

Life Cycle of Stars

Chapter 19: Life Cycle of Stars · Topic 1

Key Concept

Stars form from clouds of gas and dust called nebulae, which collapse under gravity, eventually igniting nuclear fusion to become a star.

During most of a star's life (main sequence), it fuses hydrogen into helium, releasing enormous energy that powers its light and heat.

When a star like our Sun exhausts its fuel, it expands into a red giant, then eventually sheds its outer layers, leaving behind a white dwarf.

Massive stars end more dramatically in supernovae explosions, potentially leaving behind neutron stars or, for the most massive stars, black holes.

Quick Revision Notes

- Stars form from nebulae (gas, dust clouds).
- Gravity collapse ignites nuclear fusion.
- Main sequence: fuses hydrogen into helium.
- This powers the star's light, heat.
- Sun-like stars: expand to red giant.
- Then shed layers, become white dwarf.
- Massive stars: end in supernova explosions.
- May leave neutron stars or black holes.

Practice Questions

- 1 Draw a diagram of a star's life cycle.
- 2 Discuss what a nebula is.
- 3 Research what happens to our Sun eventually.
- 4 Discuss the difference between a white dwarf and neutron star.
- 5 Research what a black hole is.
- 6 Explain a star's life cycle in your own words.