

VOLBERS PHYSICAL SCIENCE

Ch 26 - Astronomy

5/2 - 5/6

| date | class plan | homework |
|---------------------|--|---|
| Monday 5/2/16 | HR diagram online activity (first 2 pages) | start Ch 26 summary questions |
| Tuesday 5/3/16 | <u>meet in Planetarium!!!</u> presentation from Mr. Child | finish Ch 26 summary questions |
| Wednesday 5/4/16 | finish online HR diagram activity + summary from planetarium talk | finish all Mon- Wed assignments + check your answers! |
| Thursday 5/5/16 | H-R diagram graphing activity in class | finish H-R diagram questions |
| Friday 5/6/16 | Finish watching "The Martian" or "10 ways to destroy the Earth" <u>PACKET DUE</u> | no homework! flex night! have a great weekend! |

~~Monday~~ 5/2

Name: _____

HR Diagram online activity

1. Open a web browser and go to http://aspire.cosmic-ray.org/Labs/StarLife/starlife_main.html
2. READ the information on the table of contents page and answer the following questions:
 - a. Based on your age, what type of star would you be?
 - b. What is the main gas in most stars?
 - c. Where are stars born?
3. Click on "Introduction" under the Hertzsprung-Russell Diagram
4. READ the information on the table of contents page and answer the following questions:
 - a. What is a Hertzsprung-Russell Diagram?
 - b. What are the two things that a star's position on the H-R diagram tells us?
 - c. What is luminosity?
 - d. What is absolute magnitude?
 - e. What is on the horizontal axis of the diagram?
 - f. Where is our sun on the diagram?

~~Monday 5/12~~

Name: _____

5. Click on the "Interactive Lab" Activity and answer the questions below: (write in the correct answers below AFTER you have checked your answers in the simulation)

a. Betelgeuse

i. Temp = _____

ii. Brightness = _____

b. Alpha Centauri

i. Temp = _____

ii. Brightness = _____

c. Our Sun

i. Temp = _____

ii. Brightness = _____

d. Vega

i. Temp = _____

ii. Brightness = _____

e. Sirius B

i. Temp = _____

ii. Brightness = _____

6. Next part of interactive lab (click the forward arrow in the bottom right corner)

Click on the image to begin the activity, and answer the following questions:

a. Which hypothesis would match this background information? (circle one below)

i. For all stars of the same size, brighter stars will have a lower surface temperature.

ii. For all stars of the same size, brighter stars will have a higher surface temperature.

b. The sun is a main sequence star. Where would you expect to find other main sequence stars of the same size on this diagram? (circle one below)

i. The 10r line

ii. The r line

iii. The 0.1r line

c. Circle the description below that is correct:

i. The hottest main sequence stars are much *smaller* than the sun

ii. The hottest main sequence stars are much *bigger* than the sun

d. Circle which hypothesis is true then:

i. For all stars of the same size, brighter stars will have a *lower* surface temperature

ii. For all stars of the same size, brighter stars will have a *higher* surface temperature

Wednesday

Name: _____

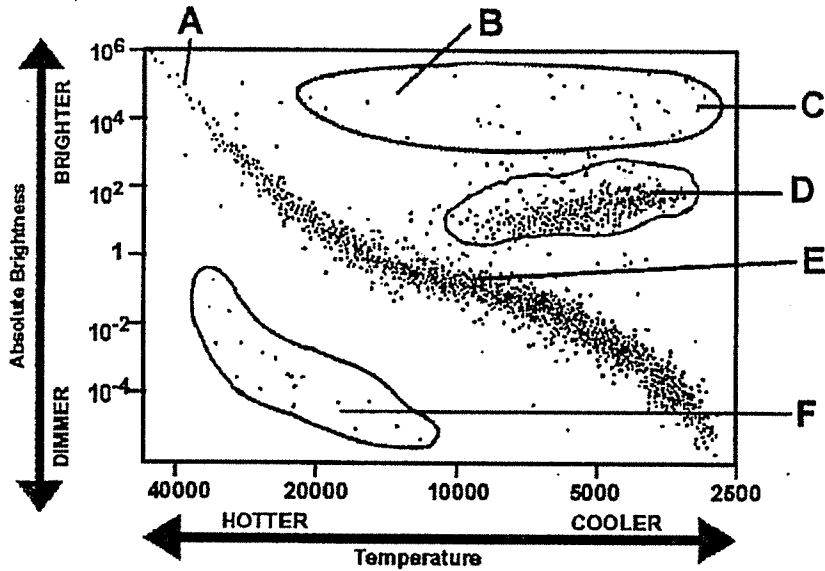
Once you get back to the "HR Interactive Diagrams" page scroll down and click on the "More HR diagram Fun" (you're almost done!) Click the picture for interactive version with questions.

1. Circle which of the stars is oldest in terms of its life cycle? a b c d e
2. Circle the stars which are burning hydrogen as fuel. a b c d e
3. Circle the stars which are burning helium as fuel. a b c d e
4. Circle the star which is closest to death. a b c d e
5. Circle the star that has the highest luminosity. a b c d e
6. Circle what causes the star with the highest luminosity to be the brightest?
 - a. Surface temperature
 - b. Size
7. Circle the star that has the lowest luminosity. a b c d e
8. Circle what causes the star with the lowest luminosity to be the dimmest?
 - a. Surface temperature
 - b. Size
9. Circle the star that has the highest surface temperature. a b c d e
10. Main sequence stars will become red giants when they run out of what fuel?
 - a. Helium
 - b. Carbon
 - c. Hydrogen
11. Will the three main sequence stars ever become white dwarfs? YES or NO
12. Was Star E (Sirius B) ever a main sequence star? YES or NO
13. Predict what phase Vega will enter next: _____
14. Predict what phase Betelgeuse will enter next: _____
15. If you were a star, what would your name be? _____

Tuesday - after planetarium talk
5/3

Name _____

1. Use the H-R diagram below to answer the following questions.



- a. Which letter corresponds to a sun-like star? _____
- b. Which letter corresponds to a blue supergiant? _____
- c. Which letter corresponds to a white dwarf? _____
- d. Which letter corresponds to a red supergiant? _____
- e. Which letter corresponds to an old star that was once a sun-like, main sequence star? _____

2. Write a summary paragraph on why the H-R diagram is useful to astronomers?
[key words: color, wavelength, energy, mass, temperature, brightness]