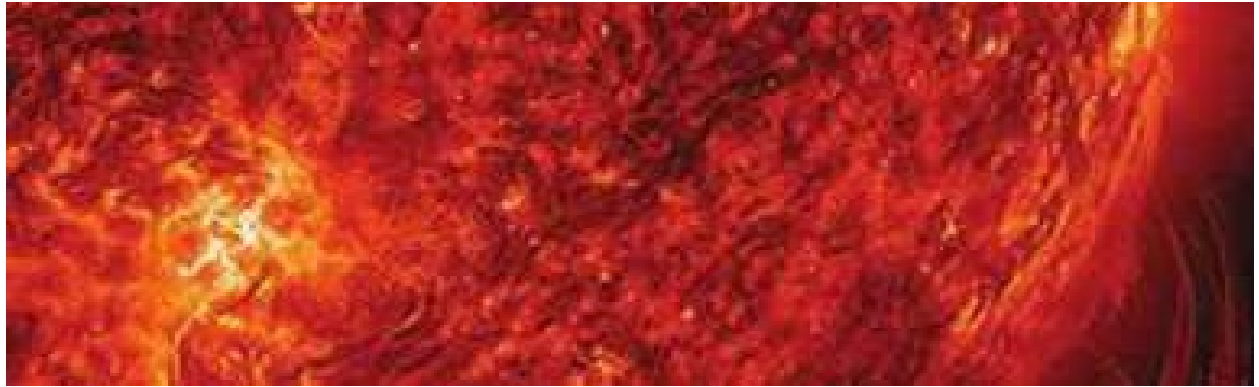

















Mercury is the
proximity it is not
two orbits of the S
its axis and up u
Mercury constan
Mercury can be
face of the Sun in



Facts:

Mass:

**330,104,000,000,
billion kg (0.05%
Earth)**

Moon:

None

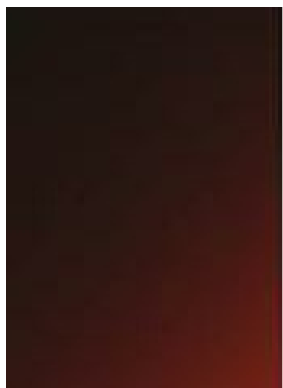
Surface Temperat

-173 to 427°C

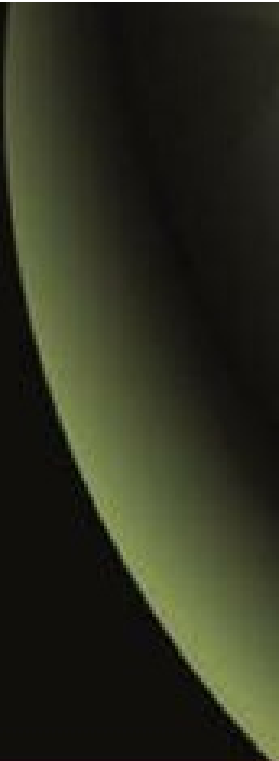
**First Record:
14th century BC**

**Recorded By:
Assyrian astronomer**

**A year in Mercury is
88 days long. Me
is the smallest plan
the Solar System**







**Venus is the second
brightest object in
the Roman gods
largest terrestrial
Earth's sister planet
surface of the planet**



Facts:

Mass:

**4,867,320,000,000
billion kg (0.815 x E**

Moon:

None

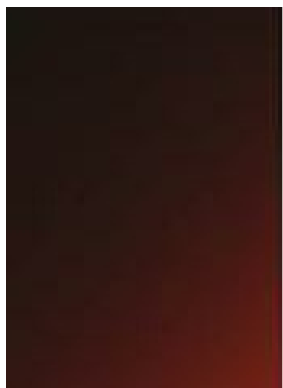
Surface Temperature

462 °C


**First Record:
17th century BC**

**Recorded By:
Babylonian astronomer**

**The Earth and Venus
very similar in size
only a 638 km
difference in diameter
Venus having 81.5%
Earth's mass.**







**Earth is the third
terrestrial planet
that are named
from the Anglo-S
The Earth was fo
and is th**



Facts:

Mass:

**5,972,190,000,000
billion kg**

Moon:

1

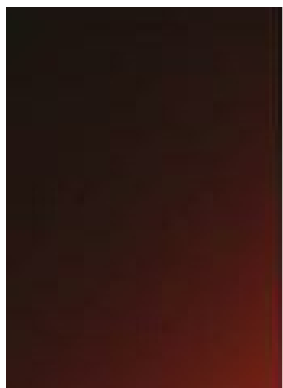
Surface Temperature

-88 to 58°C


**First Recorded
NA**

**Recorded By:
NA**

**Earth has a powerful
magnetic field. This
phenomenon is caused
by the nickel-iron core
of the planet, coupled with
its rapid rotation.**







Mars is the fourth planet from the Sun and the second-smallest planet in the Solar System, after Mercury. Named after the Roman god of war, it is often referred to as the "Red Planet" due to its reddish-orange color, which is caused by iron oxide (rust) on its surface. Mars has a thin atmosphere and is the only planet in the Solar System known to have had liquid water on its surface in the past.



Facts:

Mass:

**641,693,000,000,
billion kg (0.107×10^{24} kg)**

Moon:

2

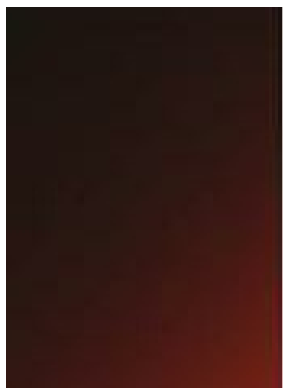
Surface Temperature

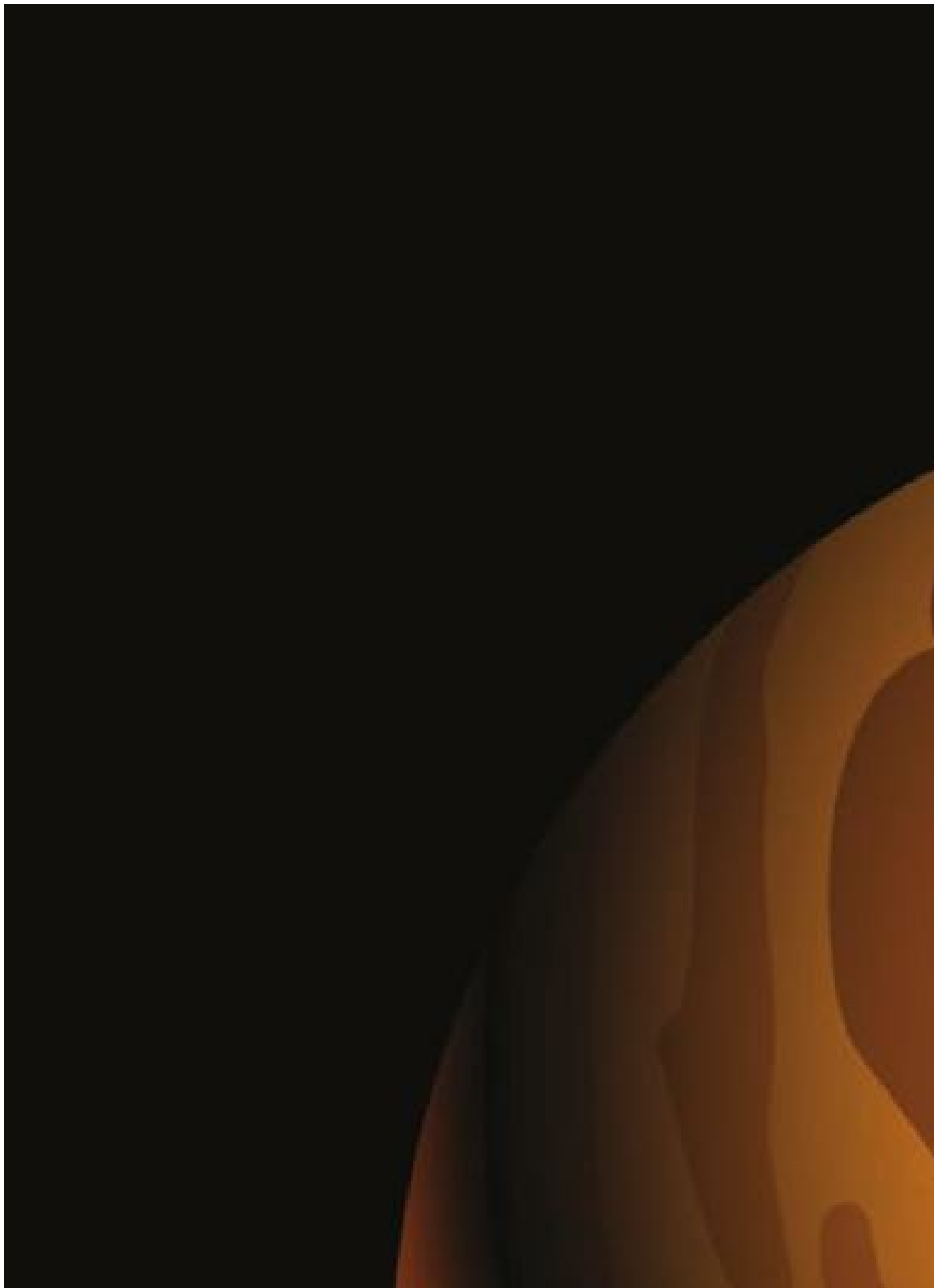
-87 to -5 °C


**First Record:
2nd millenium B.C**

**Recorded By:
Egyptian astronomer**

**Mars is home to the
tallest mountain in
solar system. Olympus
Mons, a shield volcano
21km high and 600
km diameter.**







**The planet Jupiter
is two and a half times
as massive as all the other
planets in the solar system
combined and is**



Facts:

Mass:

**1,898,130,000,000,000
billion kg (317.83 x Earth)**

Moon:

67

Rings:

4

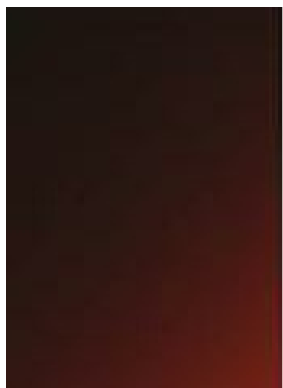
Surface Temperature

-108°C

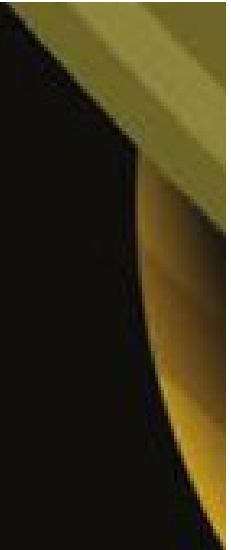
**First Record:
7th or 8th century**

**Recorded By:
Babylonian astronomer**

**Jupiter is the fourth
brightest object in the
system. Only the Sun,
and Venus are brighter
one of five planets visible
to the naked eye from Earth**







**Saturn is the sixth planet
that can be seen with the
naked eye. It has a
fabulous ring system.**



Facts:

Mass:

**568,319,000,000,000
billion kg (95.16 x Earth)**

Moon:

62

Rings:

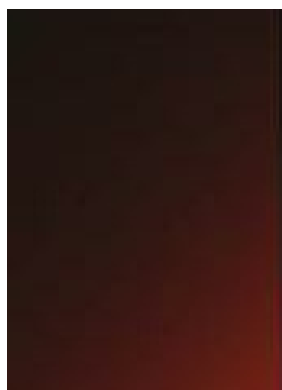
30+ (7 Groups)

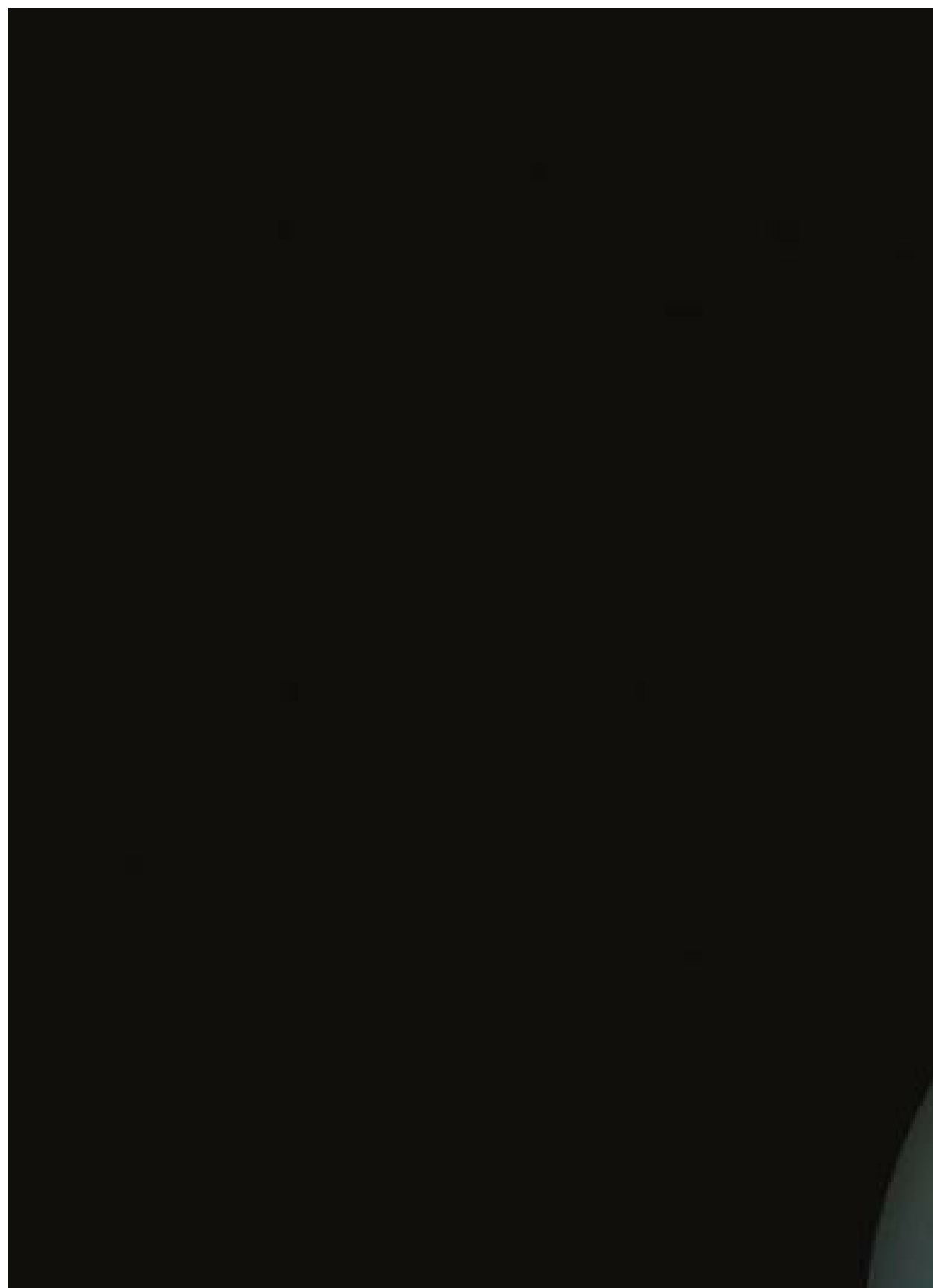
**Surface Temperature
-139 °C**

**First Record:
8th century BC**

**Recorded By:
Assyrians**

**Saturn can be seen with
naked eye. It is the
brightest object in
solar system and is
easily studied through
small telescope.**





Uranus is the second planet visible to the naked eye, and the use of a telescope reveals its axial tilt of 98 degrees.



Facts:

Mass:

**86,810,300,000,000
billion kg ($14.536 \times E$)**

Moon:

27

Rings:

13

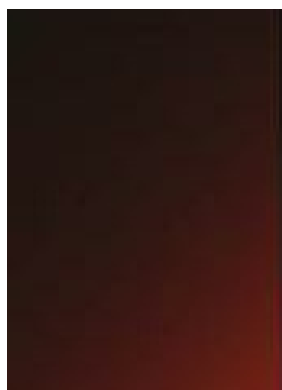
**Surface Temperature:
-197 °C**

**Discover Date:
March 13th 1781**

**Discovered By:
William Herschel**


**Uranus makes one
orbit around the Sun every
84 Earth years.**

**Uranus is often referred
as an “ice giant” planet.**



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**Neptune is the
distant planet fr
formed much cl
before**



Facts:

Mass:

**102,410,000,000,000
billion kg (17.15x Ea**

Moon:

14

Rings:

5

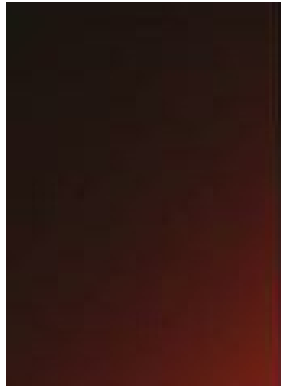
Surface Temperatu

-201 °C

**Discover Date:
September 23rd 1846**

**Discovered By:
Urbain Le Verrier & John
Galle**

**Neptune is not visible
naked eye and was
observed in 1846. Its po
was determined usi
mathematical predicti
was named after the R
god of the sea**



god of the sea.



D w

MAKEMAKE

**Makemake is the
furthest dwarf plan
Sun and is the only
outer four dwarf pla
have any moo**



CERES

**Ceres is the closest
dwarf planet to the sun
and is located in the asteroid belt,
making it the only dwarf planet
in the inner solar system.
It is the smallest of the bodies
classified as dwarf planets.**



The background of the image is a deep black space filled with numerous white stars of varying sizes. In the lower right quadrant, there is a soft, glowing nebula with shades of teal and light blue, showing wispy, ethereal patterns. The overall composition is serene and cosmic.

AS

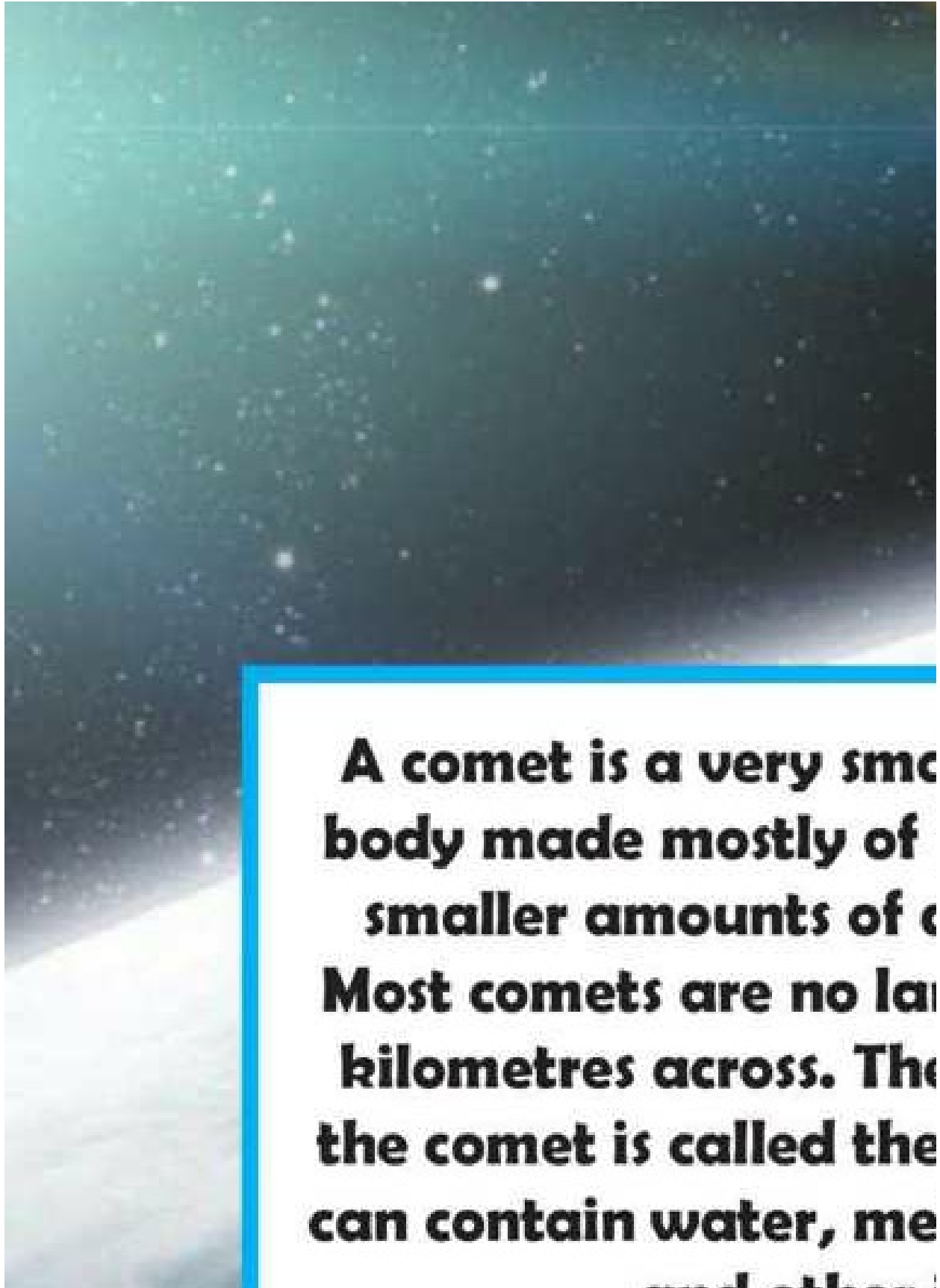


**Asteroids are small, rocky
bodies that populate
space out to the orbit of
Jupiter. There are millions of them, and
they are grouped by their**

grouped by their c

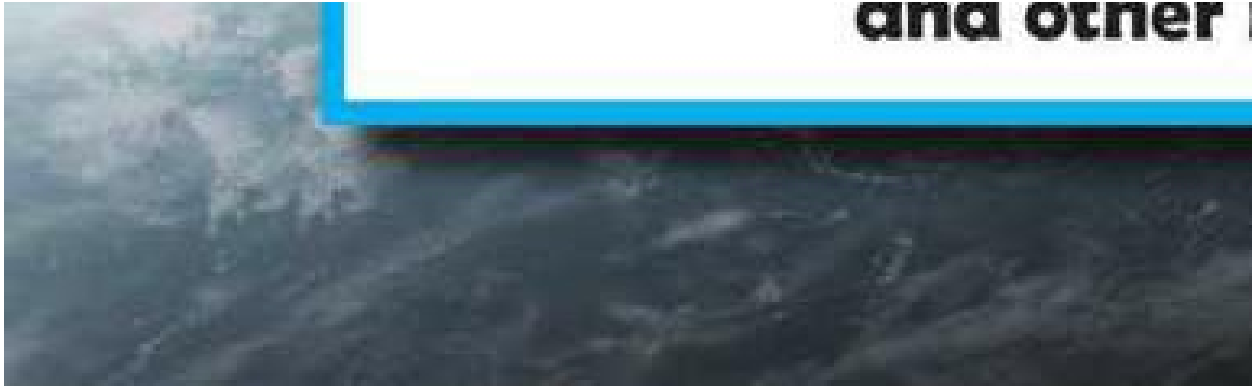






A comet is a very small body made mostly of ice and smaller amounts of rock. Most comets are no larger than a few kilometres across. The bright part of the comet is called the nucleus and can contain water, methane, and other gases.

and other

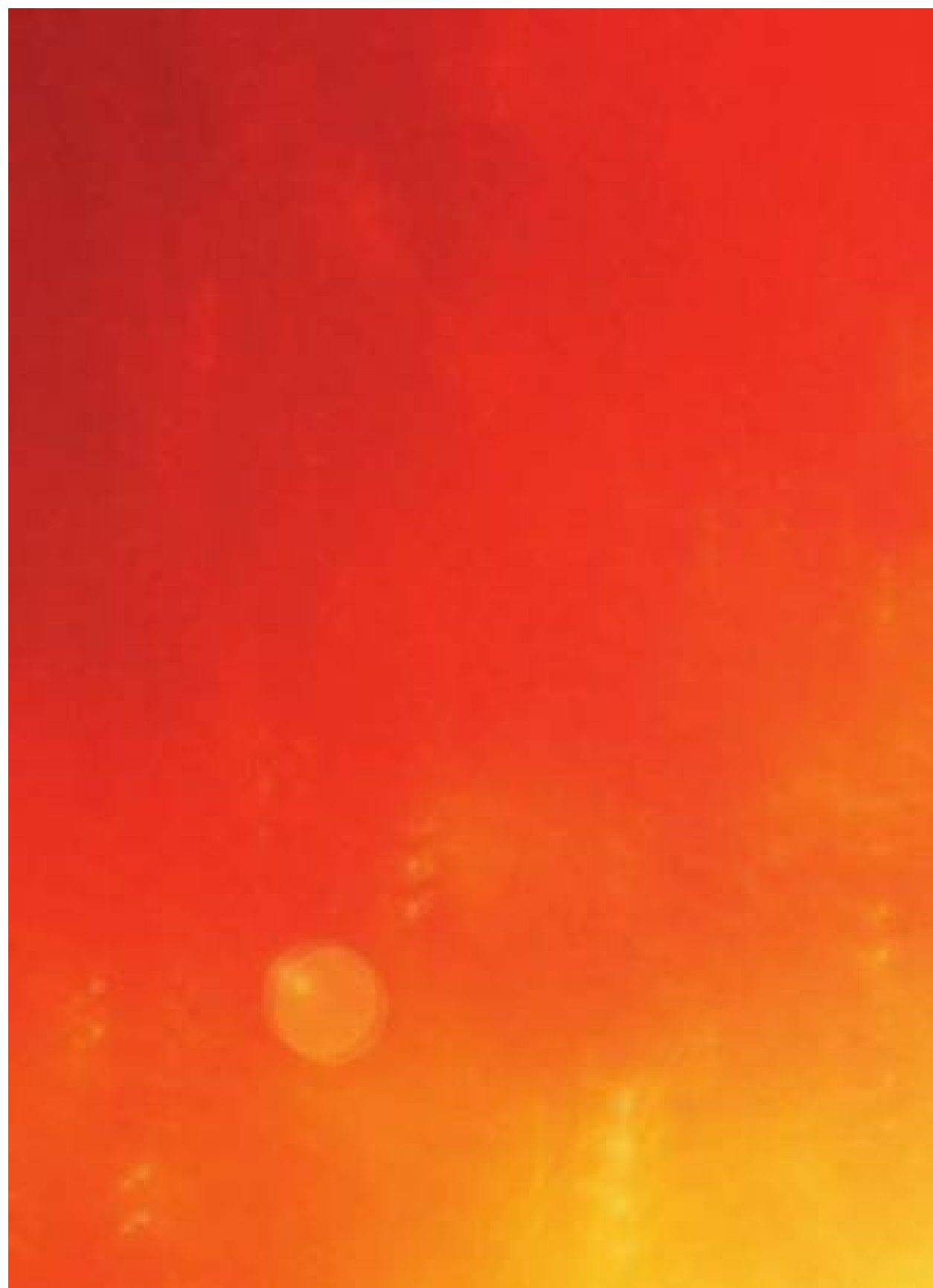


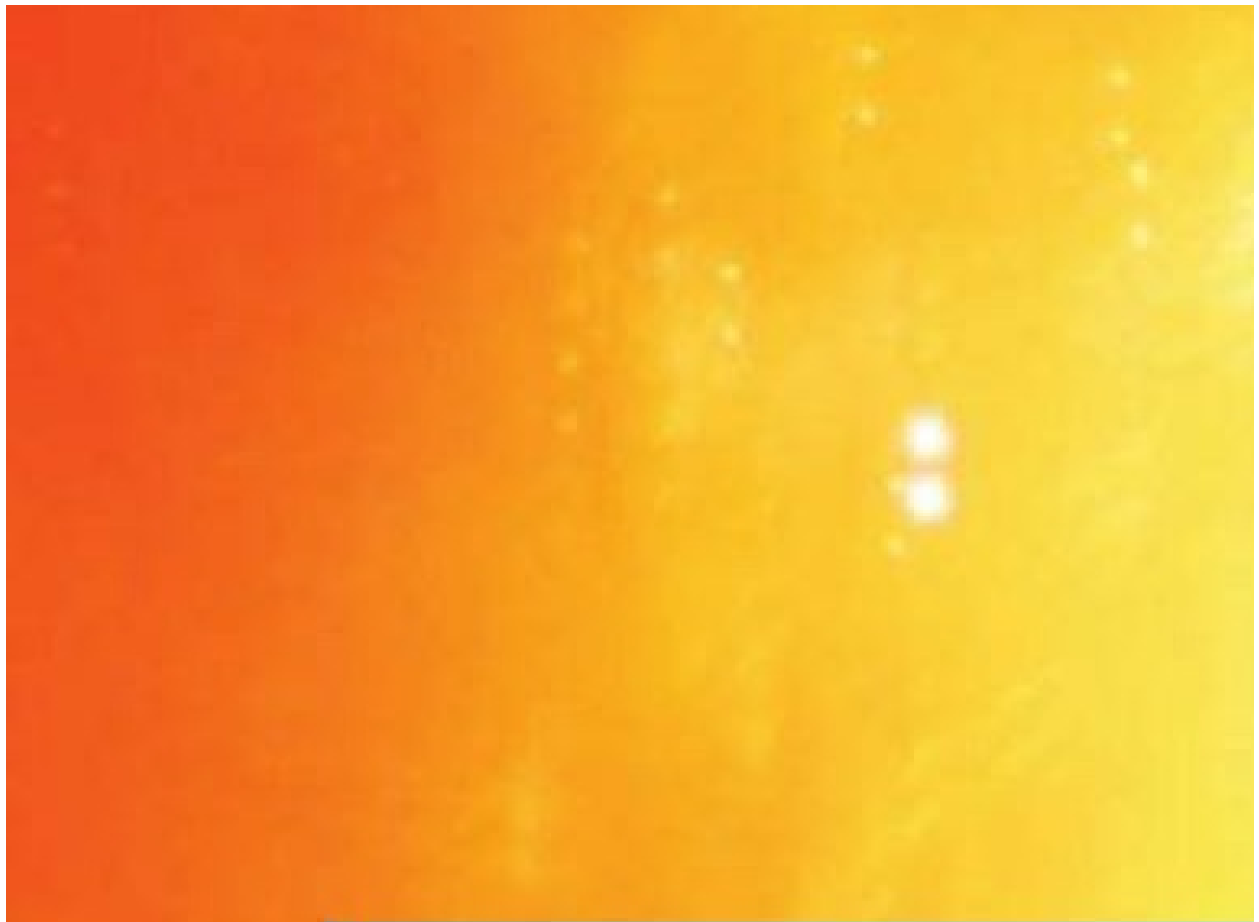




The Moon (or Luna) is Earth's only natural satellite and formed about 4.5 billion years ago around 100 million years after the formation of the solar system. The Moon is in a 1:1 orbital resonance with Earth meaning the same side of the Moon is always facing the Earth.







The Sun or Sol, is the centre of our solar system and is responsible for the climate and weather. The Sun is a perfect sphere with a diameter of just 10km in diameter at the poles and 11km at the equator.



