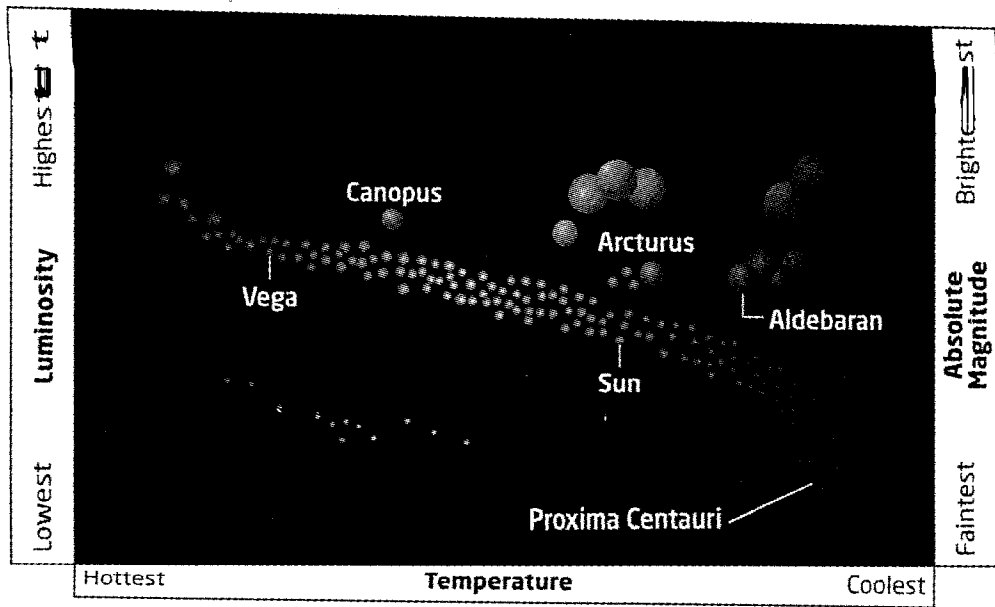


20. How do scientists know that the Sun and other stars are made of hydrogen and helium?

22. Six stars are shown on the Hertzsprung–Russell diagram below: Arcturus, Proxima Centauri, Canopus, the Sun, Aldebaran, and Vega.
- a. Which star is the brightest? Explain your answer.
  - b. Which star is the coolest? Explain your answer.
  - c. Which stars are on the main sequence? Explain your answer.

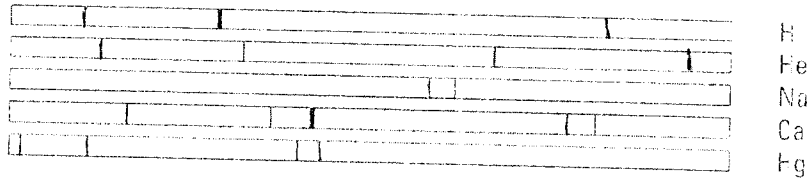


23. What does a Hertzsprung–Russell diagram show?

Scientists are recording spectroscopic patterns for all elements found on Earth. These patterns tell us what elements are contained in certain compounds.

**Activity**

After comparing the spectroscopic patterns of the four stars with the spectroscopic patterns of the elements below, list the elements found in the stars.



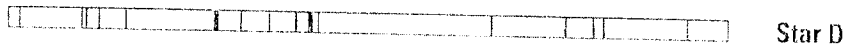
Star A contains \_\_\_\_\_



Star B contains \_\_\_\_\_

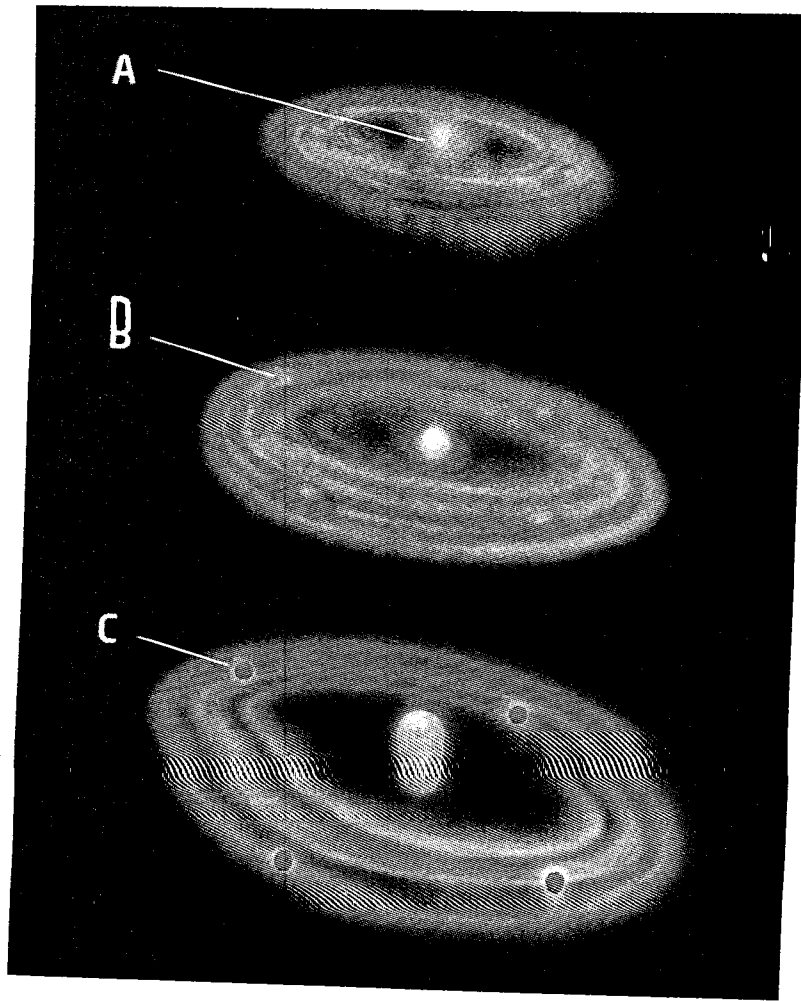


Star C contains \_\_\_\_\_



Star D contains \_\_\_\_\_

16. The illustration below shows three stages in the formation of a solar system.
- Identify object A. What causes object A to form?
  - Identify objects B and C. How does object B become object C?



(c) What are 2 pieces of evidence to support this theory?

Dr. Carl Sagan once said, "We are made of star stuff."  
Write a short paragraph that explains what this quote means.

illustrate the life-cycle of (a) a star like our Sun  
Use a flowchart. (b) a massive star