

Stars and the Hertzsprung-Russell Diagram

Lesson Title: *How Old Are the Stars?*

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Use information from the The Science Museum of Virginia <http://www.smv.org/jims/l6.htm> website to answer the following questions on a separate sheet of paper.

1. What variables does the HR diagram compare?
2. Describe why it is possible to relate the temperature of a star to its luminosity, or brightness.
3. Why is measuring the luminosity of stars difficult?
4. What star serves as a standard of comparison against which the luminosity of other stars is measured?
5. Sketch and label the HR Diagram. Make sure to label the axes, the main sequence, white dwarves, giants, and super giants.
6. What do the letters at the bottom axis of the HR Diagram represent?
7. What are the four important things to note about the HR Diagram?
8. Are blue stars hotter or cooler than red stars?
9. If a star has a luminosity of ten thousand (10,000), how many times brighter is it than the sun?
10. How does the brightness of white dwarfs relate to that of the sun?

Go to the next page of the same website to answer the following.

The Science Museum of Virginia <http://www.smv.org/jims/l6a.htm>

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11. Describe the general trend between temperature and luminosity that the Main Sequence shows.
12. Why do giant stars differ from stars in the Main Sequence?
13. How do white dwarf stars differ from stars in the Main Sequence?

Go to the next page of the same website to answer the following questions.

The Science Museum of Virginia <http://www.smv.org/jims/l6b.htm>

14. Describe stars A, B, C, and D in terms of both their brightness and temperature.
15. The sun is a Main Sequence star. The HR Diagram tells us the luminosity of the sun. Using this information and the HR Diagram, determine what the sun's class might be as a star.