

Name: _____

Date: _____ Period: _____

The Moon

CLASS NOTES

- Moon - _____

- There are _____ moons in our solar system
- Theory of Earth's Moon Formation:
 - Co-formation Theory
 - Capture Theory
 - Fission Theory
 - Giant Impact Theory
- Giant Impact Theory - _____

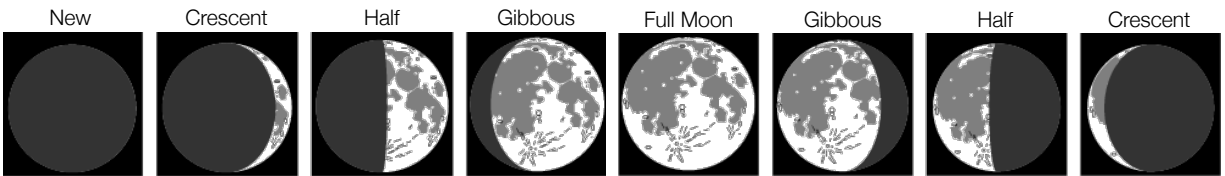
- The Moon - _____

- The Moon orbits is _____
- The plane of the moon's orbit is inclined to Earth's at about _____ degrees
- One orbit is _____ days
- The Moon rotates once every _____ days
- Half of the moon is always in _____
- As the moon _____ around Earth the _____ portion changes due to our viewing angle
- As a result, the moon appears to change shape during the month creating the phases

The Moon

- Phases of the Moon:
 - Crescent Moon - phase that is _____ than half way full
 - Full Moon - phase that appears as an entire circle in the sky
 - Gibbous Moon - phase when the moon is _____ than half way full
 - New Moon - phase where _____ part is visible from the Earth
 - Waxing Moon - to _____ in size [lit portion] gradually
 - Waning Moon - to _____ in size [lit portion] gradually

“Light on right... moon grows bright!” - A. Camera



- The lunar phase cycle is _____ days
 - The Moon spends the extra 2.2 days "catching up" due to Earth traveling an additional 45 million miles in its revolution around the Sun

- Umbra - _____

- Penumbra - _____

The Moon

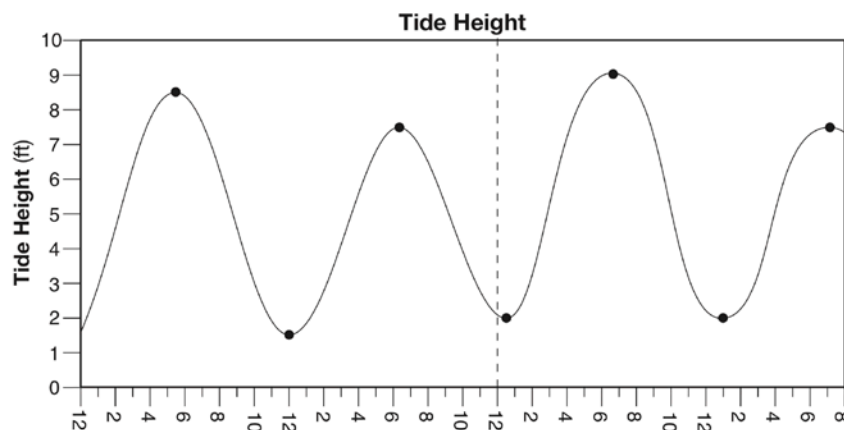
- Solar Eclipse - _____

 - Occurs only during a _____
 - The moon's umbra has a width of about _____ km
 - Duration is up to _____ minutes as it passes over
- Lunar Eclipse - _____

 - Occurs during a _____ phase
 - The moon remains visible as a red-orange color due to some sunlight being refracted through Earth's atmosphere into the umbra
 - Duration may last for up to _____ hours
- Tides - _____

 - Tides are caused by the Moon's gravity, Sun's gravity and the rotation of the Earth
 - One tidal cycle is _____ hrs and _____ mins
 - Spring Tides - _____

 - Neap Tides - _____



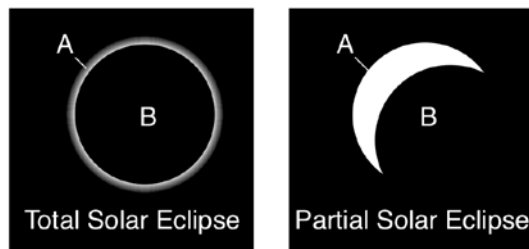
The Moon

PART I QUESTIONS: MULTIPLE CHOICE

Base your answers to questions 1 through 2 on the passage below and on your knowledge of Earth Science.

On September 27, 2015, a rare total lunar eclipse of a supermoon occurred. A supermoon occurs when the entire lighted half of the Moon faces Earth [full Moon phase] and the Moon is at its closest point to Earth in its orbit. At this time, the Moon will appear 14% larger and 30% brighter than normal. Supermoon events are rare, but a total lunar eclipse during a supermoon is even more rare. There have been only six total supermoon lunar eclipses since 1900. The next one will not happen until 2033.

1. Supermoon total lunar eclipses are celestial events that
 - a. are random occurrences
 - b. will never happen again after 2033
 - c. are predictable
 - d. will happen every full Moon
2. The time it took for the Moon to go from this supermoon to the next full moon phase was
 - a. 15 days
 - b. 27.3 days
 - c. 29.5 days
 - d. 365 days
3. The Moon has more surface craters than Earth does because the Moon has
 - a. a smaller diameter than Earth
 - b. no significant atmosphere
 - c. a surface more sensitive to impacts
 - d. a stronger gravitational force
4. The photographs show two types of solar eclipses. Letters A and B represent two celestial objects.

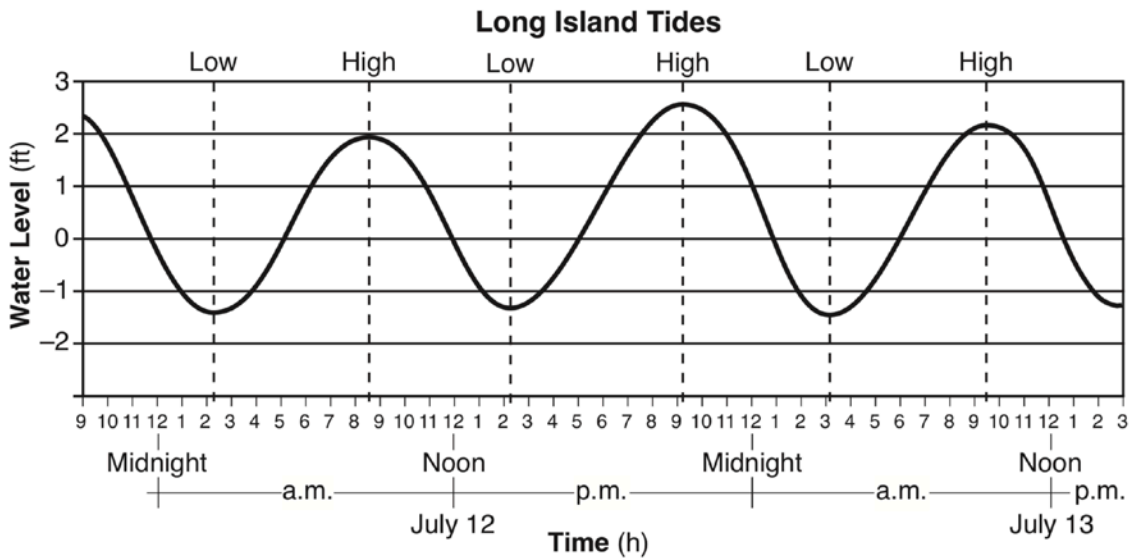


Which two celestial objects are represented by letters A and B?

- a. A-Moon; B-Sun
- b. A-Sun; B-Moon
- c. A-Moon; B-Earth
- d. A-Sun; B-Earth

The Moon

Base your answers to questions 5 through 8 on the graph below and on your knowledge of Earth Science. The graph below shows ocean water levels for a shoreline location on Long Island, New York. The graph also indicates the dates and times of high and low tides.



5. Based on the data, what day and approximate time experienced the highest tide?
 - a. July 12 at 8:30 am
 - b. July 12 at 9:10 pm
 - c. July 13 at 3:10 am
 - d. July 13 at 9:20 am

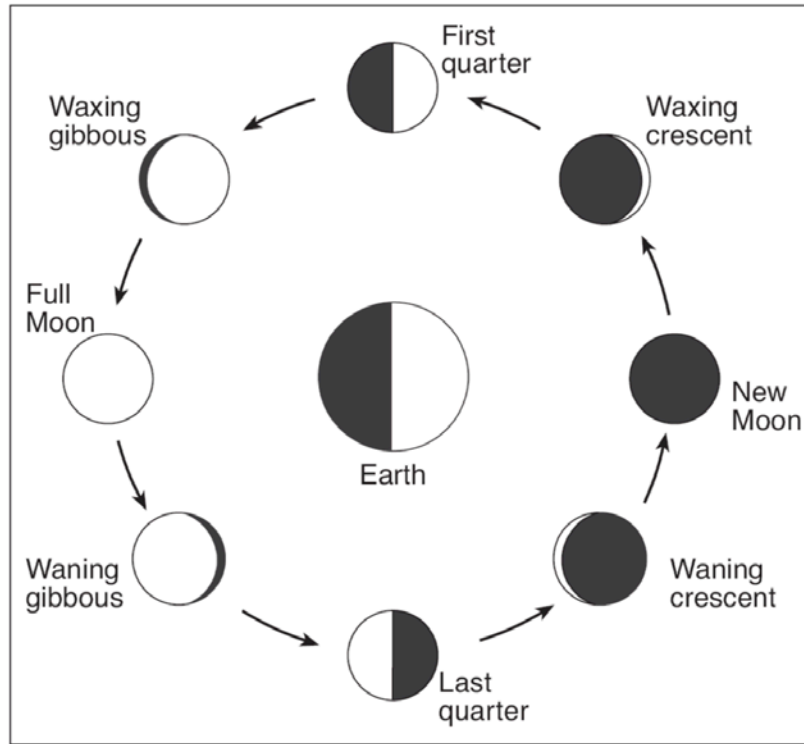
6. Based on the data, the next high tide occurred at approximately
 - a. 4 pm on July 13
 - b. 4 pm on July 14
 - c. 10 pm on July 13
 - d. 10 pm on July 14

7. Which inference about tides is best made from the given graph?
 - a. The tidal change is a random event.
 - b. The tidal change is cyclic.
 - c. The hourly rate of tidal change is always the same.
 - d. The rate of tidal change is greatest at high tide.

8. The Moon has a greater effect on the Earth's ocean tides than the Sun has because the
 - a. Moon is closer to the Earth than the Sun is
 - b. Sun has a higher density than the Moon
 - c. Sun has a higher temperature than the Moon
 - d. Moon has a greater mass than the Sun

The Moon

Base your answers to questions 9 through 11 on the diagram below and your knowledge of Earth science. The diagram shows positions of the Moon in its orbit and phases of the Moon as viewed from NYS.



(Not drawn to scale)

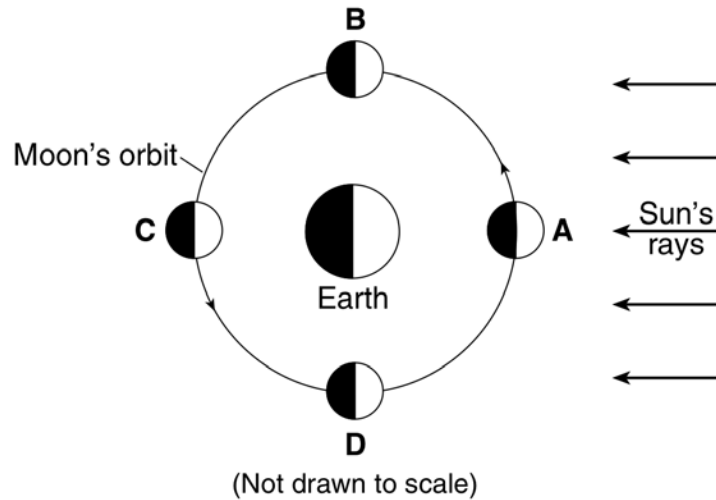
9. During which Moon phase might a solar eclipse be viewed on Earth?
 - a. first quarter
 - b. full Moon
 - c. last quarter
 - d. new moon

10. Approximately how many days occur between the first-quarter phase and last-quarter phase?
 - a. 7 days
 - b. 15 days
 - c. 29.5 days
 - d. 365.26 days

11. Which statement best explains why the same side of the Moon is always viewed from Earth?
 - a. The Moon does not rotate as it revolves around Earth.
 - b. The Moon's period of rotation equals Earth's period of rotation.
 - c. The Moon's period of rotation equals Earth's period of revolution around the Sun.
 - d. The Moon's period of rotation equals the Moon's period of revolution around Earth.

The Moon

Base your answers to questions 12 through 13 on the diagram below and your knowledge of Earth Science. The model shows the Moon's orbit around Earth. Letters A, B, C, and D represent four positions in the orbit.

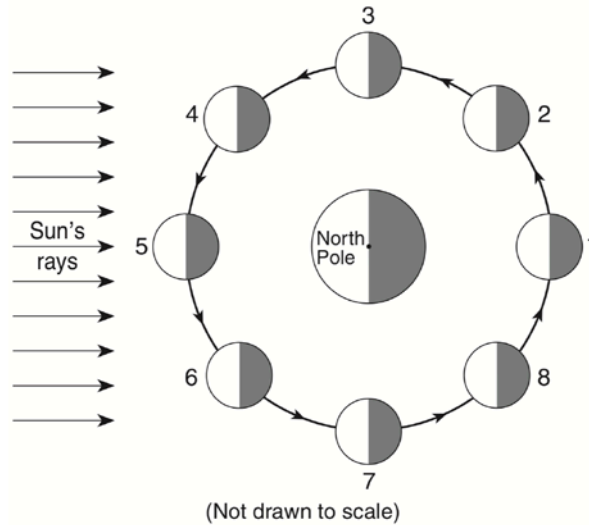


12. What is the approximate length of time the Moon takes to travel from position A to position C?
- 1 day
 - 15 days
 - 30 days
 - 365 days
13. As viewed from the Earth, which phase of the Moon will be seen when the Moon is at point A?
- first quarter
 - last quarter
 - new moon
 - full moon
14. Eclipses do not occur every month because the Moon's
- orbit is inclined to Earth's orbit
 - period of revolution is 27.3 days
 - period of rotation and period of revolution are the same
 - rate of rotation is 15° each hour
15. The passage of the Moon into Earth's shadow causes a
- lunar eclipse
 - new Moon
 - solar eclipse
 - full Moon

The Moon

PART II QUESTIONS: FREE RESPONSE

Base your answers to questions 16 through 19 on the diagram below and on your knowledge of Earth science. The diagram represents Earth as viewed from above the North Pole. The nighttime side of Earth and the Moon have been shaded. The Moon is represented in eight positions in its orbit around Earth.



16. As viewed from the Earth, which phase of the Moon will be seen when the Moon is at position 1?
17. Identify by number the Moon's position where a solar eclipse might be observed from Earth.
18. How does the Moon's rotation and revolution cause the same side of the Moon to always face Earth.
19. In the circle below, shade the part of the Moon that appears dark to an observer in New York State when the Moon is at phase 2.

