

Chapter 19 Earth, Moon, and Sun

Study Guide

1. Earth in Space

a. Days and Years

i. **Astronomy**ii. **Rotation**1. **Axis**iii. **Revolution**1. **Orbit**iv. **Calendars**

b. Seasons on Earth

i. How Sunlight Hits Earth

ii. Earth's Tilted Axis

iii. Earth in June

1. **Latitude**

iv. Earth in December

v. Both June and December

1. **Solstice**

vi. Earth in March and September

1. **Equinox**2. **Vernal Equinox**3. **Autumnal Equinox**

2. Phases, Eclipses, and Tides

a. Motions of the Moon

b. **Phases of the Moon**

i. What Causes Phases?

ii. The Cycle of the Phases

c. **Eclipses**d. **Solar Eclipses**

i. Total Solar Eclipses

1. **Umbra**

ii. Partial Solar Eclipses

1. **Penumbra**

e. **Lunar Eclipses**

i. Total Lunar Eclipses

ii. Partial Lunar Eclipses

f. **Tides**

i. **Gravity**

3. **Rockets and Satellites**

a. How Rockets Work

b. Multistage Rockets

c. Artificial Satellites

i. **Satellites**

1. **Geosynchronous Orbits**

ii. Space Stations

d. Space Shuttles

4. **Earth's Moon**

a. The Structure and Origin of the Moon

b. Looking at the Moon From Earth

i. **Telescope**

ii. **Craters**

iii. **Maria**

c. Missions to the Moon

i. Exploring the Moon

ii. The Moon Landings

iii. On the Surface of the Moon

iv. Moon Rocks and Moonquakes

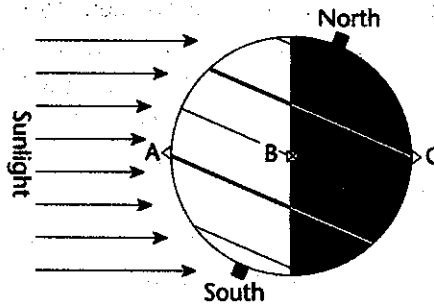
v. Photographs of the Moon

SECTION 19-1 REVIEW AND REINFORCE

Earth in Space

◆ Understanding Main Ideas

Use the following figure to answer the following questions on the back of this page or on a separate sheet of paper.



1. In the diagram, what season is it in North America?
2. Would a person at each of the points A, B, and C see the sun? If so, where would the sun be in the sky?
3. Which is a person standing at point B seeing, sunrise or the sunset? Explain.

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

- _____ 4. astronomy
- _____ 5. axis
- _____ 6. rotation
- _____ 7. revolution
- _____ 8. orbit
- _____ 9. latitude
- _____ 10. equinox
- _____ 11. solstice
- _____ 12. vernal equinox
- _____ 13. autumnal equinox

- a. The path of Earth as it revolves around the sun
- b. Occurs in September and marks the beginning of fall in the Northern Hemisphere
- c. Occurs in March and marks the beginning of spring in the Northern Hemisphere
- d. The study of the moon, stars, and other objects in space
- e. The sun is directly overhead at 23.5 degrees north or south at this time.
- f. Movement of Earth around the sun
- g. Movement of Earth around its axis
- h. The sun is directly overhead at the equator at this time.
- i. Line passing through Earth's center and poles
- j. A measurement of distance from the equator, expressed in degrees north or south

SECTION 19-2

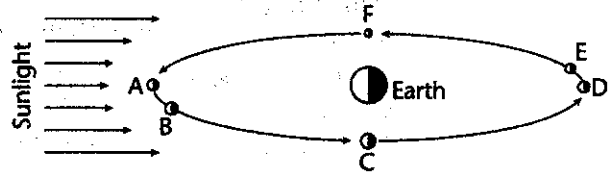
REVIEW AND REINFORCE

Phases, Eclipses, and Tides

◆ Understanding Main Ideas

Use the following figure to answer the following questions on the back of this page or on a separate sheet of paper.

1. What phases of the moon would someone on Earth see when the moon is at positions A through F?
2. In what position must the moon be to cause a solar eclipse? Explain your answer.



◆ Building Vocabulary

From the list below, choose the term that best completes each sentence.

- | | | | |
|---------|-------|---------|----------|
| phase | tides | gravity | lunar |
| eclipse | umbra | solar | penumbra |

3. A(n) _____ occurs when the moon's shadow hits Earth or Earth's shadow hits the moon.
4. A person standing in the moon's _____ would see a partial solar eclipse.
5. Differences in the moon's pull on different parts of Earth cause _____.
6. A person standing in the moon's _____ would see a total solar eclipse.
7. The _____ of the moon you see depend on how much of the sunlit side of the moon faces Earth.
8. A(n) _____ eclipse occurs at a full moon when Earth is directly between the moon and the sun.
9. A(n) _____ eclipse occurs when the moon passes between Earth and the sun.
10. The force of _____ pulls the moon and Earth toward each other.

SECTION 19-3 REVIEW AND REINFORCE

Rockets and Satellites

◆ Understanding Main Ideas

Answer the following questions in the spaces provided.

1. What causes a rocket to move forward?

2. What is the difference between a multistage rocket and a single-stage rocket?

3. Name at least three uses of satellites and space stations.

4. What is the difference between space shuttles and other rockets?

◆ Building Vocabulary

Write a brief description of each of the following.

5. geosynchronous orbit

6. satellite

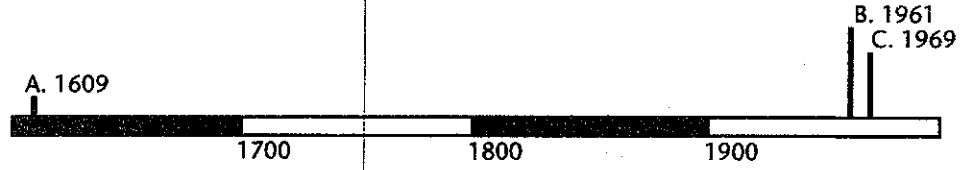
SECTION 19-4 REVIEW AND REINFORCE

Earth's Moon

◆ Understanding Main Ideas

Answer the following questions on the back of this page or on a separate sheet of paper.

1. How are the size and mass of the moon different from that of the Earth?
2. How do astronomers think the moon was formed?
3. Who was the first person to observe the moon through a telescope? What features of the moon did he identify?
4. Identify the major events in moon exploration marked on the time line below.



5. What new information about the moon did scientists learn from the Apollo mission?

◆ Building Vocabulary

Answer the following questions in the space provided.

6. How did Galileo make a telescope?

7. What are moon craters? How were they formed?

8. What are maria? How were they formed?

© Prentice-Hall, Inc.
© Prentice-Hall, Inc.

Name: _____

Class: _____

Choose the letter of the correct answer.

1. Galileo saw that much of the moon's surface is covered with round pits called
[A] highlands. [B] craters. [C] seas. [D] maria.

2. When the north end of Earth's axis is tilted toward the sun, North America will experience
[A] more indirect rays and longer days. [B] more direct rays and longer days.
[C] more direct rays and shorter days. [D] more indirect rays and shorter days.

3. An equinox occurs when
[A] Earth's axis is parallel to the sun's rays.
[B] neither end of Earth's axis is tilted toward or away from the sun.
[C] the north end of Earth's axis is tilted away from the sun.
[D] the north end of Earth's axis is tilted toward the sun.

4. The amount of the lighted side of the moon you can see is the same during the
[A] full moon and third quarter phases. [B] new moon and first quarter phases.
[C] new moon and full moon phases. [D] first quarter and third quarter phases.

5. The phase of the moon you see depends on
[A] where you are on Earth's surface.
[B] how much of the sunlit side of the moon faces Earth.
[C] how much of the moon's surface is lit by the sun.
[D] whether or not an eclipse is occurring.

6. One major use of space stations is
[A] to monitor the activities of other satellites. [B] to conduct scientific research.
[C] to obtain better photographs of Earth. [D] to launch trips to the moon.

7. Instruments left on the moon to measure heat flow show that
[A] most of the moon's interior is very hot.
[B] the center of the moon is molten.
[C] the moon's interior has cooled almost completely.
[D] the moon has high seismic activity.

Choose the letter of the correct answer.

8. You are less likely to see a solar eclipse than a lunar eclipse because
- [A] you must be in the moon's shadow to see a solar eclipse.
 - [B] only people on the daytime side of Earth can see a solar eclipse.
 - [C] the moon's shadow covers all of Earth during a lunar eclipse.
 - [D] new moon phases occur less often than full moon phases.
9. Rocket propulsion is based on
- [A] reducing friction as much as possible.
 - [B] having a four-stage booster system.
 - [C] having a streamlined nose cone.
 - [D] hot gas being propelled out of the rocket.
10. From new moon phase to full moon phase you see
- [A] a decreasing amount of the lighted side of the moon.
 - [B] the same amount of the lighted side of the moon.
 - [C] more of the lighted side, then less of the lighted side of the moon.
 - [D] an increasing amount of the lighted side of the moon.

Fill in the word or phrase that best completes the statement(s).

11. A rocket burns fuel to produce _____, which create a force that moves the rocket when it is expelled.
12. A lunar eclipse can only occur during the _____ phase.
13. Earth rotates on its axis about once every _____ hours.
14. Any object that revolves around another object in space is called a _____.
15. _____ rockets make it possible to travel into space.
16. According to the _____ theory, the moon was formed when a Mars-sized object collided with Earth.
17. Seasons on Earth are caused by the _____ of Earth's axis as Earth revolves around the sun.

Fill in the word or phrase that best completes the statement(s).

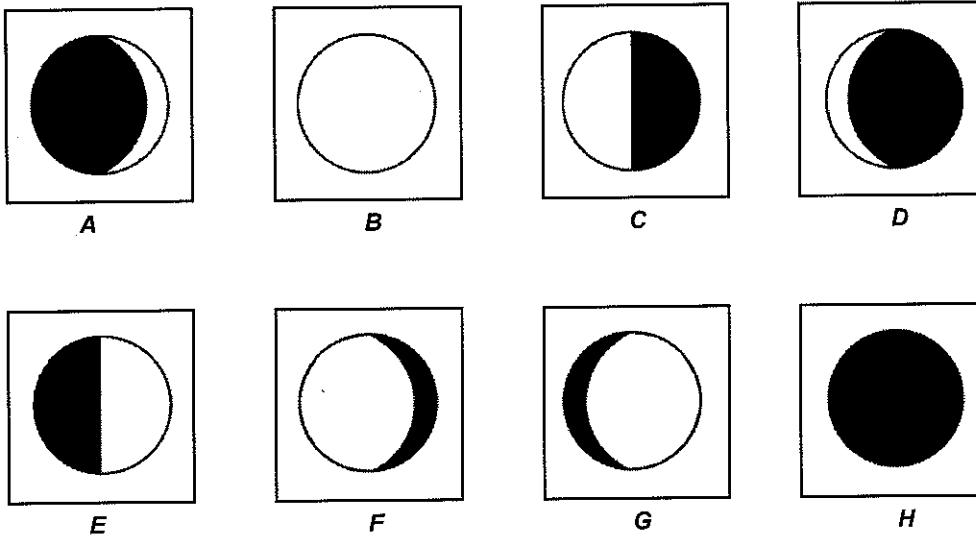
18. The times that day and night are of equal length are called _____.
19. The round pits on the moon are called _____.

If the statement is true, write true. If it is false, change the underlined word or words to make the statement true.

20. The moon's average density is greater than the density of Earth's outer layers.
21. The force of friction pulls the moon and Earth toward each other.
22. The phases of the moon depend on how much of the lighted side of the moon can be seen from Earth.
23. Scientists learned much about the moon by studying rocks brought back by astronauts.

Use the diagram to answer the question(s).

The Phases of the Moon



24. What are the phases shown in A and D called?
25. In phase E, from what direction is the sun shining?

Use the table to answer the question(s).

Tide Table

Baffin Bay Tide Data Table		
Day	Time	Height (meters)
Monday	6:00 A.M.	1.5
	2:00 P.M.	6.7
	10:30 P.M.	1.7
Tuesday	7:30 A.M.	6.5
	5:00 P.M.	1.9
Wednesday	3:00 P.M.	6.3
	1:30 P.M.	2.1
Thursday	12:30 A.M.	6.1
	12:30 P.M.	2.3
	12:00 A.M.	5.9

26. Predict the height of the next low tide that will occur after the 5.9-m tide on Thursday.
27. What pattern is there in the day-to-day height of the high tides? Of the low tides?

Write an answer to the following question(s).

28. Explain why it is warmer near the equator than it is near the poles.
29. Explain what happens as a three-stage rocket is launched and travels up into space.
30. Explain how some satellites can seem to remain motionless above a given point on Earth.

Thank you for evaluating AnyBizSoft PDF Splitter.

A watermark is added at the end of each output PDF file.

To remove the watermark, you need to purchase the software from

<http://www.anypdftools.com/buy/buy-pdf-splitter.html>