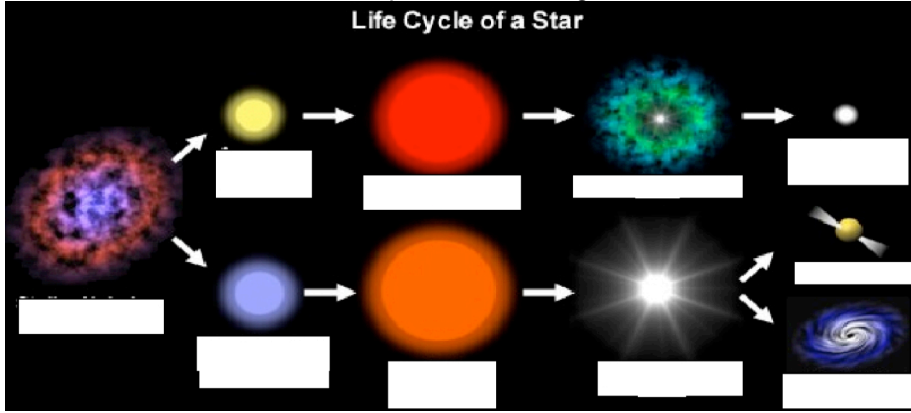
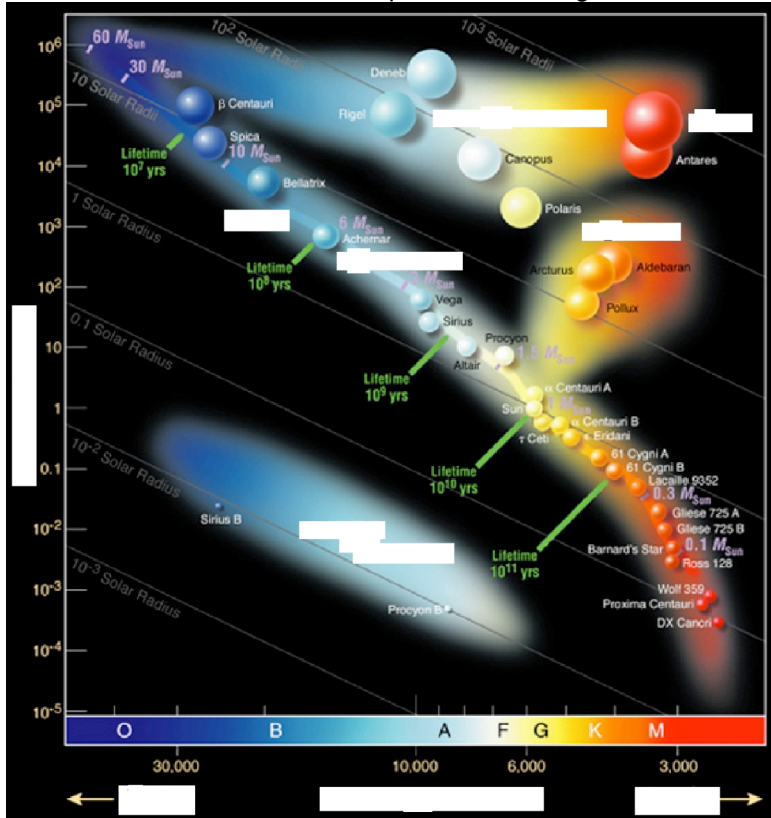


The Universe Beyond

Complete the labeling



Complete the labeling



Section 1: Stars (p 484-490)

Skim the section “Color of Stars” on page 484 and match the item to the star color & to the correct temperature by drawing a line. (use color pencils)

- | | | |
|----------------|--------|---------|
| Bunsen Burner | Red | Medium |
| Candle Flame | Yellow | Hottest |
| Campfire Ember | Blue | Coolest |

Use pages 484-485 to fill in the blanks:

When you look at a white light through a glass prism, you see a rainbow. This rainbow of colors is called a continuous spectrum. ... Stars are made of various gases that are so dense, they act like a hot solid. For this reason, the “surface” of a star, or the part that we see, gives off a continuous spectrum. ... If we were to look at [a neon] sign with an astronomer’s spectrograph, we would not see a continuous spectrum. Instead, we would see a line spectrum.

How are stars “classified”? by temperature and luminosity

Complete the chart below:

Types of Stars			
Class	Color	Surface Temperature (°C)	Elements Detected
O	Blue	Above 30,000	
B			Helium & Hydrogen
F	Blue-white	7,500 – 10,000	
	Yellow	5,000 – 6,000	Calcium & other metals
	Orange		Calcium & molecules
M		Less than 3,500	

What class does our sun belong in? G

What color is our sun? Yellow

A) Define apparent magnitude:

B) Define absolute magnitude:

C) Explain the difference between the two.

What unit do scientists use to measure distance to the stars? (Choose one)

a. Astronomical Units b. kilometers c. light-minutes d. light-years

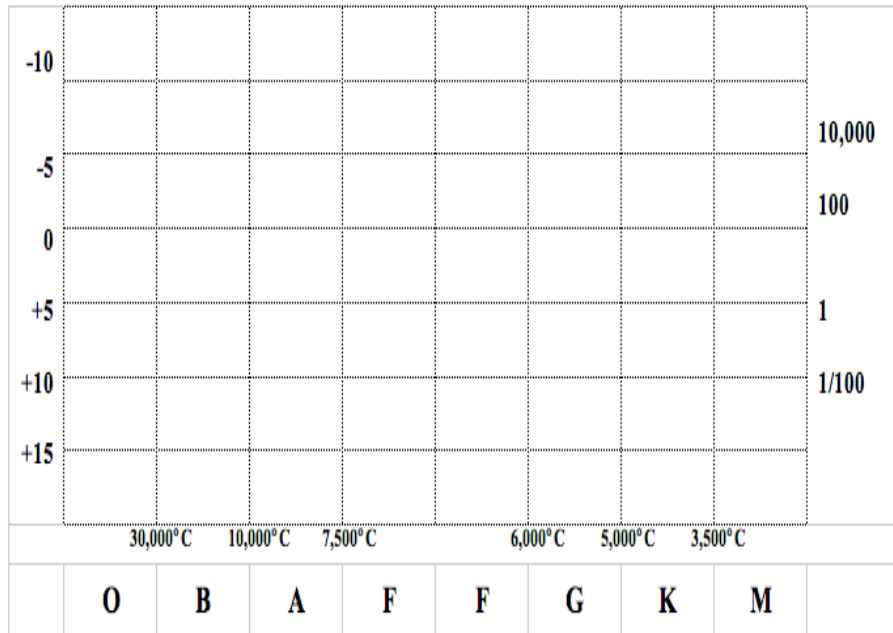
Section 2: The Life Cycle of Stars (p 491-495)

What is the H-R diagram?

Look at the H-R Diagram on pages 492-492.

Draw in some of the stars and label the chart below using the following words: Absolute Magnitude, Relative Magnitude, Spectral type,

Blue stars, white-dwarf stars, the sun, red-dwarf stars, Main Sequence, Giants & Supergiants.



Section 3: Galaxies (p 496-499)

Use pages 496-497 to complete the chart below:

Types of Galaxies		
Name	Description	Picture
<i>Spiral Galaxy</i>		
<i>Elliptical Galaxy</i>		
<i>Irregular Galaxy</i>		

Use page 498 to define the terms below:

Gas Cloud: _____

Open Cluster: _____

Globular Cluster: _____

Copy Figure 18 in this box

Vocabulary: Section 1-2-3

Word/pg	Definition: From the Chapter. Be sure to write the pg
spectrum	_____ _____
Apparent Magnitude	_____ _____
Absolute magnitude	_____ _____
Light year	_____ _____
parallax	_____ _____
White dwarf	_____ _____
Red giant	_____ _____
supernova	_____ _____
Neutron star	_____ _____
pulsar	_____ _____
Black hole	_____ _____
galaxy	_____ _____
nebula	_____ _____
quasar	_____ _____

Teach a parent: Today's concept :

Life cycle & color of stars: What they are, how they are different

Help your parent become an expert !

Be sure they write what they have learned from your teaching

Parent Response

1. _____ I'm not sure my child really understands, therefore, I don't either.
Please work with him/her and let's try again.
2. _____ The concept was explained thoroughly with effective examples he/she created.
"By golly, I think they've got it!"
3. _____ WOW! My child did an exceptional job! It was logically explained, therefore I caught on immediately and feel confident about teaching it to others. The self-created examples were a perfect fit. My child even asked me a question at the end to make sure I understood.
I believe my child could effectively teach this concept to others.

Parent Signature: _____ Date: _____

Mom or Dad Comments: Please explain how your student taught you this concept and * what you learned in 3-5 sentences! * This is critical for them to receive full points

Additional space for notes:

Teach a parent: Today's concept :

Types of galaxies: What they are, how they are different

Help your parent become an expert !

Be sure they write what they have learned from your teaching

Parent Response

1. _____ I'm not sure my child really understands, therefore, I don't either.
Please work with him/her and let's try again.
2. _____ The concept was explained thoroughly with effective examples he/she created.
"By golly, I think they've got it!"
3. _____ WOW! My child did an exceptional job! It was logically explained, therefore I caught on immediately and feel confident about teaching it to others. The self-created examples were a perfect fit. My child even asked me a question at the end to make sure I understood.
I believe my child could effectively teach this concept to others.

Parent Signature: _____ Date: _____

Mom or Dad Comments: Please explain how your student taught you this concept and * what you learned in 3-5 sentences! * This is critical for them to receive full points

Additional space for notes:

Review Questions:

1. A star's ___ magnitude does not depend on its distance from Earth.
a. big bang theory b. absolute c. cosmology d. apparent e. elliptical
2. The study of the formation of the universe is called ___
a. big bang theory b. absolute c. cosmology d. apparent e. elliptical
3. Our sun is located in the arm of a pinwheel-shaped ___ galaxy called the Milky Way
a. spiral b. absolute c. black hole d. neutron e. elliptical
4. A ___ is so small and massive that not even light can escape its gravitational pull.
a. spiral b. absolute c. black hole d. neutron e. elliptical
5. Elliptical galaxies and the halos of spiral galaxies contain groups of stars called:
a. spiral b. globular clusters c. black hole d. supernovas e. elliptical
6. Which of the following magnitudes indicates the brightest star?
a. -1 b. 0 c. -0.11 d. +4
7. Which of the following is the largest?
a. nebula b. galaxy c. neutron star d. globular cluster
8. Which of the following is hottest?
a. red supergiant star b. small black-dwarf star c. yellow star d. blue star
9. According to the big bang theory, the universe is about:
a. 470 billion yrs old b. 500 billion yrs old c. 4.7 billion yrs old d. 15 billion yrs old
10. A star's apparent magnitude is dependent on
a. its distance from Earth b. its energy output c. its size d. all of the above
11. The galaxies pictured would *best* be classified as
a. irregular galaxies b. symmetrical galaxies
c. barred galaxies d. spiral galaxies
12. A galaxy is *best* described as a cluster of
a. millions of stars b. billions of stars.
c. hundreds of stars d. thousands of stars
13. To express the distance between the Milky Way galaxy and other galaxies, the *most* appropriate unit of measurement is the
a. meter b. kilometer c. light-year d. astronomical unit
14. Which of the following sets contains only objects that shine as a result of reflected light?
a. moons, planets & comets b. planets, stars & comets c. moons, comets & stars d. planets, stars & moons
15. The universe contains galaxies, stars, and planets. How does gravity affect these bodies in space?
a. Gravity pulls bodies away from each other.
b. Gravity organizes bodies into nebulas, galaxies, and planetary systems.
c. Gravity attracts bodies with similar compositions to each other.
d. Gravity causes bodies to be scattered randomly throughout the universe.

