

Edexcel GCSE Physics

Topic 7.16P-7.19P - Stars

Flashcards

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What factor determines the type of lifecycle a star undergoes?



What factor determines the type of lifecycle a star undergoes?

The size of the star.



Which two phases do all stars of the same or greater size than the sun undergo?



Which two phases do all stars of the same or greater size than the sun undergo?

1. Protostar phase
2. Main sequence phase



What do stars like the sun become at the end of their life-cycle?



What do stars like the sun become at the end of their life-cycle?

A black dwarf.



What two things can stars much bigger than the sun become at the end of their lifecycle?



What two things can stars much bigger than the sun become at the end of their lifecycle?

1. Neutron star
2. Black hole



What two phases do stars of similar size to the sun go through between being a main sequence star and a black dwarf?



What two phases do stars of similar size to the sun go through between being a main sequence star and a black dwarf?

1. Red giant
2. White dwarf



What two phases do stars of greater size than the sun go through between being a main sequence star and a neutron star/black hole?



What two phases do stars of greater size than the sun go through between being a main sequence star and a neutron star/black hole?

1. Red supergiant
2. Supernova



Describe the transition of the star from the nebula stage to the main sequence.



Describe the transition of the star from the nebula stage to the main sequence.

- The nebula increases in size until it is pulled in due to its gravity, causing GPE to turn into KE
- The collisions between particles cause this kinetic energy to turn into thermal energy
- Eventually the nebula will become dense and hot enough to begin fusion



What occurs in the stage when a star is a main sequence star?



What occurs in the stage when a star is a main sequence star?

- The fusion in the star releases energy
- This energy balances out with the gravitational potential energy leaving the star
- The star is in equilibrium so will not collapse due to gravity or expand due to radioactive behavior. It is stable.



What happens when a star transitions to the red giant stage?



What happens when a star transitions to the red giant stage?

- Once all of the hydrogen fuel has been used up, the star begins to fuse helium and other larger nuclei
- This causes the star to expand and become a red giant



How does a red giant become a white dwarf?



How does a red giant become a white dwarf?

- Once all reactions have taken place, the star's gravity pulls in all of its mass, making a small, dense white dwarf
 - This will cool down to form a black dwarf



Why are telescopes located outside the earth's atmosphere?



Why are telescopes located outside the earth's atmosphere?

- The earth's atmosphere absorbs many electromagnetic waves, making it difficult to detect certain waves.
- Light pollution can make some images less clear
- Telescopes in space can operate both night and day



What is the disadvantage of telescopes located outside the atmosphere?



What is the disadvantage of telescopes located outside the earth's atmosphere?

They are difficult to maintain as they have to be repaired in space (or brought down, which is unreasonably expensive).



What are the disadvantages of optical telescopes?



What are the disadvantages of optical telescopes?

- They can only be used at night when the sky is clear
- They can't be used when the weather is cloudy etc.



Evaluate the use of radio telescopes.



Evaluate the use of radio telescopes.

- They are not weather dependent for example radio waves are not blocked by clouds so can be used in the rain
 - They are usually large and expensive

