

BIG BOOK of THE COSMOS



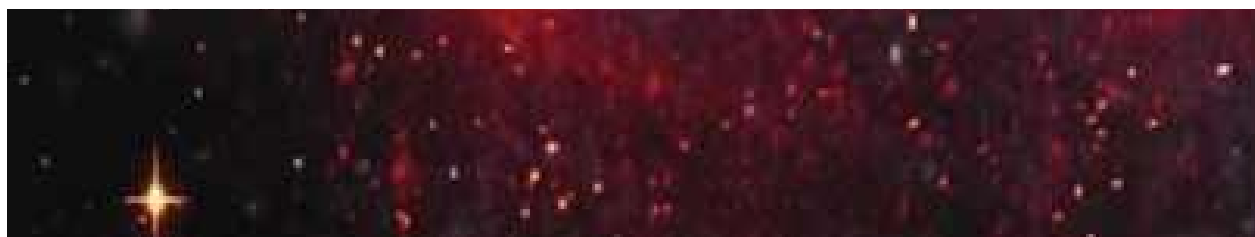
Big 1

Cosn

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any materia



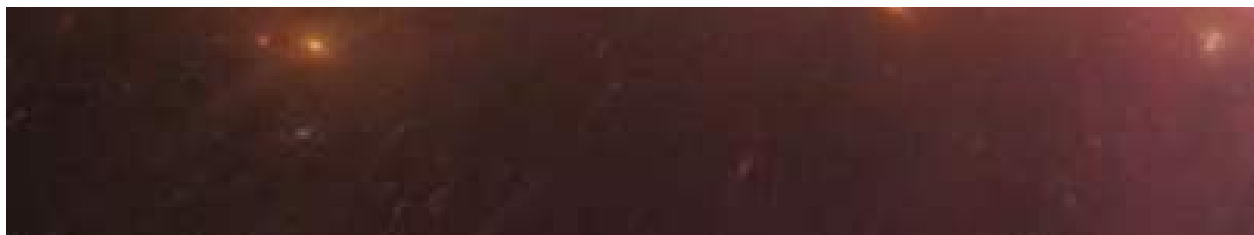




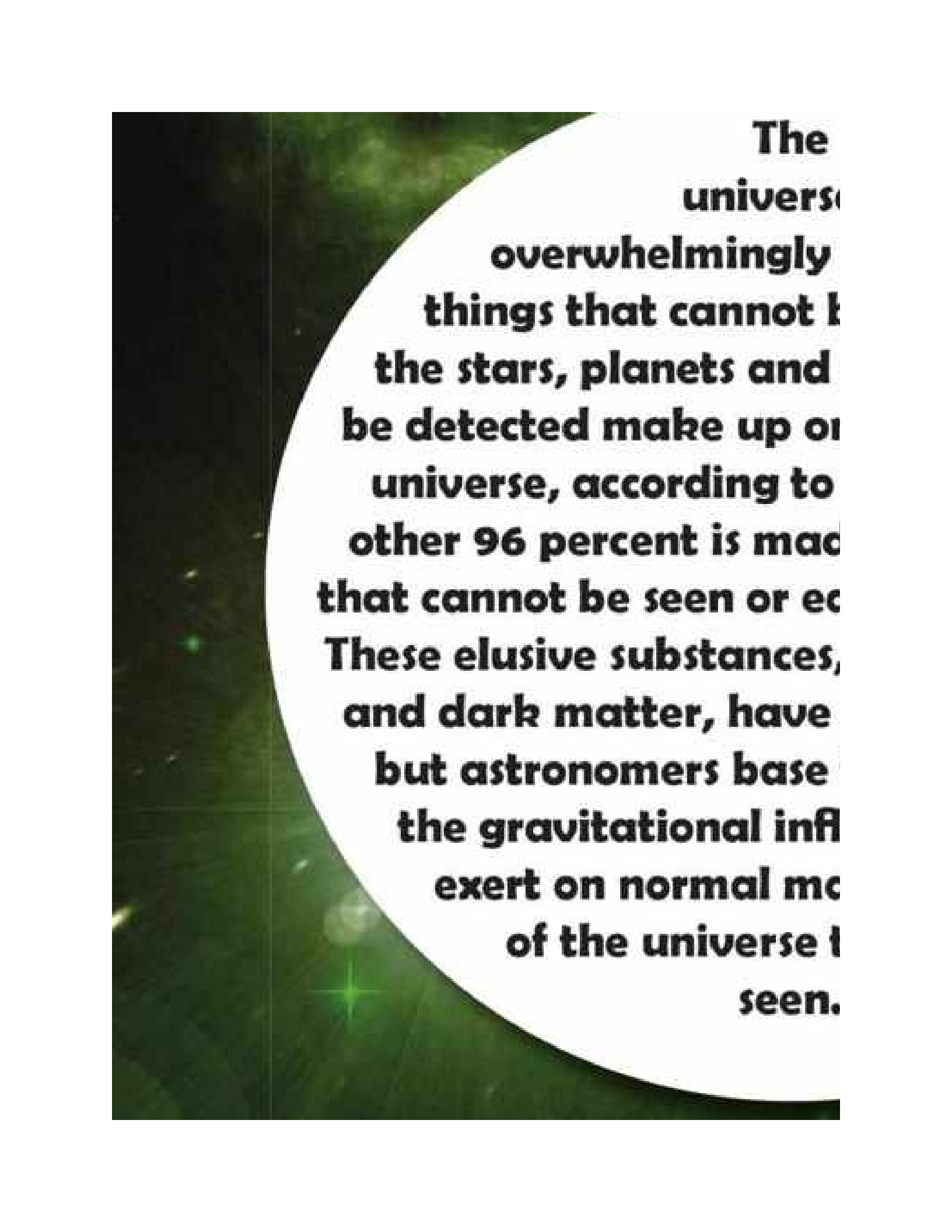
The background of the slide is a deep space image featuring a dark, star-filled sky. In the lower portion, there is a vibrant nebula with swirling patterns of pink, magenta, and red. A bright, multi-colored star or galaxy core is visible on the left side. A large, white, semi-transparent circle is centered on the right side of the image, containing the text.

**The
universe
began with the Big
Bang, and is estimated
to be approximately 13
billion years old (plus
or minus 130 million
years).**









The universe is overwhelmingly made up of things that cannot be seen or detected. The stars, planets and other objects that can be detected make up only about 4 percent of the universe, according to scientists. The other 96 percent is made up of dark energy and dark matter that cannot be seen or easily detected. These elusive substances, dark energy and dark matter, have no mass and do not interact with light, but astronomers base their calculations on the gravitational influence they exert on normal matter. Together, dark energy and dark matter make up 96 percent of the universe, while the matter we can see makes up only 4 percent.



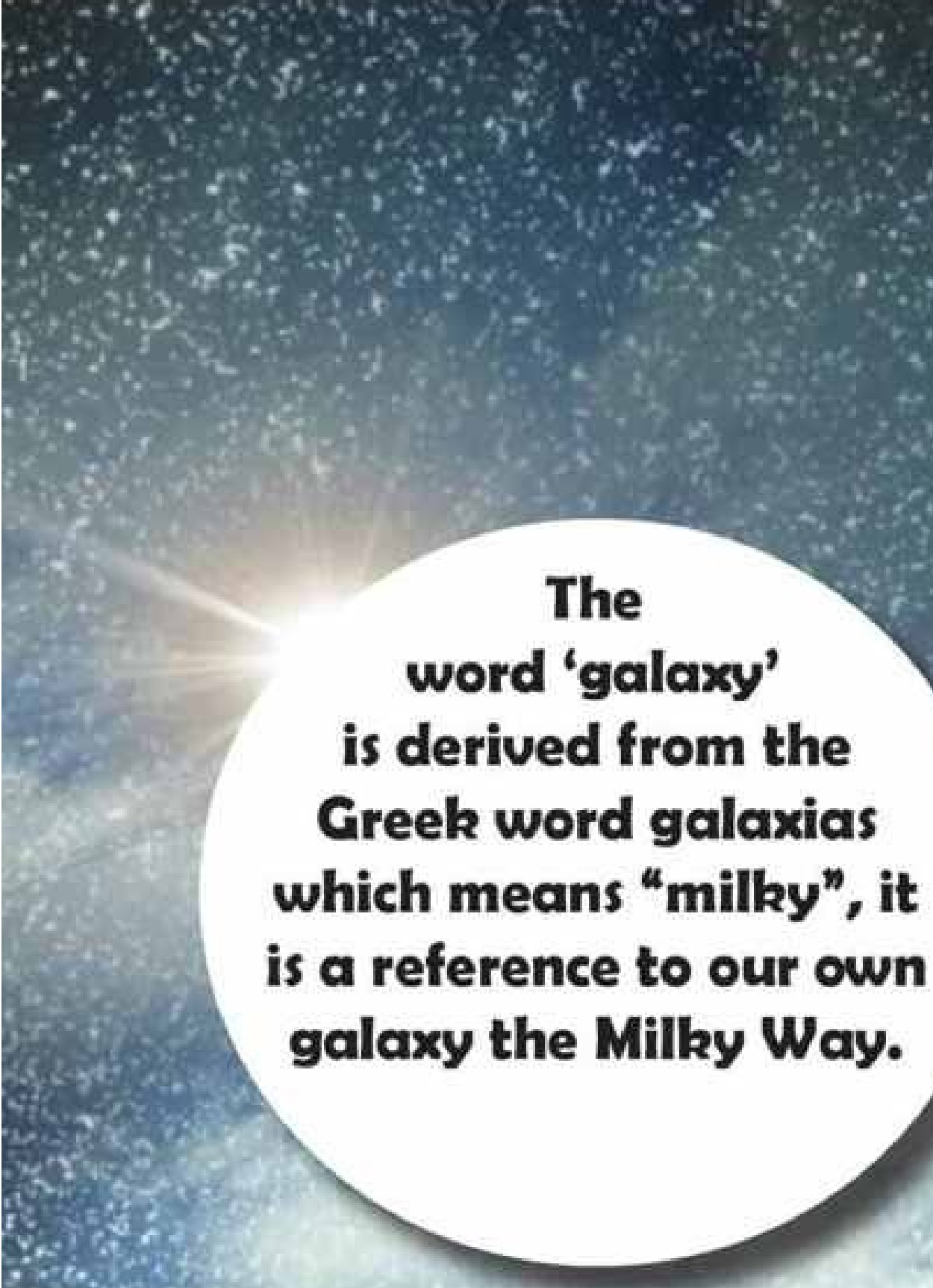






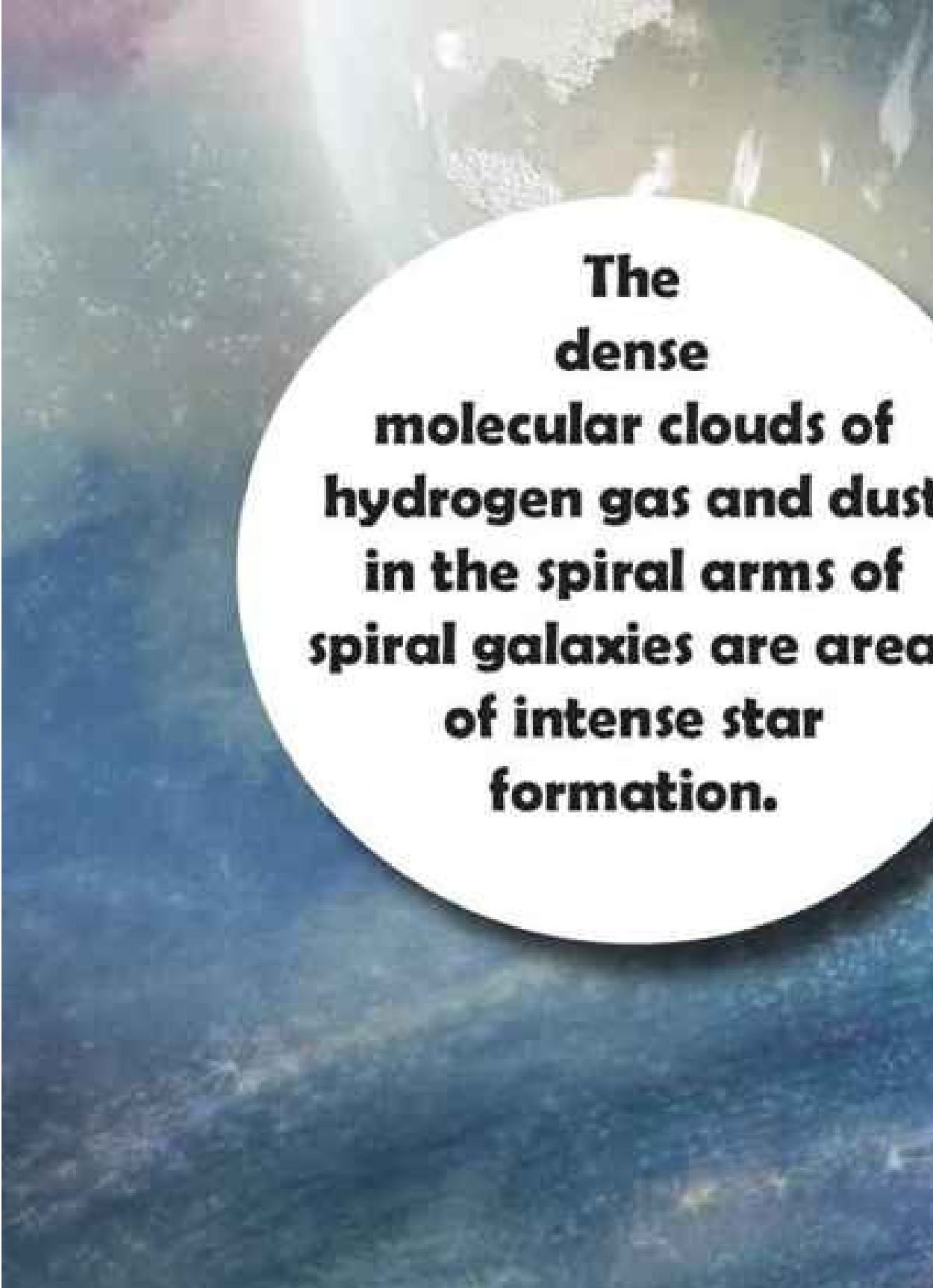


**A
galaxy is a
massive group of
stars, star clusters,
interstellar gas and dust,
and dark matter which
is all gravitationally
bound together.**



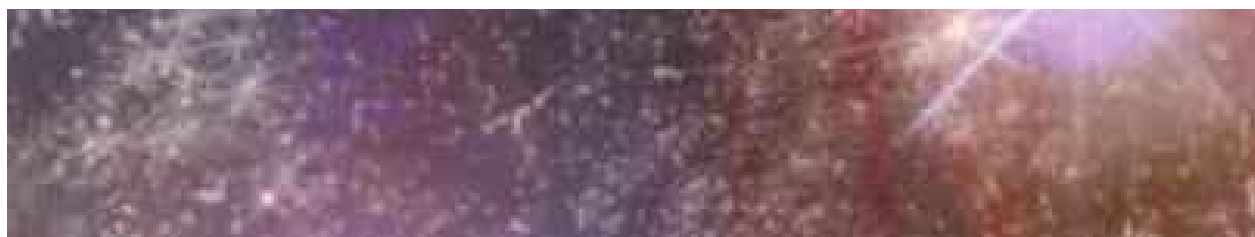
**The
word 'galaxy'
is derived from the
Greek word galaxias
which means "milky", it
is a reference to our own
galaxy the Milky Way.**





**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.**













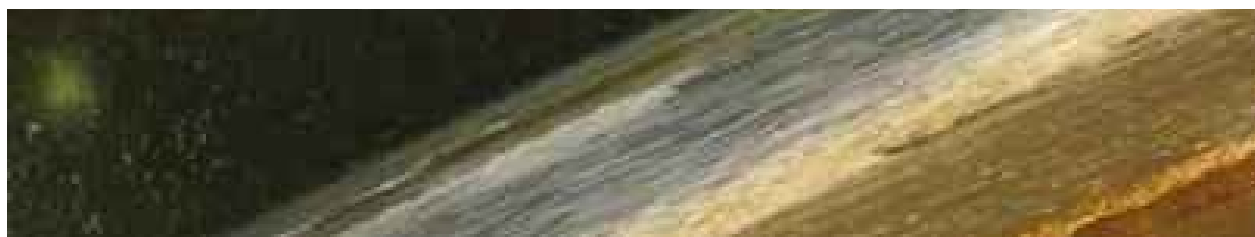
Starburst is a name for galaxies that form a lot of new stars at a fast rate, usually after much molecular cloud is produced as two galaxies merge.











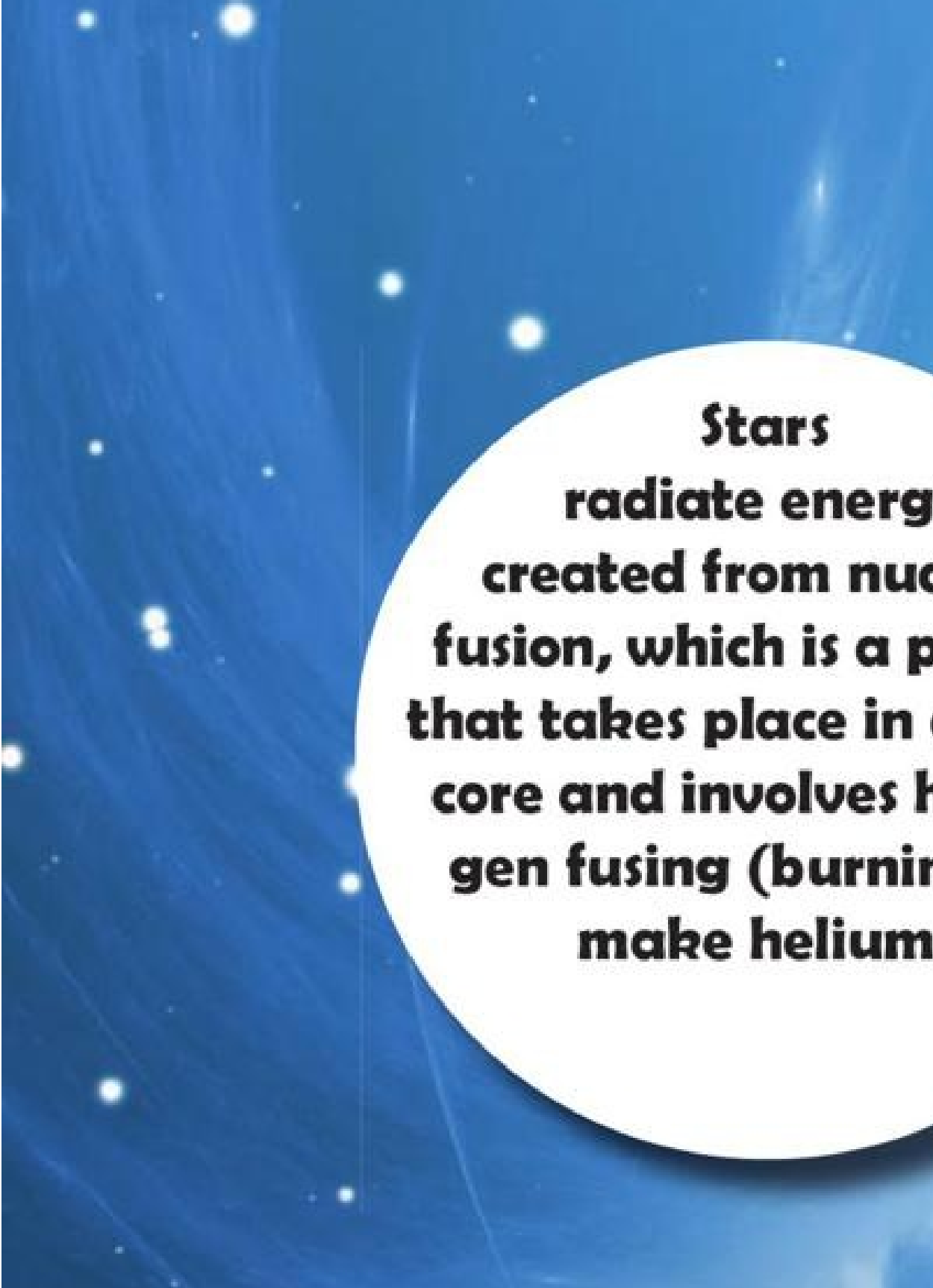




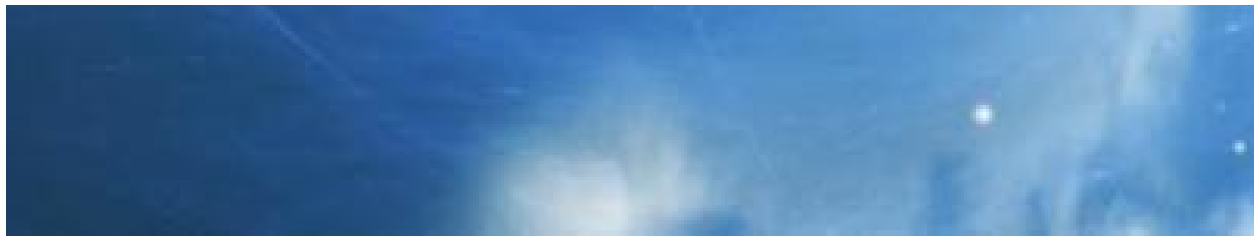
**Stars
are usually
between 1 and 10
billion years old. Some
stars may even be close to
the age of the observed
Universe at nearly 13.8
billion years old.**

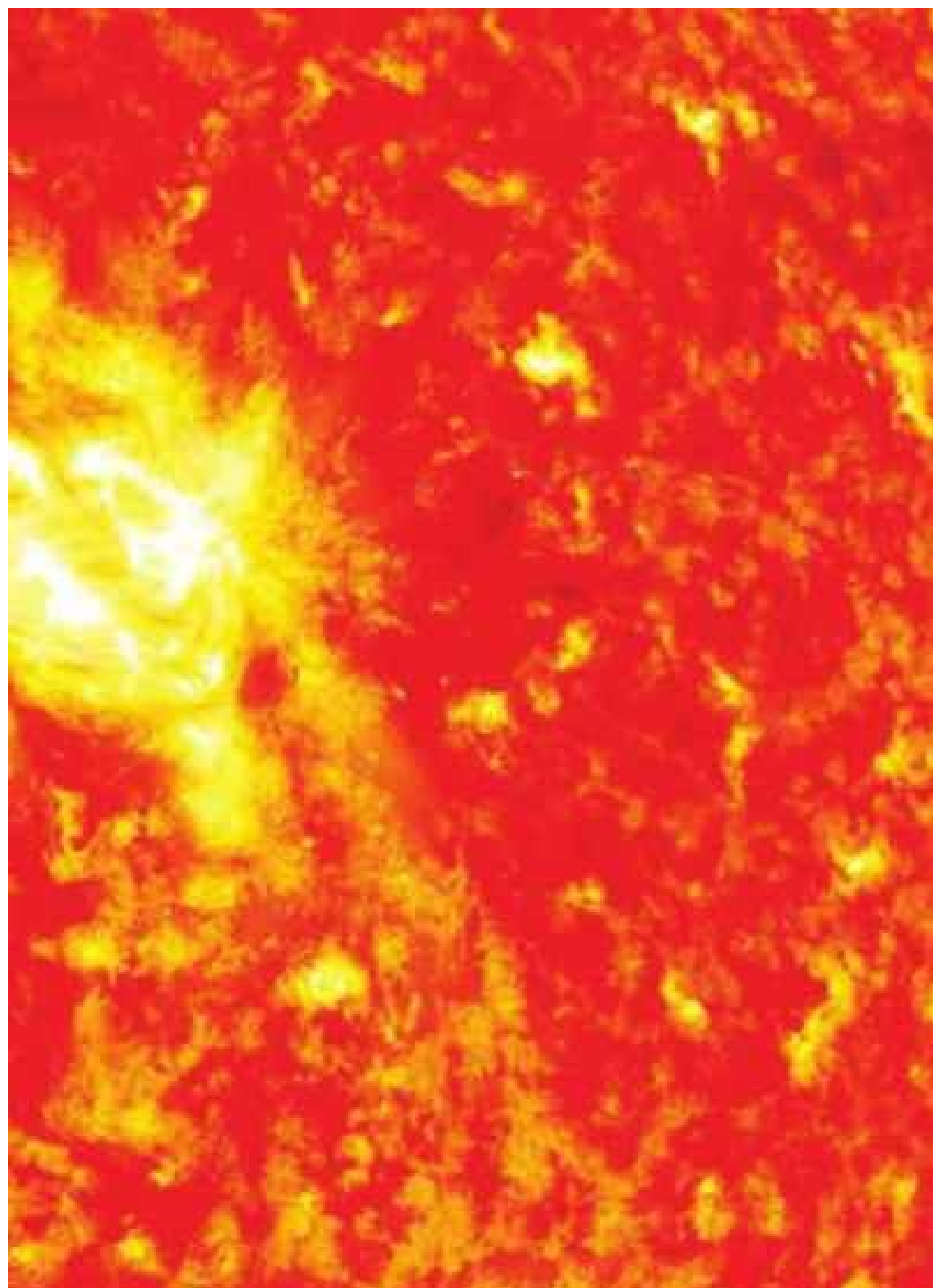


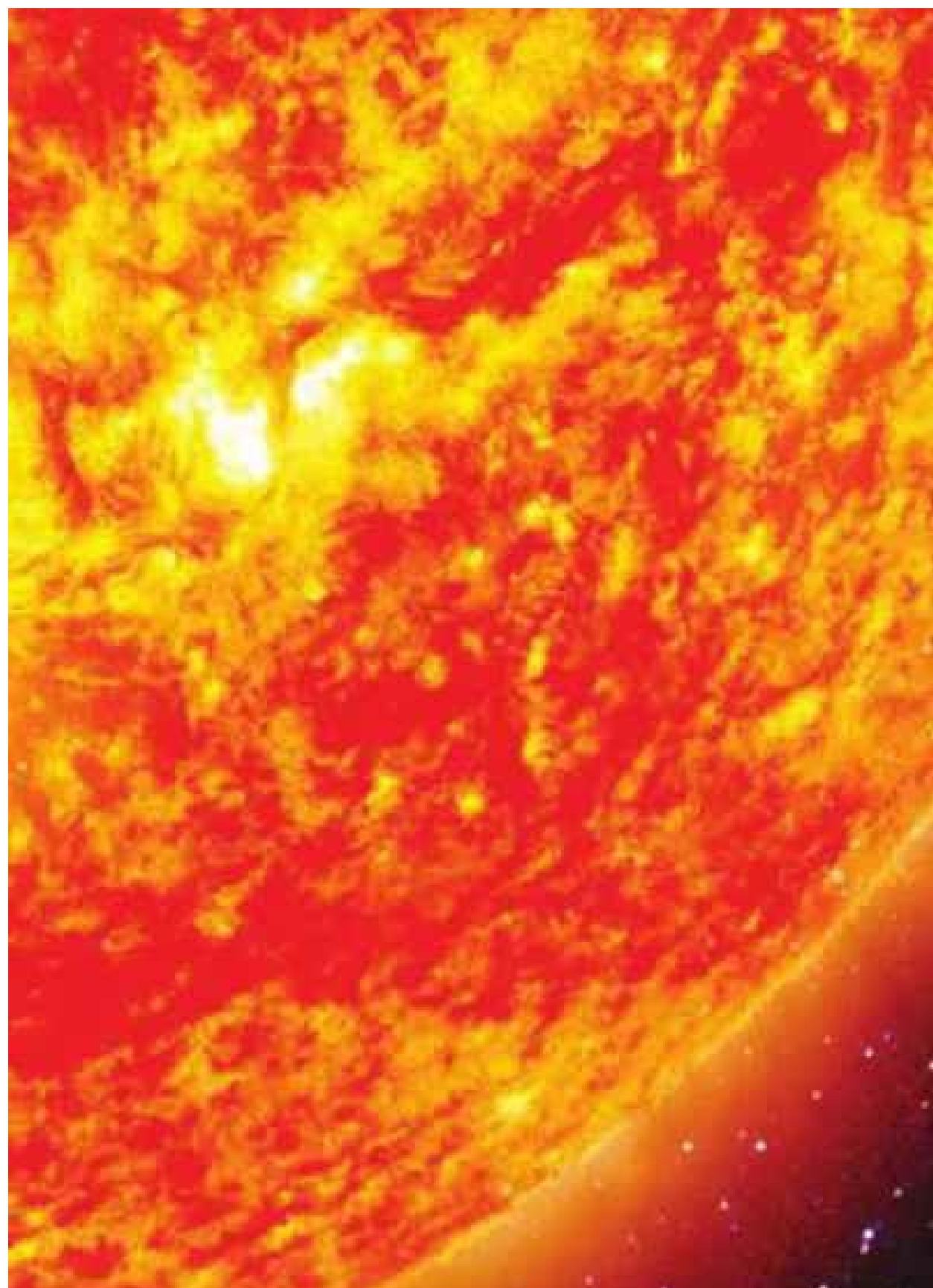


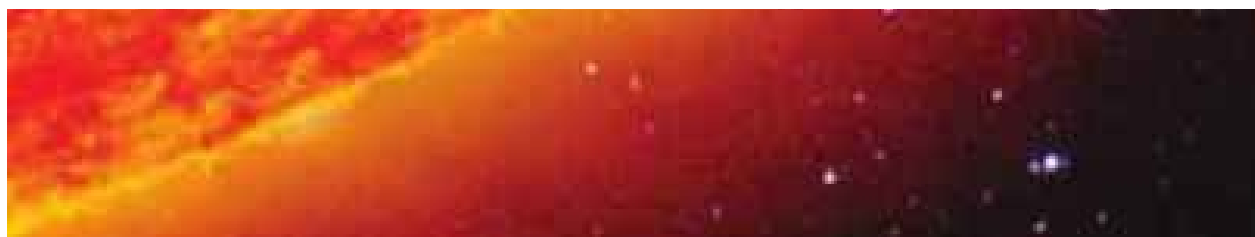


Stars
radiate energy
created from nuclear
fusion, which is a process
that takes place in the
core and involves hydrogen
atoms fusing (burning) to
make helium





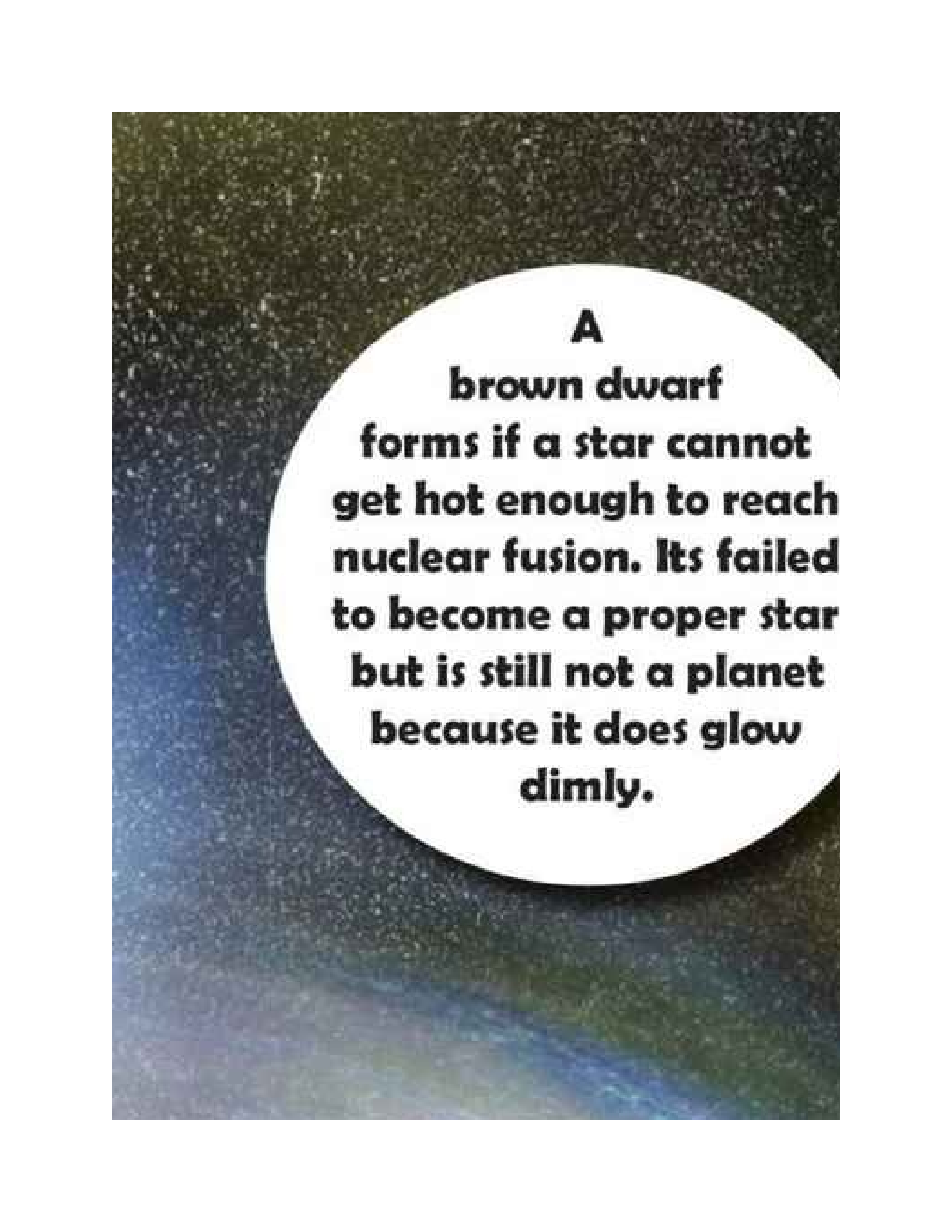










The background is a deep space image showing a dense field of stars and distant galaxies. A large, white, semi-transparent circle is centered on the right side of the image, containing the text. The text is in a bold, black, sans-serif font.

**A
brown dwarf
forms if a star cannot
get hot enough to reach
nuclear fusion. Its failed
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 their
fuel at a faster rate than
smaller stars. As these massive
stars die they explode as
massive bright
supernova.**



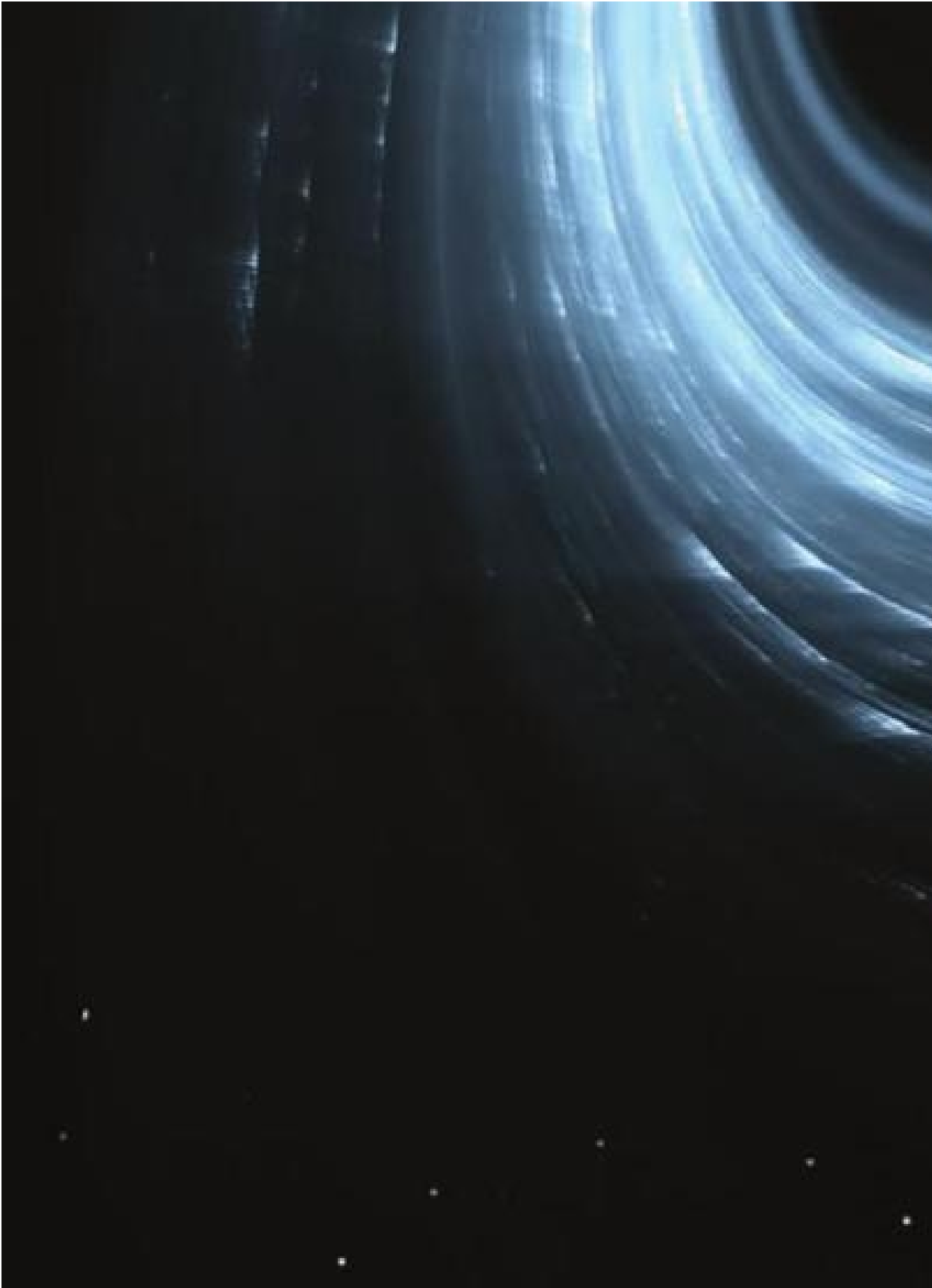


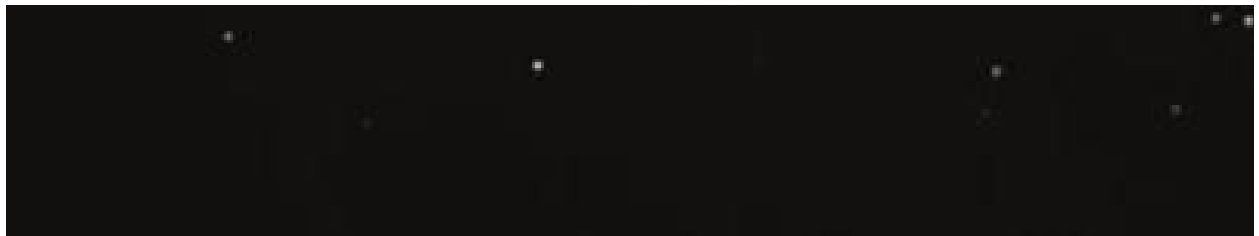


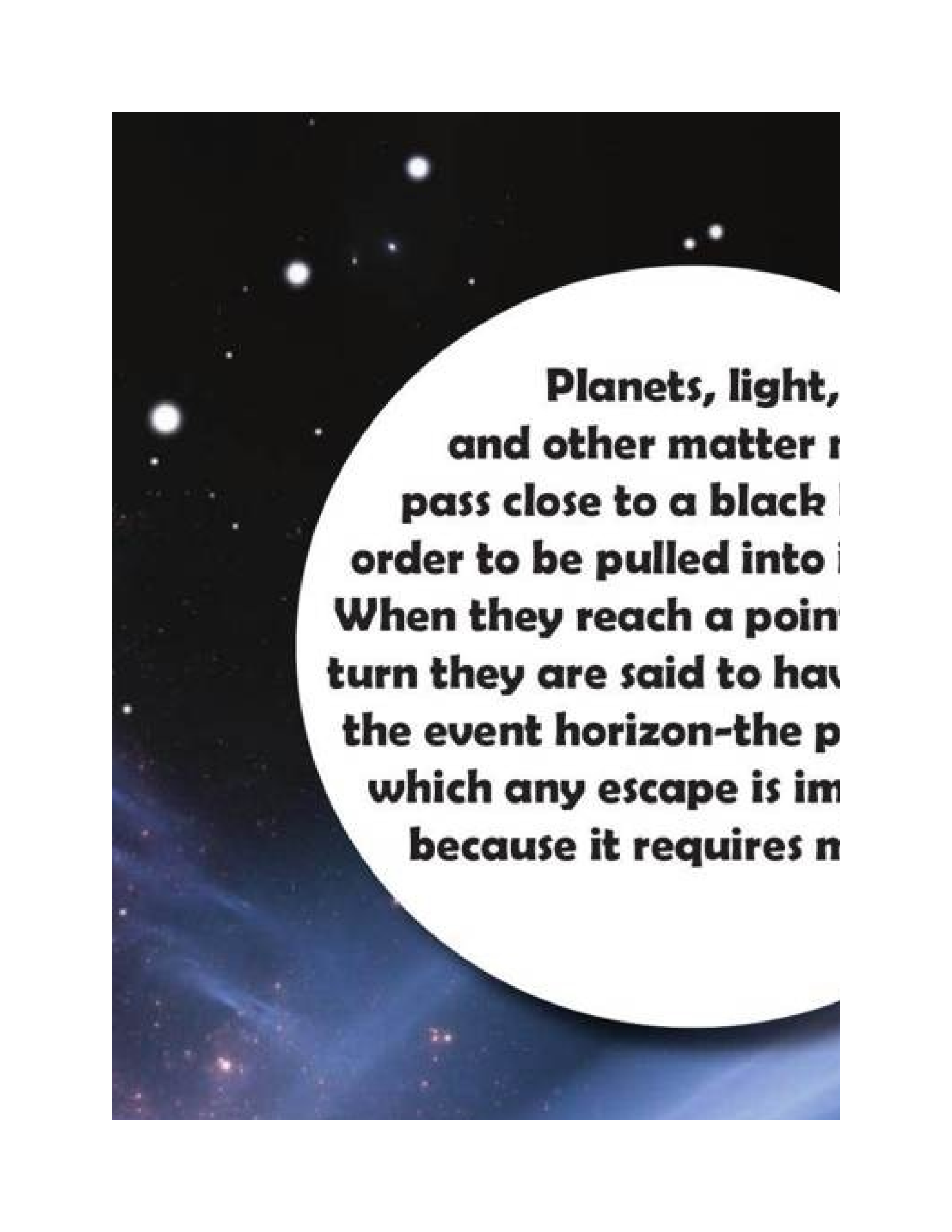




**Very
heavy stars
that have gone
supernova can
actually turn into
black holes**







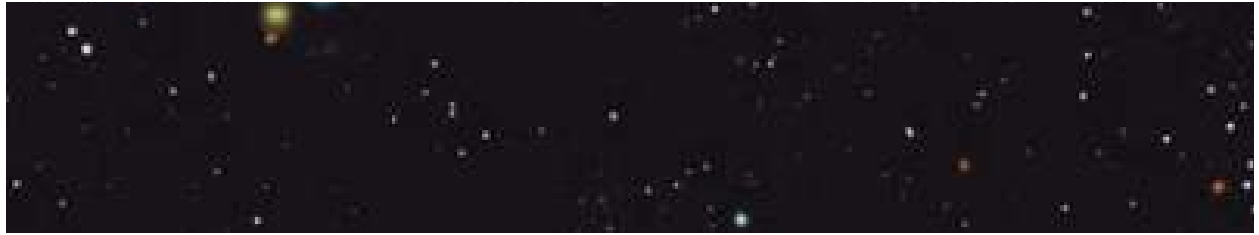
**Planets, light,
and other matter
pass close to a black
order to be pulled into
When they reach a point
turn they are said to have
the event horizon-the point
which any escape is impossible
because it requires more**







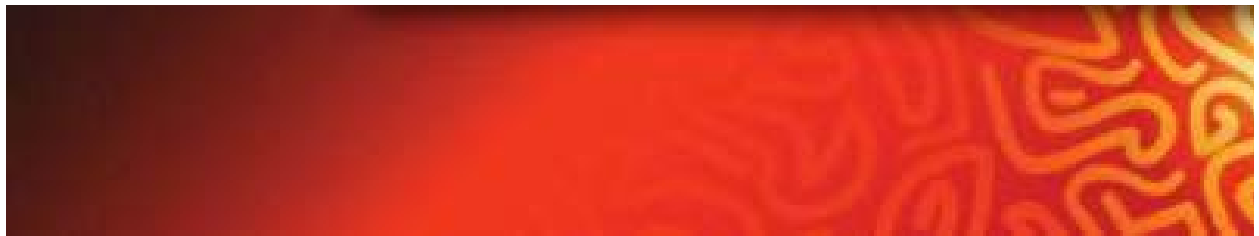









The Solar System was formed about 4.6 billion years ago and consists of the Sun, eight planets, and other astronomical objects. The formation of the Solar System was caused by the collapse of a giant molecular cloud at the center, which collected the surrounding material and formed the Sun. The remaining material in the disk around the Sun formed the planets and other objects in the Solar System.





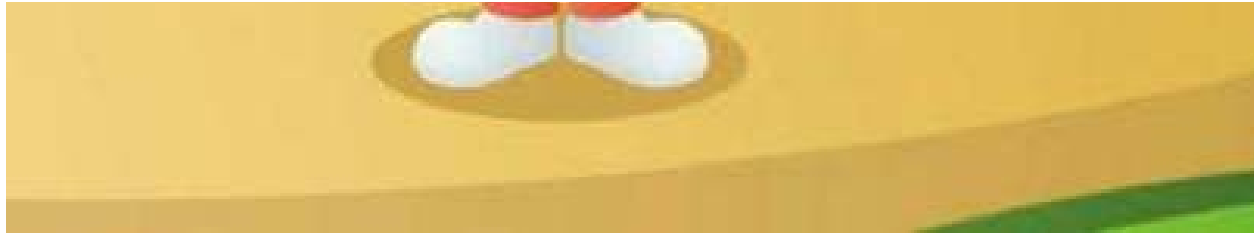


**The four small
“terrestrial planet
primarily composed
also known as the
Neptune), are subst
inner planets. Th
Saturn, are the larg
hydrogen and heli
and Neptune, are c
and methane) and**














The Sun contains 99.86% of the mass of the solar system, with Jupiter and the other gas giants and the small inner planets (Mercury, Venus, Earth, and Mars) making up a very small fraction of the total mass.



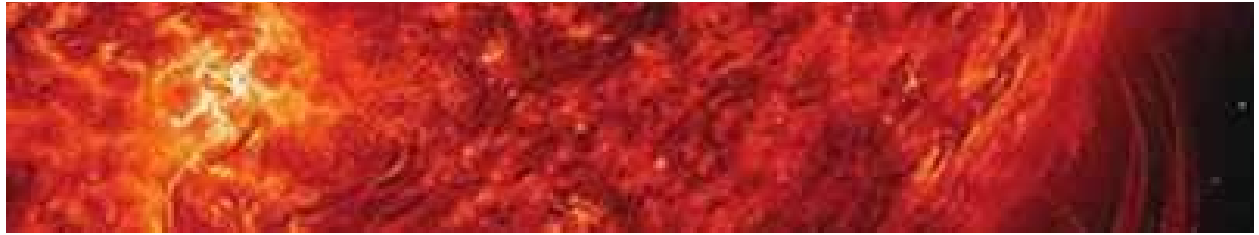









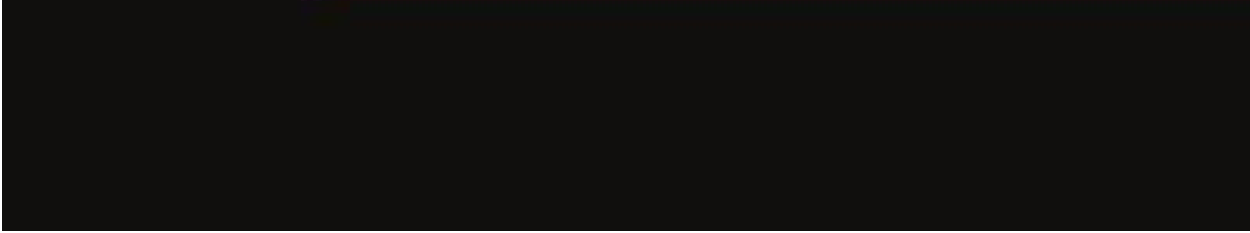








Mercury is the
proximity it is not
two orbits of the Su
its axis and up unt
Mercury constant
Mercury can be o
face of the Sun in o



Facts:

Mass:

330,104,000,000,000,000 kg (0.055 Earth)

Moon:

None

Surface Temperature

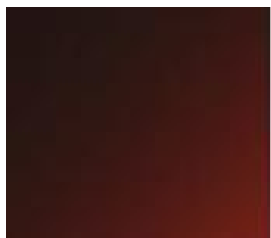
-173 to 427°C

Mercury


**First Record:
14th century BC**

**Recorded By:
Assyrian astronomer**

**A year in Mercury is
88 days long. Mer
is the smallest planet
the Solar System**







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



Facts:

Mass:

4,867,320,000,000,000,000 kg (0.815 x Earth)

Moon:

None

Surface Temperature

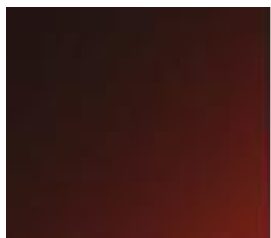
462 °C

— — — — —


**First Record:
17th century BC**

**Recorded By:
Babylonian astronomer**

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







**Earth is the third of the
terrestrial planets.
that are named after
from the Anglo-Saxon
The Earth was formed
and is the**



Facts:

Mass:

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

Moon:

1

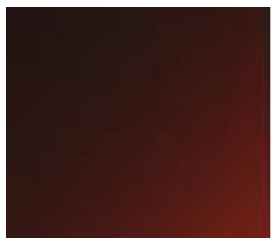
Surface Temperature

-88 to 58°C


**First Recorded:
NA**

**Recorded By:
NA**

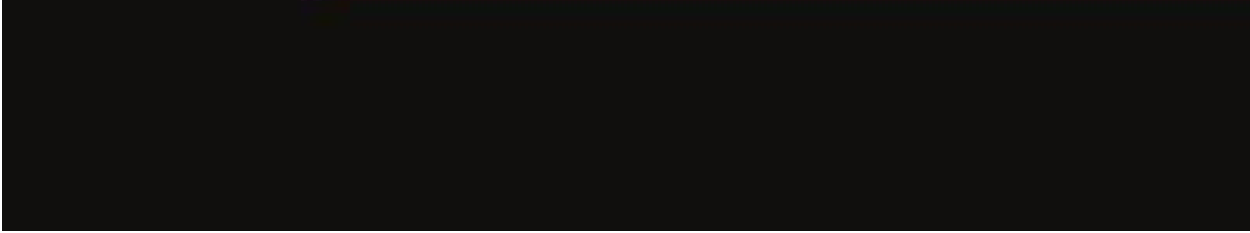
**Earth has a powerful
magnetic field. This
phenomenon is caused
by the nickel-iron core
of the planet, coupled
with its rapid rotation**







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:

**641,693,000,000,000 kg
billion kg (0.107 x Earth)**

Moon:

2

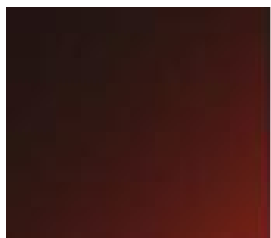
Surface Temperature

-87 to -5 °C


**First Record:
2nd millenium B**

**Recorded By:
Egyptian astronom**

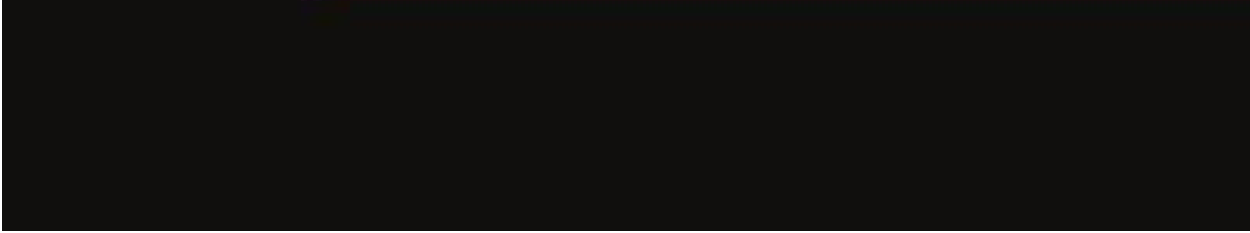
**Mars is home to the
tallest mountain in
solar system. Olympus
Mons, a shield volcano
21km high and 600km
diameter.**







**The planet Jupiter
two and a half times
as much as Earth
in the solar system
and is the**



Facts:

Mass:

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

Moon:

67

Rings:

4

Surface Temperature

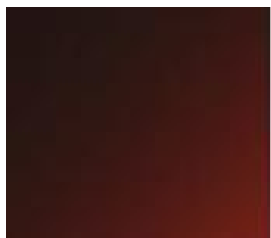
-180°C

-108°C


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

**Recorded By:
Babylonian astronom**

**Jupiter is the fourth
brightest object in the s
system. Only the Sun, M
and Venus are brighter
one of five planets visib
the naked eye from Ea**







**Saturn is the sixth
that can be seen
fabulous ring s**

e





Facts:

Mass:

**568,319,000,000,000,
billion kg (95.16 x Ea**

Moon:

62

Rings:

30+ (7 Groups)

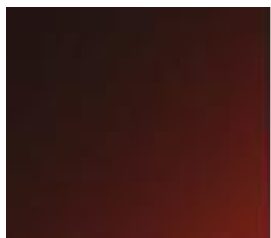
Surface Temperature

**Surface Temperature:
-139 °C**

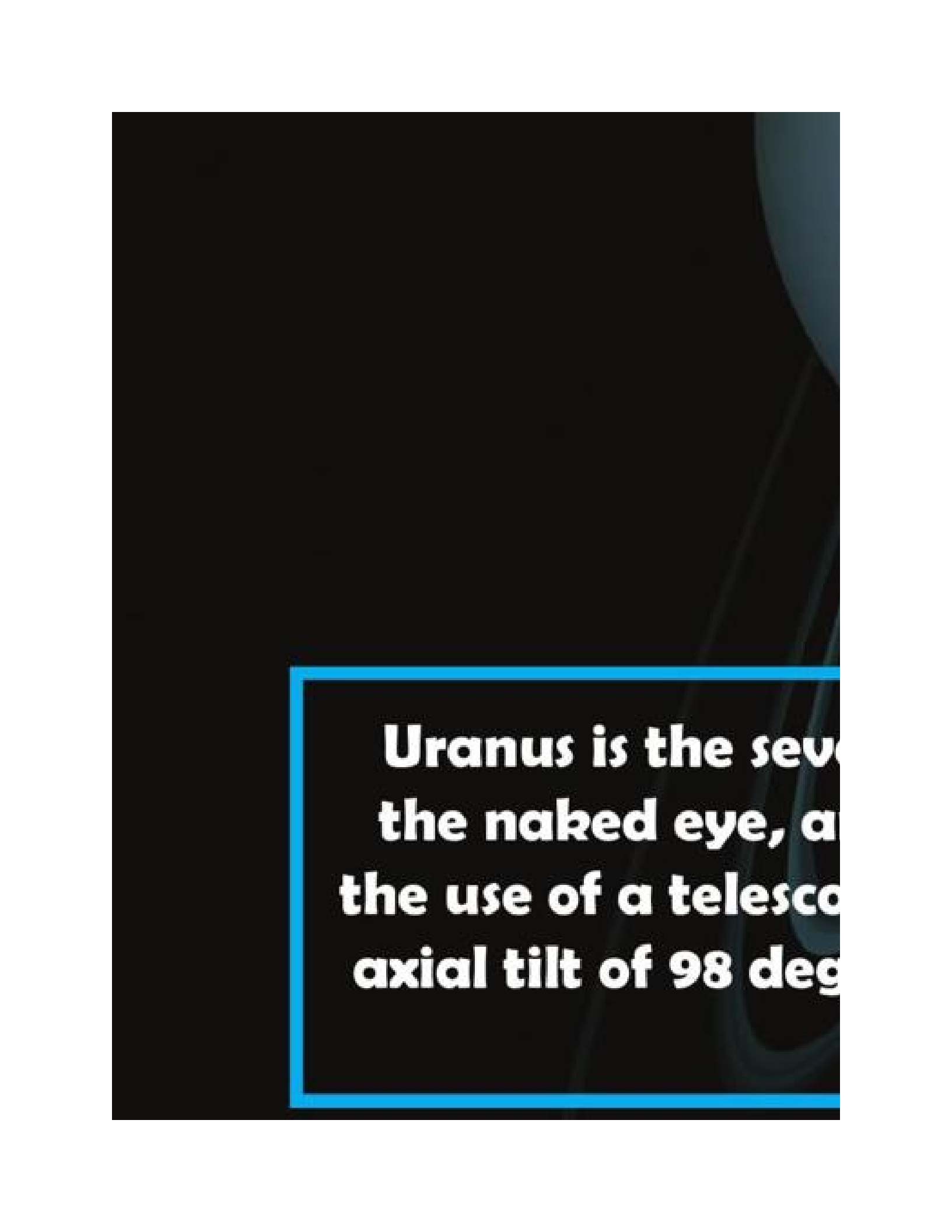
**First Record:
8th century BC**

**Recorded By:
Assyrians**

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







Uranus is the seventh planet from the Sun, visible to the naked eye, and was discovered in 1781 using the use of a telescope. It has an axial tilt of 98 degrees.





Facts:

Mass:

**86,810,300,000,000,
billion kg (14.536 x Ea**

Moon:

27

Rings:

13

Surface Temperature

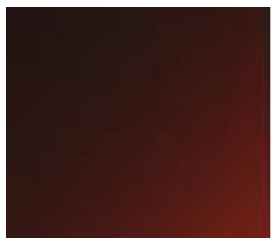
**Surface Temperature:
-197 °C**

**Discover Date:
March 13th 1781**


**Discovered By:
William Herschel**

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

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





A stylized, abstract representation of a planet, likely Neptune, in shades of blue. It features swirling, cloud-like patterns and is positioned in the upper right corner of the image, partially cut off by the frame.

**Neptune is the e
distant planet fro
formed much clo
before**





Facts:

Mass:

**102,410,000,000,000,
billion kg (17.15x Earth)**

Moon:

14

Rings:

5

Surface Temperature

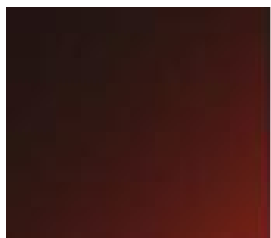
-225°C

-201 °C

**Discover Date:
September 23rd 1846**

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

**Neptune is not visible to
naked eye and was first
observed in 1846. Its position
was determined using
mathematical prediction
was named after the Roman
god of the sea.**





D w

MAKEMAKE

**Makemake is the
furthest dwarf planet
from the Sun and is the only one of the
outer four dwarf planets
that has any moons.**

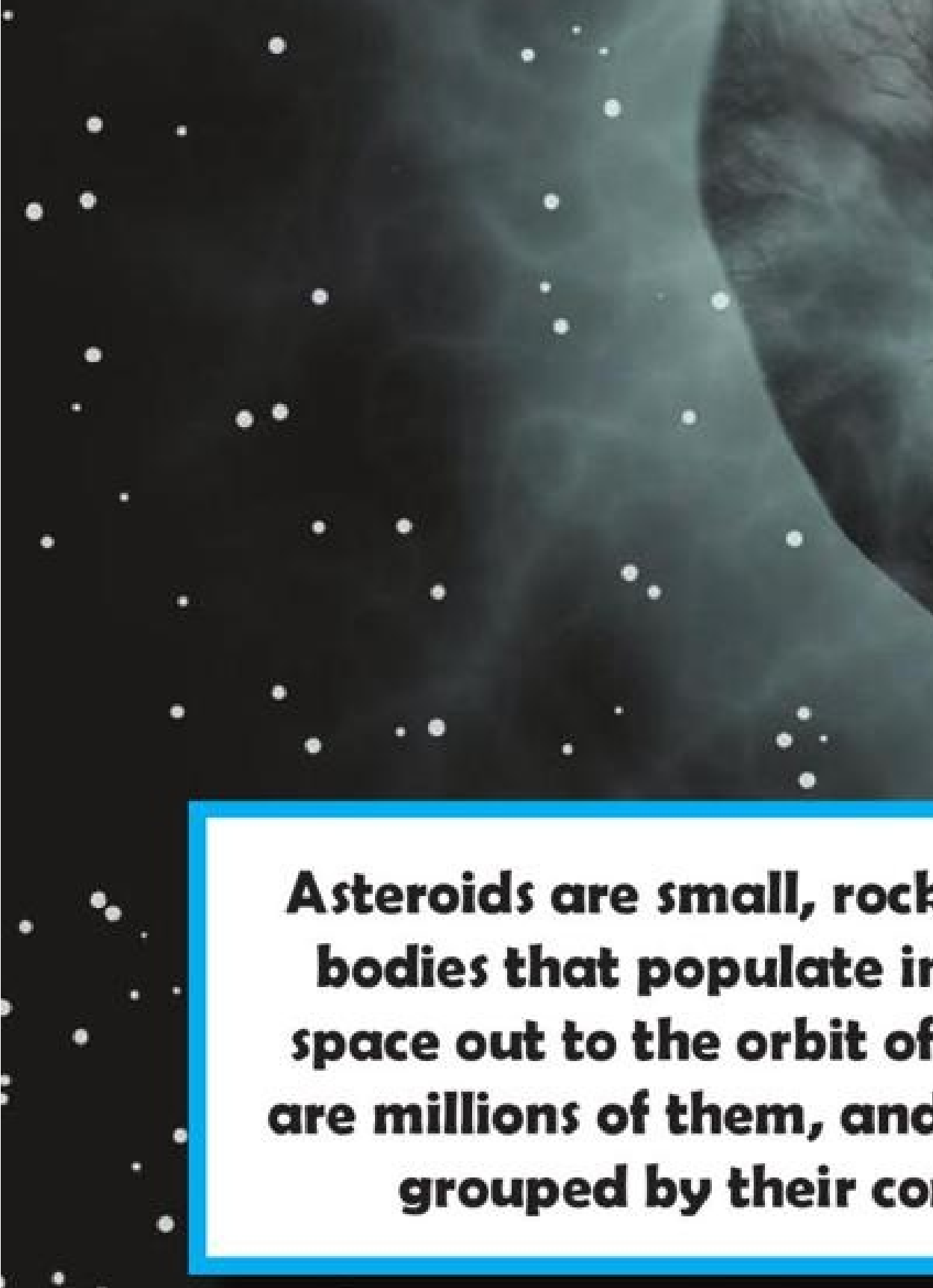


CERES

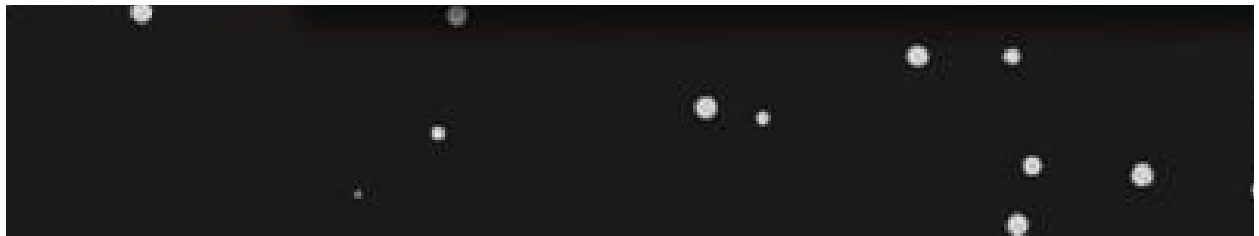
**Ceres is the closest
dwarf planet to the Sun
and is located in the asteroid belt,
making it the only dwarf planet in
the inner solar system. Ceres is the
smallest of the bodies in the
solar system currently
classified as dwarf planets.**



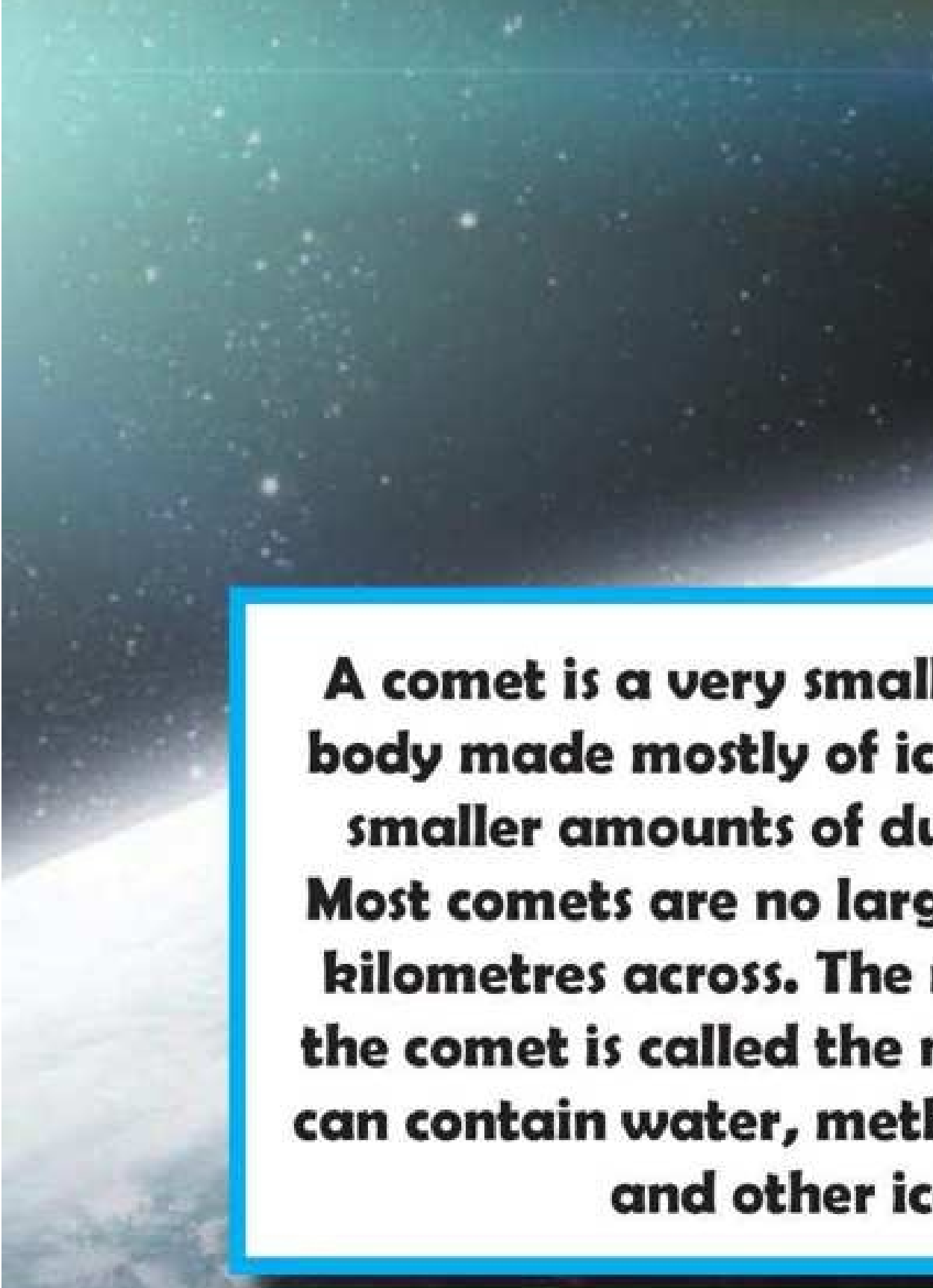




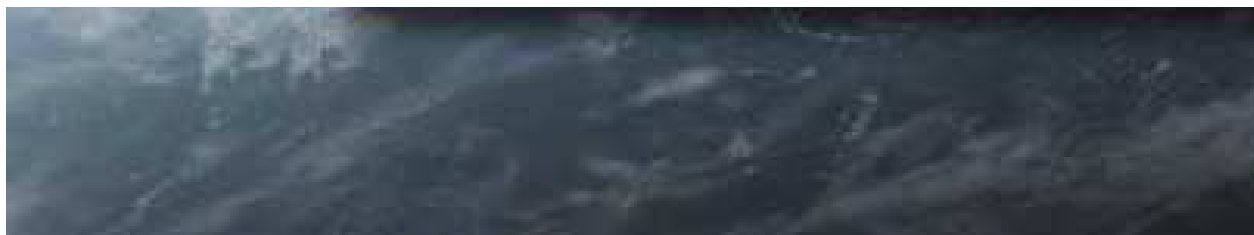
**Asteroids are small, rocky
bodies that populate
space out to the orbit of
are millions of them, and
grouped by their co**







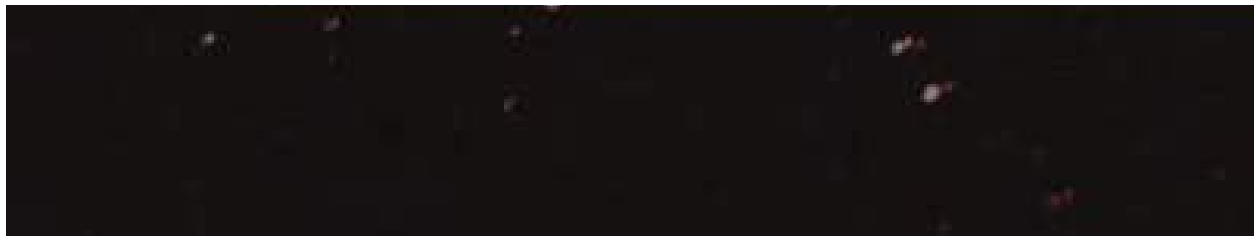
A comet is a very small body made mostly of ice and smaller amounts of dust. Most comets are no larger than a few kilometres across. The tail of the comet is called the coma and can contain water, methane, and other gases.








The Moon (or Luna) is a natural satellite and about 4.5 billion years ago around 1 billion years after the formation of the solar system. The Moon is in synchronous rotation 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
responsible for the climate
and weather. The Sun is a
perfect sphere with a radius
of just 10km in diameter.
The poles and the equator**



