

MODULE 5

SPACE ENVIRONMENT

Chapter 1 - Space

Learning Outcomes

After completing this chapter, you should be able to:

- Describe microgravity.
- Identify characteristics of space.
- Describe what makes up the universe.
- Define constellation.
- Define galaxy.
- Describe nebulae.
- Define interplanetary and interstellar space.

Chapter 2 - Solar System

Learning Outcomes

After completing this chapter, you should be able to:

- Describe our solar system.
- State basic facts about the planets in our solar system.
- Define a comet.
- Explain the differences between an asteroid, meteoroid and a meteor.
- Recall the differences between solar flares, solar prominences and sunspots.

Chapter 1 - Space

1. _____ is a region beyond the Earth's atmosphere where there is very little molecular activity.
2. Many people generally agree that space occurs at about _____ miles outward from Earth.
3. The _____ includes everything, stars, planets, galaxies, animals, plants and humans.
4. Space is characterized by a lack of _____.
5. Small or low gravity is called _____.
6. Our sun, which is the center of our solar system, is but a tiny spot in our _____. In fact, there are _____ in our galaxy, and our galaxy is just one of _____ of galaxies.
7. A _____ is an enormous collection of stars, and these stars are arranged in a particular shape. The three main shapes are _____, _____ and _____.
8. _____ is oval shaped. _____ has arms spiraling outward from a center. _____ has no particular shape.
9. Our galaxy is called the _____. It is _____ shaped.
10. Galaxies contain giant clouds of gas and dust called _____.

11. _____ are bodies of hot gases.
12. The _____ is a part of the atmosphere divided by its electrical activity.
13. The _____ is the primary cause of the Van Allen belts.
14. Most stars are composed of _____ and _____ in their gaseous state.
15. About half of all stars come in pairs with the stars sharing the same gravitational center. These are called _____ stars.
16. A _____ is a grouping of stars that look like imaginary figures.
17. The Big Dipper is an example of a _____.

Chapter 2 - Solar System

18. Our _____ is the sun and the bodies that orbit around it.
19. Without heat and light, the Earth would be a _____, _____ - _____ planet.
20. The central star of our solar system is the _____.
21. The Earth is _____ miles from the sun.
22. The sun is composed of about _____% hydrogen, _____% helium and minor amounts of several other elements. The temperature of the sun ranges from _____°C in its coolest regions to over _____°C at its center.
23. _____ are darker, cooler areas of the sun.
24. _____ are short-lived high-energy discharges.
25. _____ are larger and longer lasting high-energy discharges.
26. The Earth's Moon has a diameter of about _____ miles, which is about _____ of the Earth's diameter. The distance from the Earth to the Moon varies from approximately _____ miles at its farthest point to _____ miles at its nearest point.
27. The Moon rotates on its axis in the same amount of time it takes to orbit the Earth, _____ days. Therefore, the same side of the Moon, the _____ side, always faces the Earth.
28. When the Moon is on the side of the Earth nearer the sun, the Moon is _____. When it is on the opposite side of the Earth, the Moon is _____.
29. Primarily, the Moon has two types of terrain, _____ and _____.
30. Temperatures on the Moon range from about _____° in the day, to below _____° at night.
31. _____ is the closest planet to the sun, and it revolves around the sun every _____ days. Its daytime temperature reaches _____°F, while its nighttime temperatures reach _____°F.
32. _____ is the closest planet to Earth. It revolves around the sun in _____ days. It is the _____ planet in the solar system with temperatures in excess of _____°.
33. _____ is the only known planet to rotate in a _____ manner.
34. The atmosphere of Venus is 96% _____ and 4% _____.
35. The Earth's atmosphere contains 78% _____ and 21% _____.
36. The surface of our planet is covered with over 67% _____.
37. The Earth revolves around the sun in _____ days.
38. Mars is known as the _____ planet and even with the naked eye we can see this _____ color. This color is due to the _____ and _____ covering the surface of Mars.

39. The surface of Mars is covered with deserts, high mountains, deep craters and huge _____. One of Mars' _____ is the highest known mountain in our solar system.
40. The atmosphere of Mars consists of 95% _____. Daytime temperatures on Mars reach _____°F, while nighttime temperatures can dip to _____°F.
41. In July 1997, the space probe called the _____ landed on Mars. The next day the rover, _____, began its exploration of the planet. The rover was _____ feet long and _____ foot tall.
42. Next to Earth, _____ has the most favorable conditions for life of any of the other planets in our solar system.
43. _____ is the largest planet in our solar system. It is _____ times larger than Earth.
44. Jupiter is a gas giant, with _____ accounting for about 90% of the atmosphere, followed by _____, _____ and _____.
45. A distinguishing feature of Jupiter is _____ Spot. This spot is a giant storm that is _____ miles long and _____ miles wide. Also, Jupiter is known for its _____ moons.
46. The rings are the most recognizable feature of _____. The rings are made of _____ chunks of _____ ranging from tiny _____ to large _____.
47. The main rings are made up of hundreds of narrow _____.
48. The entire ring system is about _____ thick and extends about _____ miles from the planet.
49. Saturn has an _____ core surrounded by metallic _____ with an outer layer of _____ and _____.
50. It takes Saturn _____ years to revolve around the sun.
51. The winds of Saturn have been known to reach _____ mph.
52. Saturn is _____ miles from the sun.
53. _____, one of the moons of Saturn, is the only moon in the solar system to have its own _____.
54. _____ is about 1.7 billion miles from the sun. It has a rocky core surrounded by _____, _____ and _____, in both _____ and _____ form.
55. Uranus revolves around the sun in _____ years. Daylight lasts for _____ years followed by _____ years of night.
56. Uranus also has 11 very narrow and black _____ around it.
57. Neptune is about _____ miles from the sun and takes _____ Earth years to complete an orbit.
58. Neptune's atmosphere consists of _____, _____ and _____.
59. The _____ gives Neptune a bluish color.
60. _____ is the most windy planet in the solar system. It has recorded winds of _____ mph.
61. _____ is the smallest planet in our solar system. It is a dark and _____ planet. Its surface is made up of _____.
62. Asteroids, comets and meteoroids are collectively thought of as _____ orbiting in space.

63. _____ are chunks of rock that range in size from particles of dust to some that are a few hundred miles across.
64. Most _____ travel in an orbit between Mars and Jupiter. This area is known as the _____.
65. A _____ is described as a giant dirty _____. It is composed of _____ gases, _____ and _____.
66. _____ are tiny particles of dust and sand that are usually leftover from a comet.
67. If a meteoroid enters the Earth's atmosphere it is called a _____.
68. Meteors that actually hit the Earth are called _____.