

Physical; Ch. 12 Test; Earth, Moon, & Sun

Multiple Choice

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

- _____ 1. When are tides highest?
 - a. during the moon's first quarter phase
 - b. when the sun, Earth, and the moon are nearly in a line
 - c. during the moon's third quarter phase
 - d. when the moon is at a right angle to the sun
- _____ 2. Tides are caused mainly by
 - a. Earth's rotation on its axis, which causes water to move.
 - b. differences in how much the sun pulls on different parts of Earth.
 - c. strong winds blowing water onto coasts.
 - d. differences in how much the moon pulls on different parts of Earth.
- _____ 3. When do neap tides occur?
 - a. at new moon
 - b. when the sun's pull is in the same direction as the moon's
 - c. when the sun's pull is at right angles to the moon's
 - d. at full moon
- _____ 4. Maria on the moon's surface were formed by ancient
 - a. oceans.
 - b. lava flows.
 - c. ice flows.
 - d. meteoroid impacts.
- _____ 5. Galileo saw that much of the moon's surface is covered with round pits called
 - a. highlands.
 - b. seas.
 - c. craters.
 - d. maria.
- _____ 6. Where might water be found on the moon?
 - a. in the atmosphere
 - b. inside moon rocks
 - c. near the poles
 - d. in the maria
- _____ 7. How large is the moon compared to Earth?
 - a. about the same diameter as Earth
 - b. about one-half the diameter of Earth
 - c. about one-fourth the diameter of Earth
 - d. about one-eighth the diameter of Earth
- _____ 8. The temperature of the moon's surface varies greatly from day to night because the moon has
 - a. maria.
 - b. no atmosphere.
 - c. many craters.

d. highlands.

- _____ 9. Scientists think the moon was formed when
- a. a large object struck Earth, and ejected material from the collision combined.
 - b. gravitational forces attracted a moon formed elsewhere in space.
 - c. meteoroids collected and solidified within the pull of Earth's gravity.
 - d. gases from Earth escaped from the atmosphere and condensed in space.
- _____ 10. Earth's rotation takes about
- a. 365 days.
 - b. 6 months.
 - c. 24 hours.
 - d. 1 month.
- _____ 11. Day and night are caused by
- a. the tilt of Earth's axis.
 - b. Earth's revolution around the sun.
 - c. eclipses.
 - d. Earth's rotation on its axis.
- _____ 12. One complete revolution of Earth around the sun takes about
- a. one rotation.
 - b. one season.
 - c. one year.
 - d. one eclipse.
- _____ 13. Earth has seasons because
- a. it rotates on its axis.
 - b. the distance between Earth and the sun changes.
 - c. its axis is tilted as it moves around the sun.
 - d. the temperature of the sun changes.
- _____ 14. When the north end of Earth's axis is tilted toward the sun, North America will experience
- a. more indirect rays and shorter days.
 - b. more indirect rays and longer days.
 - c. more direct rays and shorter days.
 - d. more direct rays and longer days.
- _____ 15. In the Southern Hemisphere, the summer solstice occurs when the sun is
- a. at the equator.
 - b. farthest south.
 - c. farthest north.
 - d. closest to Earth.
- _____ 16. An equinox occurs when
- a. neither end of Earth's axis is tilted toward or away from the sun.
 - b. the north end of Earth's axis is tilted away from the sun.
 - c. the north end of Earth's axis is tilted toward the sun.
 - d. Earth's axis is parallel to the sun's rays.
- _____ 17. All objects are attracted to each other by the force of
- a. weight.
 - b. mass.
 - c. inertia.

d. gravity.

- _____ 18. The strength of the force of gravity depends on
- a. the masses of the objects and their speeds.
 - b. the masses of the objects and the distance between them.
 - c. the weight of the objects and their speeds.
 - d. the masses of the objects and their weights.
- _____ 19. The two factors that combine to keep Earth and the moon in their orbits are
- a. gravity and orbital speed.
 - b. orbital speed and mass.
 - c. mass and inertia.
 - d. gravity and inertia.
- _____ 20. The tendency of a moving object to continue moving in a straight line or a stationary object to remain in place is called
- a. orbital speed.
 - b. mass.
 - c. inertia.
 - d. gravity.
- _____ 21. 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.
- _____ 22. For a solar eclipse to occur,
- a. the sun must be directly between Earth and the moon.
 - b. the moon must be directly between Earth and the sun.
 - c. the moon must be directly behind Earth.
 - d. Earth must be directly between the sun and the moon.
- _____ 23. During what phase of the moon can a lunar eclipse occur?
- a. new moon
 - b. first quarter
 - c. waxing gibbous
 - d. full moon
- _____ 24. Because the moon rotates once for each revolution around Earth,
- a. you see some phases more than others.
 - b. a different side of the moon faces Earth each day.
 - c. you never see the far side of the moon from Earth.
 - d. the far side of the moon is visible only during the full moon phase.
- _____ 25. The amount of the lighted side of the moon you can see is the same during
- a. new moon and full moon phase.
 - b. new moon and first quarter phase.
 - c. first quarter and third quarter phase.
 - d. full moon and third quarter phase.
- _____ 26. You are less likely to see a total solar eclipse than a total lunar eclipse because
- a. the moon's shadow covers all of Earth during a solar eclipse.
 - b. new moon phases occur less often than full moon phases.

- c. only people on the daytime side of Earth can see a solar eclipse.
 - d. the moon's umbra only covers a small area on Earth's surface.
- _____ 27. A total solar eclipse is visible from
- a. all over Earth.
 - b. only within the moon's umbra.
 - c. only within the moon's penumbra.
 - d. only the dark side of Earth.
- _____ 28. During a total lunar eclipse the moon is in Earth's
- a. corona.
 - b. penumbra.
 - c. umbra.
 - d. orbit.
- _____ 29. The amount of matter in an object is called the
- a. weight.
 - b. mass.
 - c. gravity.
 - d. inertia.
- _____ 30. If Earth's mass increased, the gravitational force between Earth and the moon would
- a. increase.
 - b. decrease.
 - c. remain the same.
 - d. disappear.

Modified True/False

Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

- _____ 31. A tide with the greatest difference between low and high tides is called a neap tide.
- _____ 32. Maria are flat areas, once flooded with lava, on the moon's surface.
- _____ 33. The moon's average density is greater than the density of Earth's outer layers.
- _____ 34. Scientists theorize that the moon formed after a planet-sized object collided with the sun.
- _____ 35. Day and night are caused by Earth's revolution on its axis. _____
- _____ 36. The phases of the moon depend on how much of the lighted side of the moon can be seen from Earth. _____
- _____ 37. Newton's law of universal gravitation states that every object in the universe attracts every other object. _____
- _____ 38. When you are riding in a car and it stops suddenly, gravity causes you to keep moving forward.
- _____ 39. On the moon, your mass would be about one sixth its normal value on Earth.

____ 40. The south end of Earth's axis is tilted toward the sun on the December equinox.

Completion

Complete each statement.

41. Tides are caused by the force of _____ from the sun and moon acting on Earth.
42. A tide with the least distance between low and high tides is called a(n) _____ tide.
43. The round pits on the moon are called _____.
44. Galileo called the dark, flat parts of the moon _____ because they looked like seas.
45. The moon's average density is about the same as the density of Earth's _____ layers.
46. According to the _____ theory, the moon was formed when a planet-sized object collided with Earth.
47. When a large object collided with Earth, debris from the collision was ejected into orbit and initially formed a(n) _____.
48. The sun and moon seem to move across the sky each day because of Earth's _____ on its axis.
49. The times when day and night are of equal length are called _____.
50. The moon can be seen from Earth because _____ reflects off the moon's surface.
51. The darkest part of the moon's shadow is called the _____.
52. Earth rotates on its axis about once every _____ hours.
53. The force that pulls the moon toward Earth is called _____.
54. The tendency for an object in motion to remain in motion is called _____.
55. The force of gravity on an object is the object's _____.
56. Newton's _____ says that an object at rest will stay at rest and an object in motion will stay in motion with a constant speed and direction unless acted on by an unbalanced force.
57. Earth is farthest from the sun during the _____ season in the Northern Hemisphere.
58. The craters that mark the moon's surface were caused by _____.
59. The moon has no atmosphere because of its relatively weak _____.
60. A solar eclipse can only occur during the _____ phase.

Short Answer

Use the diagram to answer each question.

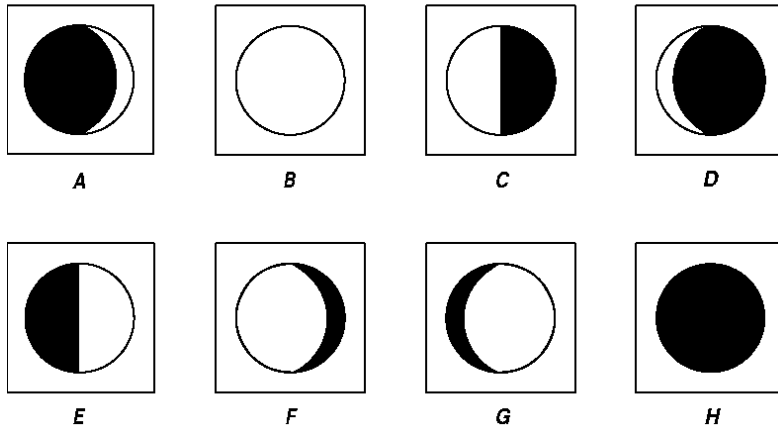
Tide Table

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

61. Describe how the height of the tides changes from Monday to Thursday.
62. What is the difference in height between low tide and high tide on Wednesday?
63. Are the tides approaching a spring tide or a neap tide? Explain.
64. If you were piloting a ship to a town on Baffin Bay, what would be the best day and time to arrive at the town? Explain.
65. How many tides will occur on Monday? How many are high tides? How many are low tides?
66. Predict the height of the next low tide that will occur after the 5.9-m tide on Thursday.

Use the diagram to answer each question.

The Phases of the Moon



67. Number the phases of the moon in the order that they occur, beginning with the new moon as number 1.
68. Approximately how much time passes between H and B?
69. Which two phases are gibbous moons?
70. What are the phases shown in A and D called?
71. In phase E, from what direction is the sun shining?
72. Where is the moon in relation to Earth and the sun during phase B?

Essay

73. Explain why spring tides are higher than all other tides.
74. Describe the range of temperatures on the moon and explain why they vary so much.
75. Describe how scientists think the moon was formed.
76. Explain why it is generally warmer near Earth's equator than it is near the poles.
77. Explain how a lunar eclipse differs from a solar eclipse.
78. Explain how day and night occur.
79. Explain how inertia and gravity combine to keep Earth in its orbit.
80. How would the moon move if the force of gravity suddenly disappeared? How would the moon move if inertia suddenly disappeared? Explain your reasoning.

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Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: L2
OBJ: CaPS.12.3.3 Identify what causes the tides. STA: S 8.2.g
BLM: comprehension
2. ANS: D PTS: 1 DIF: L1
OBJ: CaPS.12.3.3 Identify what causes the tides. STA: S 8.2.g
BLM: knowledge
3. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.3.3 Identify what causes the tides. STA: S 8.2.g
BLM: knowledge
4. ANS: B PTS: 1 DIF: L1
OBJ: CaPS.12.4.1 Describe features found on the moon's surface.
STA: S 8.4.e BLM: knowledge
5. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.4.1 Describe features found on the moon's surface.
STA: S 8.4.e BLM: knowledge
6. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.4.1 Describe features found on the moon's surface.
STA: S 8.4.e BLM: knowledge
7. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.4.2 Identify some characteristics of the moon. STA: S 8.4.e
BLM: knowledge
8. ANS: B PTS: 1 DIF: L1
OBJ: CaPS.12.4.2 Identify some characteristics of the moon. STA: S 8.4.e
BLM: knowledge
9. ANS: A PTS: 1 DIF: L1
OBJ: CaPS.12.4.3 Explain how the moon formed. STA: S 8.4.e
BLM: knowledge
10. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e
BLM: knowledge
11. ANS: D PTS: 1 DIF: L1
OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e
BLM: knowledge
12. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e
BLM: knowledge
13. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.1.2 Explain what causes the cycle of seasons on Earth.
STA: S 8.4.e BLM: knowledge

14. ANS: D PTS: 1 DIF: L2
OBJ: CaPS.12.1.2 Explain what causes the cycle of seasons on Earth.
STA: S 8.4.e BLM: comprehension
15. ANS: B PTS: 1 DIF: L1
OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e
BLM: comprehension
16. ANS: A PTS: 1 DIF: L1
OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e
BLM: knowledge
17. ANS: D PTS: 1 DIF: L1
OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two objects. STA: S 8.2.g BLM: knowledge
18. ANS: B PTS: 1 DIF: L1
OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two objects. STA: S 8.2.g BLM: knowledge
19. ANS: D PTS: 1 DIF: L1
OBJ: CaPS.12.2.2 Describe two factors that keep the moon and Earth in orbit.
STA: S 8.2.g BLM: knowledge
20. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.2.2 Describe two factors that keep the moon and Earth in orbit.
STA: S 8.2.g BLM: knowledge
21. ANS: B PTS: 1 DIF: L1
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: knowledge
22. ANS: B PTS: 1 DIF: L1
OBJ: CaPS.12.3.2 Describe solar and lunar eclipses. STA: S 8.4.d
BLM: knowledge
23. ANS: D PTS: 1 DIF: L2
OBJ: CaPS.12.3.2 Describe solar and lunar eclipses. STA: S 8.4.d
BLM: comprehension
24. ANS: C PTS: 1 DIF: L2
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: comprehension
25. ANS: C PTS: 1 DIF: L2
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: comprehension
26. ANS: D PTS: 1 DIF: L2
OBJ: CaPS.12.3.2 Describe solar and lunar eclipses. STA: S 8.4.d
BLM: analysis
27. ANS: B PTS: 1 DIF: L1
OBJ: CaPS.12.3.2 Describe solar and lunar eclipses. STA: S 8.4.e
BLM: knowledge
28. ANS: C PTS: 1 DIF: L1
OBJ: CaPS.12.3.2 Describe solar and lunar eclipses. STA: S 8.4.e
BLM: knowledge

29. ANS: B PTS: 1 DIF: L1
OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two objects. STA: S 8.2.g BLM: knowledge
30. ANS: A PTS: 1 DIF: L2
OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two objects. STA: S 8.2.g BLM: application

MODIFIED TRUE/FALSE

31. ANS: F, spring
- PTS: 1 DIF: L1 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.2.g BLM: knowledge
32. ANS: T PTS: 1 DIF: L1
OBJ: CaPS.12.4.1 Describe features found on the moon's surface.
STA: S 8.4.e BLM: knowledge
33. ANS: F, similar to
- PTS: 1 DIF: L1
OBJ: CaPS.12.4.2 Identify some characteristics of the moon. STA: S 8.4.e
BLM: knowledge
34. ANS: F, Earth
- PTS: 1 DIF: L1 OBJ: CaPS.12.4.3 Explain how the moon formed.
STA: S 8.4.e BLM: knowledge
35. ANS: F, rotation
- PTS: 1 DIF: L1
OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e
BLM: knowledge
36. ANS: T PTS: 1 DIF: L1
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.e
BLM: knowledge
37. ANS: T PTS: 1 DIF: L1
OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two objects. STA: S 8.2.g BLM: knowledge
38. ANS: F, inertia
- PTS: 1 DIF: L2
OBJ: CaPS.12.2.2 Describe two factors that keep the moon and Earth in orbit.
STA: S 8.2.g BLM: application
39. ANS: F, weight
- PTS: 1 DIF: L2
OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two

objects.
40. ANS: F, solstice
STA: S 8.2.g BLM: application
PTS: 1 DIF: L2
OBJ: CaPS.12.1.2 Explain what causes the cycle of seasons on Earth.
STA: S 8.4.e BLM: comprehension

COMPLETION

41. ANS: gravity
PTS: 1 DIF: L1 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.4.e BLM: knowledge
42. ANS: neap
PTS: 1 DIF: L1 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.2.g BLM: knowledge
43. ANS: craters
PTS: 1 DIF: L1
OBJ: CaPS.12.4.1 Describe features found on the moon's surface.
STA: S 8.4.e BLM: knowledge
44. ANS: maria
PTS: 1 DIF: L1
OBJ: CaPS.12.4.1 Describe features found on the moon's surface.
STA: S 8.4.e BLM: knowledge
45. ANS: outer
PTS: 1 DIF: L3
OBJ: CaPS.12.4.2 Identify some characteristics of the moon. STA: S 8.4.e
BLM: knowledge
46. ANS: collision-ring
PTS: 1 DIF: L1 OBJ: CaPS.12.4.3 Explain how the moon formed.
STA: S 8.4.e BLM: knowledge
47. ANS: ring
PTS: 1 DIF: L1 OBJ: CaPS.12.4.3 Explain how the moon formed.
STA: S 8.4.e BLM: knowledge
48. ANS: rotation
PTS: 1 DIF: L2
OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e
BLM: comprehension

49. ANS: equinoxes

PTS: 1 DIF: L1

OBJ: CaPS.12.1.2 Explain what causes the cycle of seasons on Earth.

STA: S 8.4.e BLM: knowledge

50. ANS: sunlight

PTS: 1 DIF: L2

OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d

BLM: comprehension

51. ANS: umbra

PTS: 1 DIF: L1

OBJ: CaPS.12.3.2 Describe solar and lunar eclipses.

STA: S 8.4.d BLM: knowledge

52. ANS: 24

PTS: 1 DIF: L1

OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e

BLM: knowledge

53. ANS: gravity

PTS: 1 DIF: L1

OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two objects. STA: S 8.2.g BLM: knowledge

54. ANS: inertia

PTS: 1 DIF: L1

OBJ: CaPS.12.2.2 Describe two factors that keep the moon and Earth in orbit.

STA: S 8.2.g BLM: knowledge

55. ANS: weight

PTS: 1 DIF: L1

OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two objects. STA: S 8.2.g BLM: knowledge

56. ANS: first law of motion

PTS: 1 DIF: L3

OBJ: CaPS.12.2.2 Describe two factors that keep the moon and Earth in orbit.

STA: S 8.2.g BLM: knowledge

57. ANS: summer

PTS: 1 DIF: L2

OBJ: CaPS.12.1.2 Explain what causes the cycle of seasons on Earth.

STA: S 8.4.e BLM: comprehension

58. ANS: meteoroids

- PTS: 1 DIF: L2
OBJ: CaPS.12.4.1 Describe features found on the moon's surface.
STA: S 8.4.e BLM: comprehension
59. ANS: gravity
- PTS: 1 DIF: L3
OBJ: CaPS.12.4.2 Identify some characteristics of the moon. STA: S 8.4.e
BLM: analysis
60. ANS: new moon
- PTS: 1 DIF: L2 OBJ: CaPS.12.3.2 Describe solar and lunar eclipses.
STA: S 8.4.d BLM: comprehension

SHORT ANSWER

61. ANS:
The high tides get lower and the low tides get higher.
- PTS: 1 DIF: L2 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.2.g BLM: analysis
62. ANS:
4.2 m
- PTS: 1 DIF: L2 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.2.g BLM: analysis
63. ANS:
Neap tide; the difference between high and low tides is decreasing.
- PTS: 1 DIF: L2 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.2.g BLM: analysis
64. ANS:
Monday at 2 PM, because the tide is highest then and the ship will be less likely to hit a rock or run aground.
- PTS: 1 DIF: L3 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.2.g BLM: synthesis
65. ANS:
three tides: two low tides and one high tide
- PTS: 1 DIF: L2 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.2.g BLM: analysis
66. ANS:
about 2.5 m

PTS: 1 DIF: L2 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.4.d BLM: analysis
67. ANS:
H 1; A 2; E 3; G 4; B 5; F 6; C 7; D 8

PTS: 1 DIF: L2
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: analysis
68. ANS:
about 2 weeks (14.8 days)

PTS: 1 DIF: L2
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: analysis
69. ANS:
F and G

PTS: 1 DIF: L2
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: analysis
70. ANS:
crescent moons

PTS: 1 DIF: L2
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: analysis
71. ANS:
from the right

PTS: 1 DIF: L2
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: analysis
72. ANS:
The moon is on the opposite side of Earth from the sun.

PTS: 1 DIF: L3
OBJ: CaPS.12.3.1 Explain what causes the phases of the moon. STA: S 8.4.d
BLM: synthesis

ESSAY

73. ANS:
Spring tides occur when the moon, the sun, and Earth all line up. At this time, the pull of the sun's and moon's gravity on Earth is strongest, so the tides are the highest.

PTS: 1 DIF: L2 OBJ: CaPS.12.3.3 Identify what causes the tides.
STA: S 8.4.d BLM: comprehension

74. ANS:

Temperatures range from 130°C in direct sunlight to -180°C at night. Temperatures vary so greatly because the moon has no atmosphere.

PTS: 1 DIF: L2
OBJ: CaPS.12.4.2 Identify some characteristics of the moon. STA: S 8.4.e
BLM: comprehension

75. ANS:

When Earth was young, a large object collided with Earth. Debris from the object and Earth was thrown into orbit around Earth. Over time, this material combined to form the moon.

PTS: 1 DIF: L2 OBJ: CaPS.12.4.3 Explain how the moon formed.
STA: S 8.4.e BLM: comprehension

76. ANS:

Near the equator, sunlight hits Earth's surface more directly. Near the poles, however, sunlight hits Earth's surface at an angle. The same amount of energy is spread out over a larger area. As a result, it is generally colder near the poles.

PTS: 1 DIF: L2
OBJ: CaPS.12.1.2 Explain what causes the cycle of seasons on Earth.
STA: S 8.4.d BLM: comprehension

77. ANS:

During a lunar eclipse, Earth is directly between the sun and the moon, causing the moon to pass through Earth's shadow. During a solar eclipse, the moon is directly between the sun and Earth, casting a shadow upon Earth.

PTS: 1 DIF: L2 OBJ: CaPS.12.3.2 Describe solar and lunar eclipses.
STA: S 8.4.d BLM: analysis

78. ANS:

Earth rotates on its axis in a twenty-four hour cycle. The part of Earth that faces the sun is lighted and experiences day. As Earth turns, its rotation eventually moves the lighted area to face away from the sun. The lighted side grows dark and experiences night.

PTS: 1 DIF: L2
OBJ: CaPS.12.1.1 Demonstrate how Earth moves in space. STA: S 8.4.e
BLM: comprehension

79. ANS:

Inertia tends to make Earth travel in a straight line. Gravity from the sun pulls Earth toward the sun. These two factors acting together cause Earth to remain in a stable orbit around the sun.

PTS: 1 DIF: L2
OBJ: CaPS.12.2.1 Identify what determines the strength of the force of gravity between two objects. STA: S 8.2.g BLM: knowledge

80. ANS:

The force of gravity helps keep the moon in orbit around Earth. Earth's gravity keeps pulling the moon toward it, preventing the moon from moving in a straight line. Without gravity, the moon's inertia would cause it to move off through space in a straight line, with a constant speed and direction, unless acted on by an unbalanced force, as stated in Newton's first law of motion. Like gravity, inertia also helps keep the moon in orbit around Earth. Without inertia, Earth's gravity would pull the moon in toward Earth, perhaps causing a massive collision between the two objects.

PTS: 1

DIF: L3

OBJ: CaPS.12.2.2 Describe two factors that keep the moon and Earth in orbit.

STA: S 8.2.g

BLM: synthesis