Regents Earth Science
The HR Diagram

Name_____

Date _____ Period____

http://casswww.ucsd.edu/public/tutorial/HR.html

1. How are the HR diagrams on the web page below similar, and how are they different from the HR diagram on the reference tables?

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2. If a star is cooler (redder) than the sun, how could it possibly be brighter than the sun? (Hint: What are such stars called?)

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3. What name is given to stars that are hotter, yet dimmer than the Sun? If they're so hot, why aren't they very bright?

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4. What aspects of a star change during its lifetime?

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5. If we plotted a single star on the HR diagram, and watched it for hundreds of millions of years, what would we notice about it's position on the HR diagram over time?

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http://casswww.ucsd.edu/public/tutorial/StevI.html

1. About how long did it take the young "protostar" on the HR diagram here to become a "pre-main sequence" star? What changes occurred with regard to temperature, luminosity, and size?

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2. About how long does a star remain on the "main sequence"? The Sun is about 5 billion years old. Will human beings eventually have to redraw the position of the Sun on the HR diagram? Explain!

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3. What happens during the "planetary nebula" phase?

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4. As a star collapses into white dwarf, its density increases. How dense does it become?

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http://casswww.ucsd.edu/public/tutorial/StevII.html

1. Scroll down to the HR diagram labeled "Schematic H-R Diagrams for star clusters in the Milky Way" Note that the stars in several of the clusters are veering off the main sequence. We can estimate the age of the clusters by where the stars in them are on the HR diagram.
2. Find the HR diagram labeled "The H-R Diagram for a Globular Cluster, M3, in the galactic halo". In which direction(s) do the stars appear to drift from the main sequence?

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3. Which stars have drifted the farthest (hot, bright OR cool,bright OR hot, dim OR cool,dim)?

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http://www.astro.ubc.ca/~scharein/a311/Sim/hr/HRdiagram.html

1. Run the HR simulator with 100 stars. How does the simulator agree with your answer to #3, above?

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