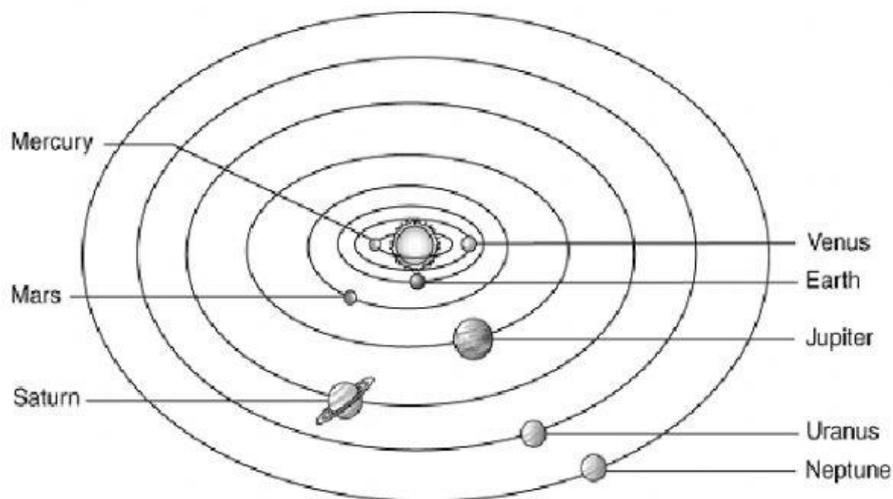


### Multiple Choice

Identify the choice that best completes the statement or answers the question.

- \_\_\_ 1. Celestial bodies can be classified based on their sizes. Which of the following is the smallest?
- A. a blue supergiant
  - B. a planet
  - C. a red giant
  - D. a red supergiant
- \_\_\_ 2. One way to compare the objects in space is by their relative sizes. Which of the following correctly lists the objects in space in order from largest to smallest?
- A. universe, galaxy, star, planet
  - B. universe, galaxy, planet, star
  - C. galaxy, universe, star, planet
  - D. galaxy, universe, planet, star
- \_\_\_ 3. A student asked to draw a solar system produced the following diagram..



Is the student correct?

- A. yes, because the diagram shows several planets orbiting a star
  - B. yes, because a solar system must contain only one star at the center
  - C. no, because the diagram does not show objects in orbit around a star
  - D. no, because a solar system must contain several stars at different stages in their life cycles
- \_\_\_ 4. Earth's sun and the objects that orbit it are part of a larger group of gas, dust, stars, and other space objects called the Milky Way. What is the Milky Way?
- A. a constellation
  - B. a galaxy
  - C. a solar system
  - D. a void

5. Star systems are made up of a single star or a small number of stars that orbit each other. The table below summarizes the number of stars in some star systems and gives examples of each type of system.

**Types of Star Systems**

Type of Star System	Number of Stars	Example
Single	1	Sun
Binary	2	Sirius
Triple	3	Polaris
Quadruple	4	Mizar
Quintuple	5	Sigma Orionis
Sextuple	6	Castor

Carlos is studying a star system that appears to have two stars. When a more powerful telescope provides a better image, he discovers that one of the stars is actually two stars. With which other star system would he classify this system?

- A. Sirius
- B. Mizar
- C. Castor
- D. Polaris

6. Which of the following statements best describes a binary star system?

- A. Two stars orbit each other.
- B. Two pairs of stars orbit each other.
- C. A star appears blue in the night sky.
- D. A star is orbited by a gas giant planet.

7. The table below compiles information about the distance of various stars from Earth, their apparent magnitude, and their absolute magnitude.

**Apparent Magnitude and Absolute Magnitude of Various Stars**

Star	Distance from Earth (ly)	Apparent Magnitude	Absolute Magnitude
Sirius	8.6	-1.46	1.4
Vega	25	0.03	0.6
Arcturus	34	-0.04	-0.3
Aldebaran	60	0.85	-0.3
Rigel	1,400	0.12	-8.1
Betelgeuse	1,400	0.50	-7.2

Which star has the greatest luminosity?

- A. Sirius
- B. Rigel
- C. Arcturus
- D. Betelgeuse

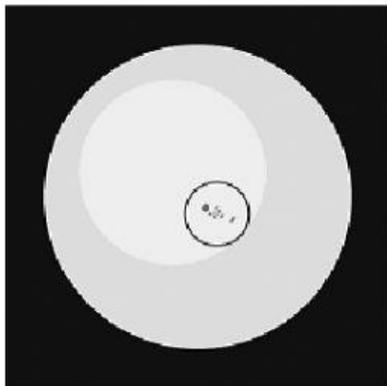
8. Which statement best describes stars?

- A. large planets that are composed mostly of gases
- B. celestial bodies made up of gas that give off light
- C. objects that form in the outer parts of the solar system
- D. faint dots of light that can be seen from Earth's surface

9. Which stage in the life cycle of a high-mass star is characterized by the star collapsing and throwing its outer layers into space?

- A. a black hole
- B. a supergiant
- C. a supernova
- D. a neutron star

- \_\_\_ 10. Stars have different life cycles depending on the mass of the star. Which of the following is in correct order, beginning with nuclear fusion and ending with the end-of-life cycle stage?
- A. nuclear fusion, giant, white dwarf
  - B. nuclear fusion, supergiant, neutron star
  - C. nuclear fusion, giant, supernova, neutron star
  - D. nuclear fusion, supergiant, supernova, white dwarf
- \_\_\_ 11. Which of the following ends its life cycle in the form of a neutron star or a black hole?
- A. a galaxy
  - B. a constellation
  - C. a low-mass star
  - D. a high-mass star
- \_\_\_ 12. When does a low-mass star become a giant?
- A. when a star collapses and explodes, throwing its outer layers into space
  - B. when the outer layers of the star are ejected and the core of the star is exposed
  - C. when fusion slows down, the outer atmosphere of the star expands, luminosity increases, and helium fuses into carbon
  - D. when fusion slows down, the star expands, luminosity increases greatly, and nuclei fuse to form elements heavier than carbon
- \_\_\_ 13. Here is an image of the sun.

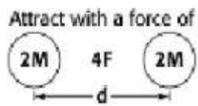
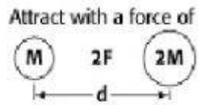
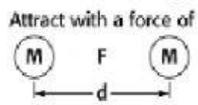


What is the name of the object that can be seen in the circled area of the sun?

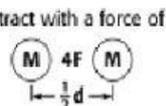
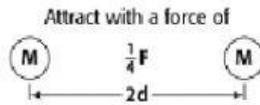
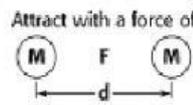
- A. sunspot
  - B. solar flare
  - C. prominence
  - D. gamma rays
- \_\_\_ 14. The sun is made up of six different layers. Three of these layers make up the interior of the sun. The remaining three layers make up the sun's atmosphere. Which is the innermost layer of the sun?
- A. core
  - B. corona
  - C. chromosphere
  - D. convective zone

15. The diagram below shows the effect of mass and distance on the force of gravity.

Effect of Mass on  $F_{\text{grav}}$



Effect of Distance on  $F_{\text{grav}}$



Which configuration will result in the **greatest** gravitational force?

- A. small masses far apart
- B. large masses far apart
- C. small masses close together
- D. large masses close together