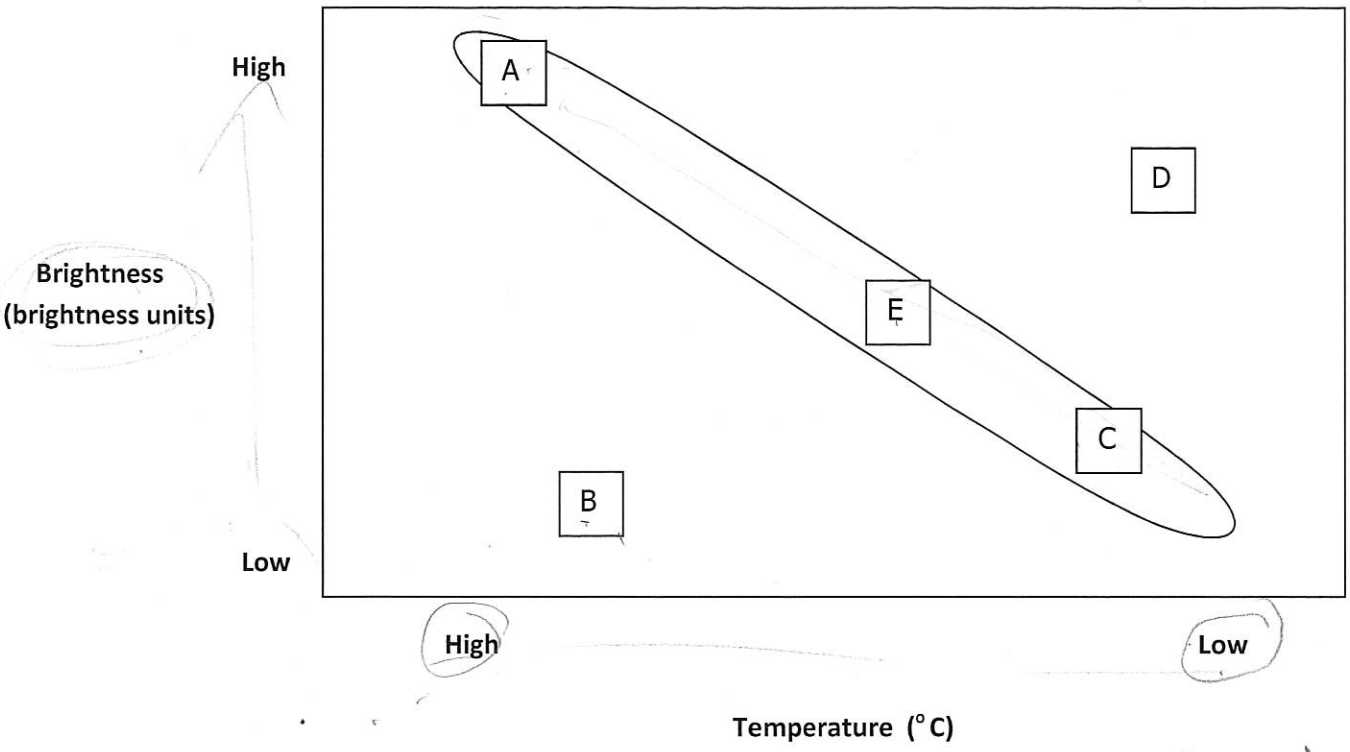
Blue white yellow orange red

ESS 100 (Stapleton)
Star Lifetimes, Part 2

Name: _____

Use the Hertzsprung-Russel diagram (H-R diagram) below to answer the following questions. Mark the correct letter as indicated on the chart. The boxes represent stars



16. What is the name of this type of diagram? Hertzsprung-Russel (H-R) diagram

17. Where are the hottest stars in the diagram? ~~A~~ Left side

18. Where are the brightest stars? ~~A~~ Top

19. Which of the stars are *main sequence* stars? A, E, C

20 What do all *main sequence* stars have in common? they are fusing Hydrogen into Helium

21. Which star is the brightest? A

22. Which star would be considered a red giant? D (red → cool, giant → bright)

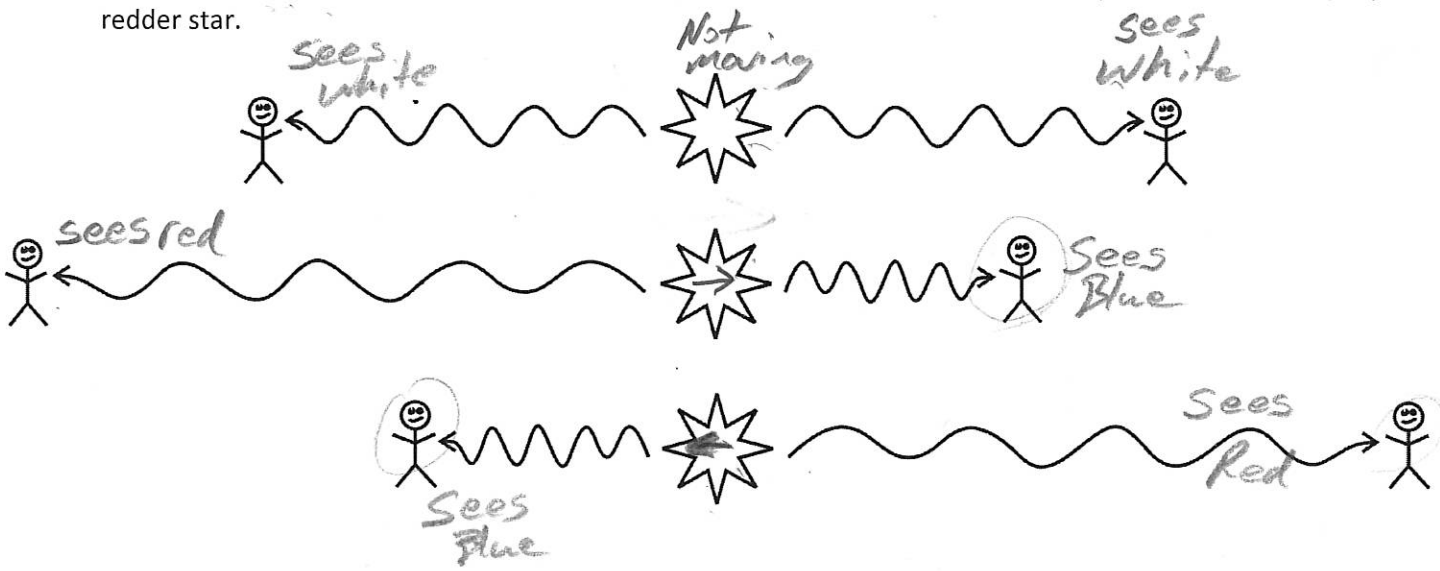
23. What star is most likely to be a white dwarf? B (white → hot dwarf → dim)

24. Which star has the hottest surface temperature? A

25. Which letter could represent the present day Sun? E (Yellow, medium size)

26. Which star is most likely to be blue? A (Because it's hottest)

9 The diagrams below show three white stars and light leaving those stars. For each star, show its direction of movement (if any). Then tell whether the observer would see a white star, a slightly bluer star, or a slightly redder star.



10. When we point our telescopes at stars in very distant galaxies, we can tell that those galaxies are moving away because the light from those stars is red shifted (red-shifted or blue-shifted). This provides evidence for the Big Bang because it shows that the Universe is expanding.

27. According to current scientific understanding, the universe came into existence in an event called the Big Bang.

a. How large was the universe at the first moment of this event?

Infinitely Small

b. How long ago did this happen?

13.8 Billion years ago

c. How do we know the age of the universe?

28. Briefly describe three pieces of evidence that support the Big Bang theory.

1. Almost all galaxies have a red-shift, which means they are moving away from us. This is consistent with a universe expanding after a "Big Bang"

2. Cosmic Background Radiation (CMB) This is heat that is left over from the Big Bang. We can still see this heat, spread throughout the Universe. (Although, now it has cooled down)

3.