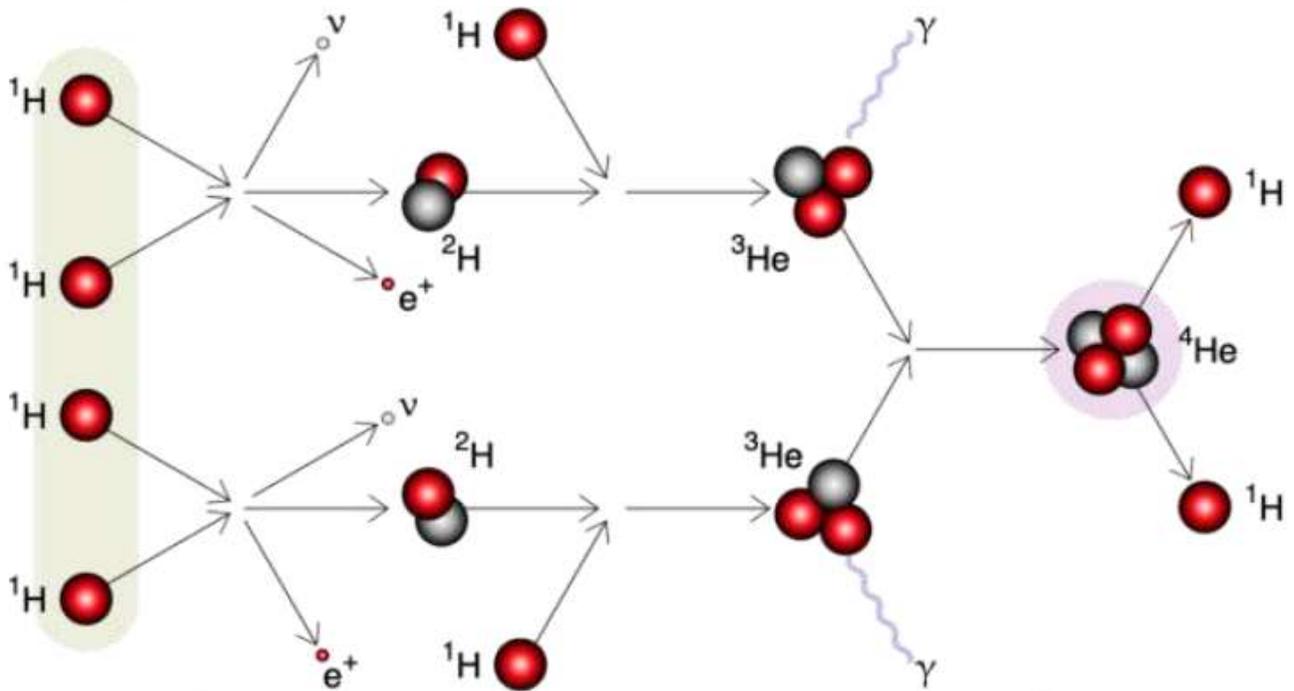
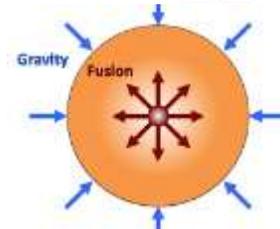


3. Early scientists, like Lord Kelvin, were puzzled how the sun could ‘burn’ for billions of years without running out of fuel. **Explain the processes that enables stars like our sun to release vast amounts of energy for billions of years.** When possible, reference the image below in your explanation. Include and underline the following: *Coulomb barrier*, *proton-proton chain*, *gamma radiation*.

Score: _____ Comments:



4. The relationship between gas pressure and temperature is a primary determinant of whether nuclear fusion can occur within a ball of gas. This also determines the lifespan of a star. **In the space below, explain how gravitational pressure affects nuclear fusion.** Include and underline the following: *gas laws*; *Coulomb barrier*; *hydrostatic equilibrium*;

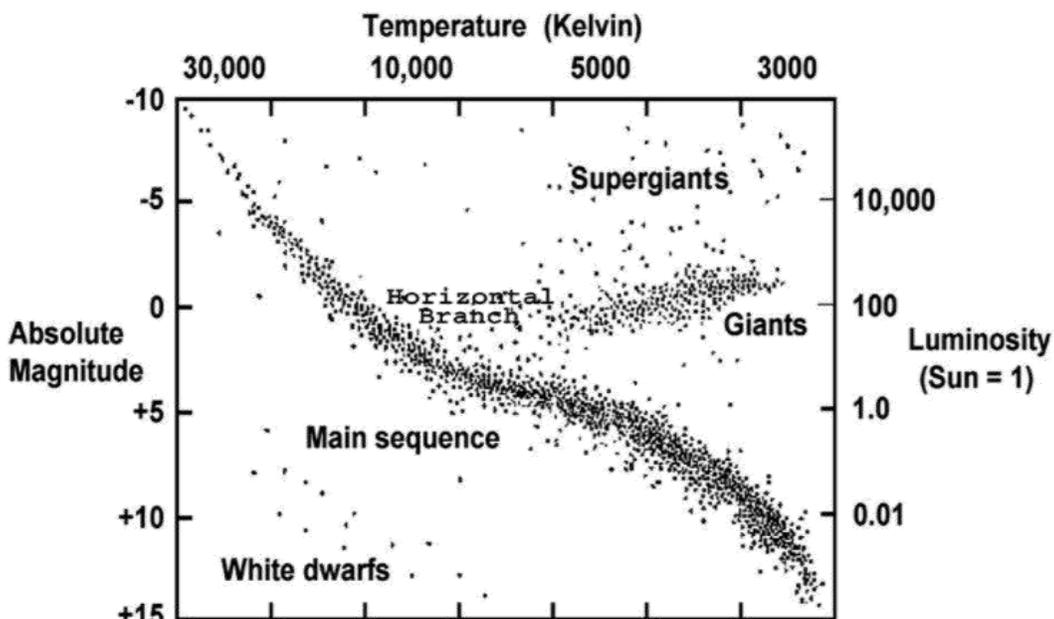


Score: _____ Comments:

5. **How can the H-R Diagram below be used to determine a star's internal structure, lifespan, and final stages?** When possible, reference the image below in your explanation. Include and underline the following: *main sequence*; *low-mass stars*; *giants*; *white dwarfs*; *high-mass stars*; *supergiants*.

Image source: https://chandra.harvard.edu/graphics/edu/formal/variable_stars/HR_diagram.jpg

Score: _____ Comments:



6. The life cycles of most stars ultimately end in three possible outcomes. **Briefly summarize each of these three outcomes and explain how each outcome occurs.** Include and underline the following: *planetary nebula; supernova.*

White Dwarf:

Neutron Star:

Black Hole:

Score: _____ Comments:

7. As high mass stars age, their cores eventually accumulate greater and greater proportions of iron. **Why does this limit the lifespan of stars?** When possible, reference the image below in your explanation. Include and underline the following: *mass-defect; binding energy; atomic stability.*
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-
-
-

Score: _____ Comments:

