

The Solar System



How was the Solar System formed?

The Solar System is about 4,600 million years old. It was formed from a **nebula** – an enormous cloud of dust and gas created when a dying star exploded.

When shockwaves from other dying stars hit the nebula, it collapsed and formed a **globule**.



Over millions of years, the temperature rose and the globule became more compressed, causing it to start spinning.

The force of the spinning shaped the globule into a central core surrounded by a disk of gas and dust. Eventually, the core became the Sun and the material in the disk formed the planets and asteroids of the Solar System.

What makes up the Solar System?

The Solar System is made up of various celestial objects:

- the Sun
- the planets
- moons
- asteroids
- comets.

Which of these objects are light sources?

The Sun is a star and a light source. It is a massive ball of hot glowing gas, which gives out huge amounts of heat and light energy.



What is the Sun?



The Sun is the star at the center of the Solar System, about 150 million kilometers from Earth.

The Sun mostly consists of hydrogen and helium.

Its mass accounts for more than 99% of the total mass of the Solar System.

Scientists used to think that chemical reactions powered the Sun, but this could not explain how it had managed to stay “burning” for millions of years.

It is now known that **nuclear fusion** is the process that releases the Sun’s energy.



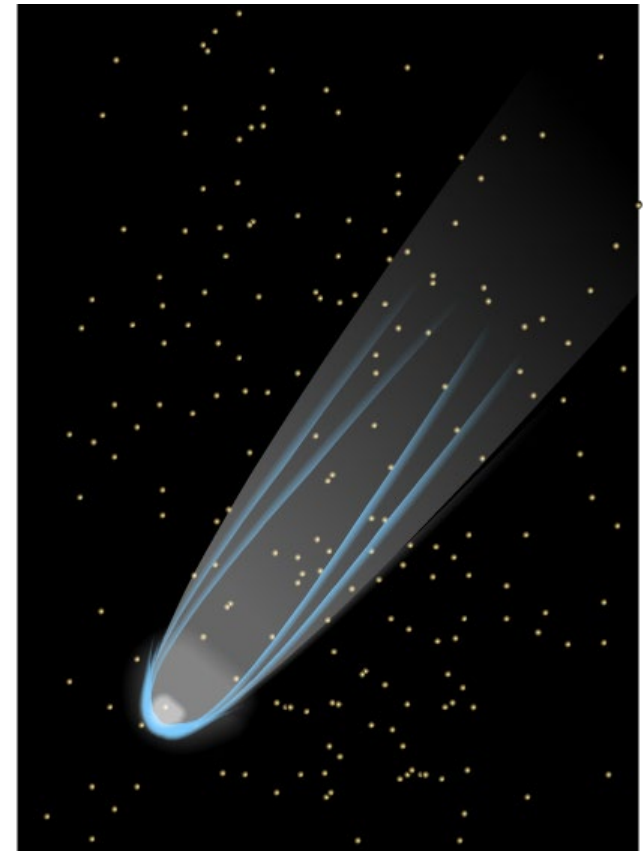
What are comets?

The planets travel around the Sun in near-circular orbits. **Comets** are celestial objects that also travel around the Sun, but in **very elliptical orbits**.

The head of a comet is a lump of ice and dust, a few kilometers in diameter.

For most of its orbit, a comet is a long way from the Sun. The tail of the comet only appears when the its orbit passes nearest the Sun.

The tail consists of gas and dust that are released from the comet by the heat of the Sun.



The Solar System – true or false?

Are these statements about the Solar System true or false?

- | | | |
|----|--|--|
| 1. | The Solar System was formed from a nebula. | |
| 2. | The Sun is a giant ball of dust on fire. | |
| 3. | The Sun is a comet. | |
| 4. | All the planets have near-circular orbits. | |
| 5. | Comets have very elliptical orbits. | |
| 6. | The Sun releases energy due to nuclear fusion. | |

true

false

solve

