

CH 25: BEYOND OUR SOLAR SYSTEM STUDY GUIDE

Vocabulary

constellation, binary star, light-year, apparent magnitude, absolute magnitude, main-sequence star, red giant, supergiant, cepheid variable, nebulae, protostar, supernova, white dwarf, neutron star, black hole, galaxy, galaxy cluster, big bang theory

Student Objectives

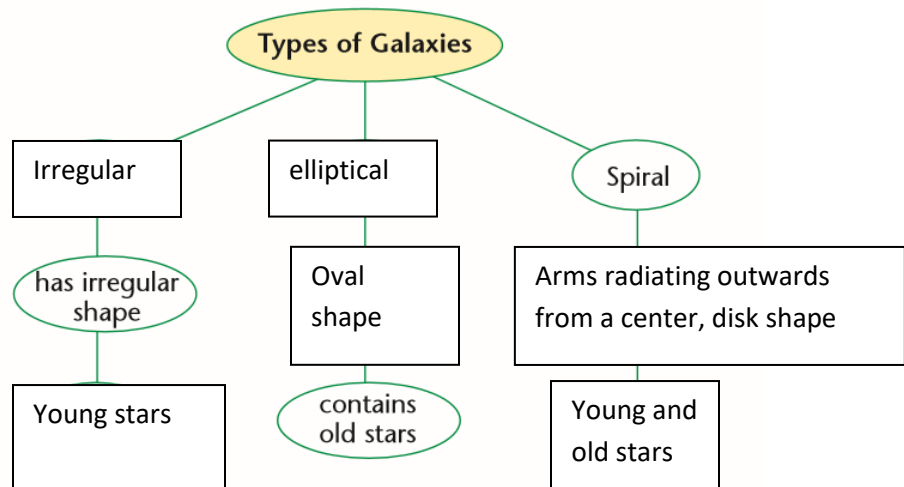
		A	B	C	D	F
25.1	Describe what astronomers can learn by studying star properties.					
	Explain how distance affects parallax.					
	List the factors that determine a star's apparent magnitude.					
	Describe the relationship shown on a Hertzsprung-Russell (H-R) diagram.					
25.2	Identify which stage marks the birth of a star.					
	Explain why all stars eventually die.					
	List the stages of the star's (sun's) life cycle.					
25.3	Describe the size and structure of the Milky Way Galaxy.					
	List the ways in which galaxies differ from one another.					
	Cite the evidence that indicates that the universe is expanding.					
	Describe the two main theories of the universe. (steady state & Big Bang)					

Multiple Choice

- Distances to stars are usually expressed in units called
 - miles.
 - kilometers.
 - light-years.
 - astronomical units.
- The measure of a star's brightness is called its
 - parallax.
 - color index.
 - visual binary.
 - magnitude.
- Distances to nearby stars can be determined from
 - fluorescence.
 - stellar parallax.
 - stellar mass.
 - emission nebulae.
- Which color stars have the highest surface temperature?
 - red
 - orange
 - yellow
 - blue
- Which type of star is the sun?
 - black hole
 - black dwarf
 - main sequence
 - red giant
- What happens to a sun-like star after it has used up all the fuel in its core?
 - Supernova
 - neutron star
 - red giant
 - nebula
- Which object has such a strong surface gravity that light cannot escape it?
 - black hole
 - black dwarf
 - red giant
 - white dwarf
- Stars that are composed of matter in which electrons have combined with protons are called
 - black holes.
 - neutron stars.
 - red giants.
 - white dwarfs.
- Which sequence of events describes the big bang theory? Begin with the earliest event.
 - Explosion; atoms form; stars form; all matter concentrated at a single point.
 - All matter concentrated at a single point; explosion; atoms form; stars form.
 - Explosion; stars form; all matter concentrated at a single point; atoms form.
 - Stars form; atoms form; all matter concentrated at a single point; explosion.
- Based on the red shifts of distant galaxies astronomers conclude that
 - Earth is in the center of the universe.
 - the universe is contracting.
 - the universe is expanding.
 - new galaxies are continually being added to the universe.

Concept Map

- 1) Use information from the chapter to complete the concept map below.



Understanding Concepts

- 2) Which property of a star can be determined by its color? **Temperature**
- 3) About how many stars are estimated to occur in pairs or multiples? **50%**
- 4) What is parallax? **is the slight shifting in apparent position of nearby stars due to orbital motion of Earth**
- 5) Compare and contrast apparent magnitude and absolute magnitude. **Apparent is how bright a star appears to us and absolute is how bright it actually is.**
- 6) What color is the most massive type of main sequence star? The least massive? **Blue = Most massive Red = Least**
- 7) What type of stars end their lives as a supernova? **Massive stars**
- 8) More distant galaxies have greater red shifts. What does this indicate about the universe? **The Universe is expanding**
- 9) What is cosmic background radiation? **Energy produced by Big bang**

Critical Thinking

- 10) **Inferring** - Would you use parallax to determine the distance to a faraway star? Why or why not? **No, too small**
- 11) What types of stars are thought to be the remnants of supernova explosions? **Neutron stars**
- 12) What is the correct life cycle of a sun-like star? **Nebula – Main sequence – red giant – planetary nebula – white dwarf – black dwarf**

Analyzing Data

Use the diagram below to answer Questions 14–21

- 13) **Interpreting Graphs** - What is the hottest? **B**
- 14) **Analyzing Data** - How does the absolute brightness of white dwarfs compare with that of super giants? **Low to high**
- 15) **Summarizing** - What is the relationship between absolute brightness and temperature for a main sequence star? **Hotter/brighter cooler/dimmer**
- 16) Which letter is the sun? **C**
- 17) Which letter are cool, small, red stars? **D**
- 18) Which letter are white dwarfs (small faint stars)? **E**
- 19) Which letter are red giants (bright cool stars)? **A**
- 20) Which letter are hot, large, blue stars? **B**

